Protective Processes in Adolescence: Matching Stressors with Social Resources[1]

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Working within the "matching theory" of social supports, this research focuses on depressed mood and examines how resilience to stress during adolescence is shaped by developmental constraints on the use of support for coping with problems in the family, peer, and personal arenas. The sample is 1,036 adolescents systematically drawn from 3 community high schools in the Boston area. Predictions center on the efficacy of peer and family supports, and two intraindividual protective factors: sense of mastery and sense of social integration. Findings indicate little evidence of cross-domain stress buffering (where family support buffers the effects of peer stress on mood, and vice versa), suggesting that family and peer domains are more distinct during this stage of development. Protective effects for friendship stresses are evidenced, but boys are more able than girls to marshal their personal and support resources in managing friendship problems. Discussion centers on matching theory and the role of development in shaping coping responses to stress.

KEY WORDS: stress-buffering processes; cross-domain coping.

This study investigates the patterns of stress buffering evidenced in relation to depressed mood in a community sample of high school aged adolescents. High rates of depressed mood, depressive syn-

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dromes, and depressive disorders occur during adolescence and there is evidence that normative and nonnormative life transitions and stresses predict changes in depressed affect (Peterson et al., 1993). The research draws upon the matching theory of social support to examine how the "match" or "mismatch" between different types of stresses and resources affects stress-buffering processes. In its general form, the idea of matching with respect to social support assumes that social supports can only be effective in buffering the emotional effects of life stress when there is a "match" or fit between qualities of the support system or supportive behaviors and key features of stressful stimuli (Cutrona & Russell, 1990; Gore, 1985; see also Berndt, 1989; Cauce, Hannan, & Sargeant, 1992; Jackson, 1992).

A considerable body of research has examined social support systems and protective processes during adolescence. Studies have consistently emphasized the role of family supports in promoting psychological well-being, reducing problem behavior, and, specifically, in buffering the emotional effects of stress (cf. Barrera, Chassin, & Rogosch, 1993; Greenberg, Siegel, & Leitch, 1983; Wills, Vaccaro, & McNamara, 1992). These and many other studies of stress and mental health have examined the importance of supportive resources that are embedded in different arenas of functioning—the family, peer, and school arenas, but have worked with global or aggregate measures of stress, and not dealt with the question of how supportive ties might be differentially utilized or relevant to particular classes of stresses (Dubois, Felner, Brand, Adan, & Evans, 1992). This line of investigation is especially relevant to stress and coping during the adolescent years. The shift in orientation from parental to peer relationships involves increased exposure to and salience of stresses in the peer world, and the heightened significance of experiences in this domain for maturation (Berndt, 1989; Csikszentimihalyi & Larson, 1987; Selman, 1980). The world of parents and family remains important, but it becomes less closely intertwined with other arenas of experience. Burke and Weir (1978), for example, examined adolescents' evaluations of parents and peers as helpers, finding that high school students felt more inclined to talk with peers than parents about having a bad day, and were more satisfied with peers' help than parents' help for this situation.

Building on the extensive body of research on adolescent stress, support systems and coping resources, this paper focuses on the dimensionality of both stressors and protective resources to test stress-buffering models derived from a developmental perspective on matching theory.

MATCHING THEORY: DEVELOPMENTAL CONSTRAINTS ON PROTECTIVE PROCESSES

Table I summarizes our predictions for stress buffering involving family-related, peer-related, and personal stresses. We consider three classes of social and intraindividual resources that may moderate (or amplify) the emotional effects of these stresses: perceived support from parents, perceived support from peers, and self-perceptions of mastery and social integration.

Our matching logic begins by considering the role of resources in either the family or peer domains in offsetting stresses arising in the other domain. Concerning these "cross-domain" buffering effects, the extent to which family support may buffer the effects of problems with friends, and friend support may buffer the effects of family-related problems, may be very limited during this period of development. We expect this because the increasing differentiation between peer and family arenas of social interaction should affect whether the adolescent will view members of a particular class of supporters as appropriate helpers for stressful peer- and family-related stimuli. Normative changes involving the renegotiation of parent–child relationships should be especially relevant to adolescents' management of stresses stemming from their involvement with peers. Adolescents will be less likely to solicit the support of parents for peer-related problems, since they increasingly want to be autonomous in managing friendship ties. Hence, in Table I, we place a minus sign next to family support buffering the impact of peer problems.

Cross-domain buffering involving peer support for family-related stress should also be constrained by the increasing differentiation between family and peer domains of interaction. The increased salience of the peer world (Larson & Asmussen, 1991) and evidence indicating that adolescents

Table I. Developmental Constraints on Stress Buffering: Hypothesized Protective Effects

Class of stress events	Class of protective factor	Stress-buffering potential
Family-related stress	Family support	−
	Peer support	−
	Psychological resources	+
Peer-related stress	Family support	−
	Peer support	+
	Psychological resources	+
Personal stress	Family support	+
	Peer support	+
	Psychological resources	+

view many family problems as a source of stigma (Gottlieb, 1991), suggest
that the heightened self-consciousness of adolescence, combined with the
use of the peer group to meet needs for acceptance and inclusion, work
against disclosure of family problems and support-seeking from peers for
these problems. In addition, the serious nature of many family problems
and their uncontrollable quality may compromise the effectiveness of peer
support efforts that do take place. So, both the seriousness of family prob-
lems and social psychological barriers to support seeking work against
stress-buffering involving peers for family problems.

   Although family and peer supporters may not be mobilized for cross-
domain support, both sets of persons may be sought out for helping with
more personal stresses, such as dealing with work- and school-related prob-
lems, health problems, and victimizing experiences. This class of personal
stress includes many high impact acute events that do not by their nature
limit the helping role of family and friends, as described above. Adolescents
must turn to parents for some of these problems (health care events), and
family involvement tends to be immediate for others (car accidents).
Friends should also be important supporters for personal events because
many of these events occur at work or in school and happen to others in
the friendship network. Of course, it is not assured that parents or friends
will be optimally trustworthy or supportive, or that the help provided will
serve to reduce distress. The issue addressed here, however, is that the
developmental constraints on the use of supports for family- and peer-re-
lated stresses should not apply for this category of stressful experience. As
indicated in Table I, we expect to see a key role for family and peers in
buffering the effects of personal stresses.

   Concerning within-domain stress-buffering processes, we expect to
find little evidence of protective processes involving family supports for
family problems, but peer supports should be effective in buffering the ef-
fects of peer-related stresses. These expectations derive from the social psy-
chological theory that when key supportive relationships also contain
elements of conflict their supportive potential is reduced (Lepore, 1992;
Rook, 1984). This state of affairs is likely to occur in the family domain
due to its small size, and its fixed, relatively enduring configuration. These
features of the family may serve to reduce the substitutability of potential
supporters, making it likely that both conflict and support will involve the
parents.[3] Conflict may inhere in specific friendship ties as much as in family

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[3]There is some contradictory evidence on this issue. Focusing on adolescent self-esteem,
substance use, and deviant behavior, Barrera, Chassin, and Rogosch (1993) found that the
relationship between maternal support and adolescent deviance was strong and negative for
adolescents who experienced high maternal conflict, which was not the case for adolescents
who experienced low conflict. This interaction is interpreted to suggest that the effect of

ties. The friendship domain is usually larger than the family, however, and its fluidity in membership, with the opportunity to find new supporters when other relationships become strained, allows adolescents to seek help in dealing with negative friendship experiences. Thus, Table I indicates our prediction for little buffering potential involving stresses and supports within the family and our expectation that peer support should be helpful for peer-related stress.

Stress-Buffering Functions of Intraindividual Resources

For some time now research on risk and resiliency has recognized the distinction between protective variables such as social support and individual difference variables such as sense of efficacy or instrumentality (Eckenrode, 1983; Towbes, Cohen, & Glyshaw, 1989; Wills et al., 1992). Self-evaluative constructs have been identified as important factors in research on depression (Bemporad & Wilson, 1978; see Block & Gjerde, 1990; Hammen, 1988), including depression among adolescents (Garber, Weiss, & Shanley, 1993). In addition to the social support variables, we focus on two self-perception variables, sense of mastery and sense of social integration, which are important stress-buffering resources for youthful populations (Sandler, Miller, Short, & Wolchik, 1989). In contrast with the issues of matching just considered, these intraindividual resources should shape reactivity to stressors in all the domains considered in this analysis, as noted in Table I.[4]

Gender Differences in Protective Processes

Since the inception of research on risk and resiliency there has been a concerted focus on gender differences, especially with respect to depressed mood (Nolen-Hoeksema & Girgus, 1994; Rutter, 1987). Based on an extensive literature review, Nolen-Hoeksema and Girgus (1994) argued that girls evidence higher risk of depression because of their ruminative coping style and diminished sense of instrumentality, and also because they face unique

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maternal support is enhanced rather than reduced by the presence of conflict in the relationship. It is interpreted with caution by the researchers, however, and was found only for externalizing behaviors. In a study of adults, Jackson (1992) found that spouse support buffered the negative effects of marital role strain.

[4]However, like social supports, some types of self-perceptions or other personal attributes might best buffer stresses in particular domains of experience. For example, Cohen and Edwards (1989) have argued that a high academic locus of control should be an important moderator for stressors in the school domain. In the present study, however, our more global self-evaluations and three classes of stressors involving family, peer, and personal events do not lend themselves to hypotheses about this type of matching.

challenges during the early adolescent period. Building on this view, this paper also explores whether there are gender differences in the ability to mobilize effective coping resources in response to stress. We do not advance predictions concerning gender differences in the matching processes hypothesized above. However, there is some research on the issue of gender differences in the effectiveness of social ties in alleviating distress that warrants addressing this issue. For example, Bush and Simmons (1987) have argued that because girls are more sensitive to stresses of an interpersonal nature, girls will be more distressed by many of the experiences of adolescence, and will cope less effectively because their self-evaluative processes are contingent upon the highly changeable social input of their potential supporters. If this line of thinking is valid, high levels of supportive involvements in dealing with interpersonal stress may amplify negative emotion for girls, reducing the efficacy of their friendship ties as coping resources.

METHOD

Sample

Data for these analyses come from a prospective study of the stress process in the high school years. The first wave of the study, conducted in the spring of 1988, was based on a systematic probability sample of 9th, 10th, and 11th graders in three community high schools in the Boston area. Of the 1,576 students selected, only 61 were ineligible for participation due to parental refusal. Of the selected students, 78% (n = 1,208) agreed to take part in the initial wave of the study. These youths were subsequently reinterviewed in 1989 and 1990, at approximately 1 year intervals. In Wave 2, interviews with 1,036 of these youths were obtained, constituting 86% of those initially interviewed. Although students were reinterviewed in a third wave of the study, the analyses for this paper utilize the first and second data collections only, since the oldest cohort of students were no longer in high school at the third wave and evidenced changes in their family and peer relationships at that time. Field work was conducted by professional interviewers from the Center for Survey Research, University of Massachusetts–Boston. All study variables are based upon self-report data.

At each wave, consent was obtained from the parents of students under 18 years of age after introducing them to features of the study and its goals through a personal letter and fact sheet sent to the home. Initially, parents not wanting their students to participate informed the school of this so that their child could be removed from the lists. In later waves,

parents informed the investigators directly via a postage-paid card. Student consent was obtained in person at the time of the interview.

These students may be regarded as representative of the public high school population in these communities. The median incomes of the three communities according to the 1990 census were $36,590, $43,490, and $60,566. As a whole the sample does not include many youths from extremely disadvantaged circumstances, and is almost entirely Caucasian. The initial sample consists of 523 boys and 685 girls, over 99% of whom were between the ages of 14 and 17 at the time of the initial interview. Regarding panel attrition, adolescents coming from lower socioeconomic status (SES) backgrounds were slightly less likely to be reinterviewed in Wave 2. Other descriptive characteristics of the sample are summarized in Table II.

Measures

Depressed Mood. The measure of depressive symptoms used in these analyses is the Center for Epidemiologic Studies Depression Scale (CES-D), a 20-item self-report measure of the number of days depressive symptoms were experienced over the past week (Radloff, 1977). The response catego-

Table II. Sample Characteristics (N = 1,208, at Time 1)

Variable	%
Sex	
Male	43.4
Female	56.6
Grade	
9	31.9
10	34.9
11	33.2
Parents employment	
Mother employed	76.6
Father employed	94.5
Mother's highest education	
8th grade or less	5.2
Some high school	7.3
High school	42.3
Some college or tech	17.4
College grad or more	27.8
Father's highest education	
8th grade or less	6.4
Some high school	8.1
High school	33.2
Some college or tech	13.4
College grad or more	38.9

ries employed are identical to those used in the standard adult form, with each symptom rated as occurring: *Rarely or none of the time (less than 1 day of the week, Some or a little of the time (1–2 days), A lot of the time (3–4 days,* or *Most of the time (5–7 days).* Item scores are summed and standardized to have a mean of 0 and a variance of 1. The reliability of the scale (Cronbach's alpha) is .89 in both study waves. Although use of the CES-D does not yield diagnostic estimates, Roberts, Andrews, Lewinsohn, and Hops (1990) conducted validation studies of the CES-D with numerous samples of high school students. Their data showed adequate test–retest coefficients and good internal consistency, and that elevated scores on the CES-D were predictive of clinical depression. According to Achenbach (1991), depressed mood is the single most powerful symptom differentiating adolescents who are referred or not referred for clinical treatment.

Stressful Life Events. The measures of negative life events are derived from a 61-item measure of life events which draws largely from the instrument developed by Compas, Davis, Forsythe, and Wagner (1987), as well as other similar tools (Coddington, 1972; Johnson & McCutcheon, 1980; Newcomb, Huba, & Bentler, 1981). Respondents completed parallel inventories for the occurrence of significant events to themselves, their friends, and their family members as part of a more comprehensive approach to stress assessment that is increasingly used in research on both adults (Kessler & McLeod, 1984) and children (Compas & Wagner, 1991). Three indices were created from these life event inventories: personal events (events directly affecting the adolescent), family members' events, and friends' events. Each of these scales consists of the unweighted sums of events in this domain. The family life events measure includes undesirable events of parents and siblings that are likely to affect the adolescent both directly and indirectly, through the family environment. The friends' life events measure includes major disruptive stressors involving friends directly, such as having health or alcohol problems, or leaving home, or problems involving friends' family life. Our interest in gender reinforced attention to these kinds of friendship stressors due to the line of thinking advanced by Kessler and McLeod (1984) that girls may be more reactive than boys to social network stresses. The actual items that constitute these scales and the other stress and social support measures described below are presented in Appendix A.

Friend and Family Relationship Problems. Consistent with the position taken by Compas and Wagner (1991) that many of the most salient stressors of adolescence involve disruptions and problems in interpersonal relationships, we also used items from the life events inventory to construct indices relating to the occurrence of interpersonal difficulties with friends and family members. Problems with parents is a dichotomous indicator of either the occurrence of a new problem or an increase in problems with

parents. Interpersonal problems with friends is a dichotomous measure of whether the respondent was rejected by or otherwise lost a friend or friends. Although the inventory contained several items pertaining to conflict with friends and family members, the uncertainty over whether these events could be summed as independent events led us to construct these as dichotomous measures, indicating a distinction between no interpersonal conflict in this arena, versus some degree of conflict.

Social Support. The measure of emotional support from family, adapted from Procidano and Heller (1983), comprises three items assessing the degree to which the parents make the child feel loved and wanted, trust the child, and the extent to which the child enjoys being with family members. The reliability of the scale (Cronbach's alpha) is .65 at Time 1 and .71 at Time 2. The 2-item measure of emotional support from friends consists of questions assessing the degree to which friends make the youth feel that they care, and express interest in what he/she is doing. Cronbach's alpha for this scale is .56 at Time 1 and .65 at Time 2. The lower than desirable reliabilities of these measures is a study limitation considered further in the Discussion. In contrast with these measures of perceived social support, an alternative measure of "enacted" social support, assessing frequency of talking with friends, is captured by an 8-item index consisting of various content issues (e.g., the way you handle your school work, sexual concerns), with a 4-point scale assessing frequency of talking from *often* to *never*. Cronbach's alpha for this scale is .78 at Time 1 and .76 at Time 2.

Intraindividual Coping Resources. In contrast with the measures of social support, the intraindividual protective resources may be applicable to coping and management of emotion across social settings. Sense of mastery is a 7-item index developed by Pearlin, Lieberman, Menaghan, and Mullan (1981) and is one of many approaches to assessment of the self-efficacy construct. Cronbach's alpha for the mastery index is .70 and .74 at Time 1 and Time 2, respectively. To represent a social counterpart to this global self-evaluation we used items from the UCLA loneliness scale (Russell, Peplau, & Cutrona, 1980) to create a scale representing perceived adequacy of attachments to others (Weiss, 1974). The loneliness scale must be understood as a proxy measure for the social integration construct because it was developed to assess a continuum of negative experience (loneliness), with scores at the low end of the scale indicating the absence of loneliness, rather than various degrees of social integration.[5] Although not developed

[5]Although breaches in social integration are often manifested in experienced loneliness, these two constructs are not referencing identical sentiments. The UCLA loneliness measure assesses degree of negative cognition concerning relationships, and measures of social integration typically assess degree of affiliative involvements. Recent studies have established that constructs focusing on similar phenomena, but tapping positive and negative cognitions

for the purpose intended here, this 6-item scale taps the experience of membership or belonging (e.g., that your interests and ideas are shared by those around you), and has reliabilities of .84 at Time 1 and .83 at Time 2. Since high scores on this measure indicate greater degrees of loneliness, we reverse coded the scale with the other social support and resource variables, facilitating interpretation of effects.

Control Variables. In addition to sex, age, and family structure (1 = two biological parents, 0 if otherwise), two indicators of SES are used as control variables in the multivariate analyses: the family's standard of living is assessed through a measure of income adequacy (Dubnoff, 1985). The youths were asked "What best describes your family's standard of living— would you say you are very well off, living very comfortably, living reasonably comfortably, just getting along, nearly poor, or poor?" Parents' highest level of educational attainment is measured with an ordinally scaled variable that ranges from completion of fewer than eight grades of school to having reached graduate or professional school.

Except for the life events indices, all independent variables were normed to have upper and lower limits of 1 and 0 by summing the items in each scale, subtracting the minimum value, and dividing by the maximum value. This procedure ensures comparable metrics across study variables. Missing values are assigned to the sample mean. There were very few missing data at both the item and scale levels, not exceeding 2% of the sample for any measure. Zero-order correlations among all study variables at the first and second interviews are presented in Table III.

Analysis Plan

In the following analyses, we first present a main effects model in which the social support and intraindividual resource variables serve as protective factors by reducing overall levels of distress. We next test the "stress-buffering" hypothesis by examining the conditional effects of the stress and resource variables, using a series of interactive models to determine the extent to which stress effects vary by the availability of protective resources. The issue of gender differences in these processes involves the estimation of three-way interactions to examine the conditional effects of stress and resource variables separately among boys and girls.

As in all studies utilizing a two-wave panel design and assessments of stressful life events, it is essential to work with a time lag between predictors and outcomes that reflects an understanding of the process under

about such phenomena have different predictive associations with external criteria. (For example, see Marshall et al., 1992, on the distinction between optimism and pessimism.)

Table III. Bivariate Correlations Among Study Variables[a]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Depression₁	—																				
2. Self events₁	.285	—																			
3. Family events₁	.263	.327	—																		
4. Friend events₁	.273	.325	.289	—																	
5. Problems w/parents₁	.266	.284	.259	.355	—																
6. Problems w/friends₁	.212	.188	.159	.163	.170	—															
7. Family support₁	-.234	-.269	-.268	-.172	-.232	-.101	—														
8. Friend support₁	-.109	-.084	-.060	.100	.028	-.049	.140	—													
9. Mastery₁	-.472	-.198	-.196	-.084	-.206	-.100	.295	.203	—												
10. Integration₁	-.415	-.234	-.192	-.141	-.216	-.210	.326	.304	.474	—											
11. Talk w/friends₁	.147	.070	.070	.190	.169	.091	-.005	.352	-.069	-.080	—										
12. Depression₂	.513	.218	.179	.170	.212	.178	-.261	-.103	-.379	-.369	.104	—									
13. Self events₂	.261	.410	.275	.209	.181	.096	-.225	-.077	-.183	-.181	.068	.323	—								
14. Family events₂	.242	.289	.478	.212	.258	.112	-.183	-.009	-.157	-.148	.111	.228	.372	—							
15. Friend events₂	.202	.200	.251	.444	.266	.180	-.179	.026	-.117	-.142	.161	.238	.293	.277	—						
16. Problems w/parents₂	.182	.127	.133	.146	.293	.076	-.141	-.012	-.131	-.170	.152	.212	.218	.229	.201	—					
17. Problems w/friends₂	.131	.106	.094	.151	.112	.171	-.049	-.004	-.078	-.155	.156	.228	.139	.126	.191	.130	—				
18. Family support₂	-.234	-.230	-.179	-.163	-.190	-.067	.521	.108	.277	.293	.015	-.357	-.248	-.164	-.124	-.268	-.051	—			
19. Friend support₂	-.089	-.091	-.033	.070	.014	-.057	.168	.432	.141	.157	.288	-.122	.006	.006	.033	-.018	.009	.197	—		
20. Mastery₂	-.354	-.159	-.148	-.090	-.113	-.125	.291	.154	.576	.363	-.036	-.521	-.220	-.172	-.119	-.166	-.117	.331	.144	—	
21. Integration₂	-.337	-.201	-.147	-.150	-.169	-.169	.288	.203	.386	.584	-.074	-.543	-.146	-.140	-.181	-.202	-.223	.311	.264	.520	—
22. Talk w/friends₂	.062	.000	.028	.171	.128	.076	.076	.292	.002	-.007	.547	.081	.056	.099	.162	.124	.112	.091	.395	-.018	.002

[a]Numeric subscripts denote Time 1 and Time 2 assessments. Correlations exceeding .10 are statistically significant at the .01 level.

consideration (Cohen & Wills, 1985). In our analyses, we use the Time 2 assessments of stressors as predictors because these events are reported to have occurred in the past year, sometime after the Time 1 interview, which makes for a time lag no longer than 1 year between event occurrence and the possible impact on depressed mood during the past week. Selection of a longer time lag, which would be the case if the Time 1 assessment of stress were used, is inconsistent with the fairly acute nature of the expected stress reaction involving depressed mood. We also used the Time 2 assessments of protective factors in our regression models since we would expect the stressors to be appraised and acted upon within the same time frame. Using the Time 2 stresses and protective factors as predictors, our analyses control for the effects of depressed mood, the stresses and protective factors, all assessed at Time 1, on the Time 2 measure of depressed mood. In this way, the coefficients associated with the effects of the stresses and resources assessed at Time 2 could be interpreted to represent the impact of *changes* in these variables from Time 1 to Time 2 on *changes* in depressed mood. Although we think our analytic strategy reflects the processes under consideration, this approach does not utilize the prospective nature of the data to establish a clear temporal ordering of independent and dependent variables, and requires interpretation of findings on the basis of concurrent assessments of stressors, protective factors, and depressed mood. For example, we are assuming that changes in the stressors and protective factors bring about changes in depressed mood, but findings of this nature could also reflect the opposite process: Changes in depressed mood may bring about changes in stressors and changes in support perceptions. This limitation of the study is considered further in the Discussion.

RESULTS

Additive Effects of Risk and Protective Resources

The main effects of changes in the stress and resource variables on changes in depressed mood over the study period are presented in Table IV. Overall, these results from the full regression model were consistent with prior research on adolescent samples, as virtually all of the measures of life stresses and relationship strains were associated with increases in depressed mood, whereas the measures of social and intraindividual resources were significantly related to decreases in depressed mood. An exception to this pattern was the positive association between frequency of talking with friends and depressed mood. Because some of the questions that assessed frequency of these interactions pertained to talking about "mi-

nor family problems" or "problems with friends," it is possible that this measure was also picking up a degree of stress in the lives of adolescents who often talk with friends. Table IV also indicates that the additive effects of mastery and social integration were particularly strong. Although moderately correlated with depressed mood in both study waves (see Table III), the two measures of family stresses—negative family events and relationship problems with parents—were not significantly related to depressed mood, suggesting that their depressive effects were completely accounted for by deficits in social and intraindividual resources. Finally, consistent with previous research, adolescent females reported higher levels of depressive symptoms at Time 2 than did males, an effect that cannot be explained by changes in the stress and resource variables.

Protective Processes: Matching Protective Factors and Domains of Stress

Hypotheses regarding stress-buffering processes must be tested in interactive models which imply that the effect of a particular stressor is conditional upon the level of a particular resource; in other words, a stressor may have strong depressive effects in a low resource context but little im-

Table IV. Regressing Change in Depressed Mood on Changes in Stress and Resource Variables[a]

	b	SE
Life events		
Personal events	.127[b]	.025
Family events	.024	.030
Friend events	.048[b]	.020
Relationship problems		
With parents	−.021	.067
With friends	.180[b]	.060
Resource variables		
Talking with friends	.312[b]	.164
Friend support	−.009	.161
Family support	−.730[b]	.150
Social integration	−1.590[b]	.159
Mastery	−1.070[b]	.146
Gender	.116[b]	.052
$R^2 = .519$[b]		

[a]Coefficients are unstandardized. Models controlled for Time 1 measures of depressed mood and all stress and resource variables, and for age, family type, standard of living, and parents' education.
[b]$p \leq .05$, one-tailed tests.

pact when resources are at high levels. To test for stress buffering, a series
of equations elaborating the full additive model were estimated, each con-
taining a product term for the conditional effects of a stress variable with
a particular resource, controlling for the main effects of all Time 1 and
Time 2 stresses and resources. Each interaction was tested separately due
to the moderate to high levels of intercorrelation among the interaction
terms. Because we have directional hypotheses for these effects, one-tailed
tests of significance are presented.

Table V presents the significant interaction terms obtained from these
equations, along with the main effects of the variables constituting each
interaction. Of the 9 significant terms (out of 25 possible tests), 8 have a
negative sign and are consistent with a stress-buffering interpretation. To
more closely examine these effects, all 9 conditional associations were
graphed. The slopes presented in Figure 1, illustrating the effects of family
support on depressed mood conditional on level of personal events, reveal
a traditional stress-buffering effect, in that adolescents who had high levels
of support did not have elevated depressive symptoms when experiencing
one or more personal stresses.[6] The pattern seen in Figure 1 also summa-
rizes the general form of the other seven interaction terms having a nega-
tive sign. Included among these is the interaction between personal events
and talking with friends ($b = -.243$, $SE = .116$), which suggests that enacted
support from peers mitigated the negative effects of personal problems.
This conditional effect is interesting, because in the additive model this
resource variable was associated with higher, not lower, levels of depressed
mood. The findings in Table V also indicated that the ability of support
from family and friends to buffer the effects of problems or stresses within
their respective domains was limited to friend events, which were buffered
by friend support ($b = -.164$, $SE = .097$).

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[6]Because the relationship stressors were dichotomous variables and the other life event
variables could be straightforwardly reduced to a dichotomy for the presence or absence of
these stresses (see Cleary & Kessler, 1982, for discussion), Figures 1–3b present the slopes
of the relevant protective resources on depressed mood separately among those with and
without a particular type of stress. To plot these conditional associations, the regression
models presented in Tables V and VI were first reestimated using the dichotomized life
events measures. Then a series of mathematically equivalent models were estimated, in which
the main effect of the particular resource variable was omitted and replaced with a product
term for the conditional effect of that variable in the *absence* of the stressor in question.
For example, to estimate the equation yielding the slopes graphed in Figure 1, the main
effect of family support was omitted from the equation and was replaced by a term for the
product of family support and a dichotomous variable representing the absence of personal
events in the past year (coded 1 if no events, 0 otherwise). By reparameterizing this equation
in this fashion, separate slope coefficients for the effects of family support among those with
and without major personal stresses were obtained.
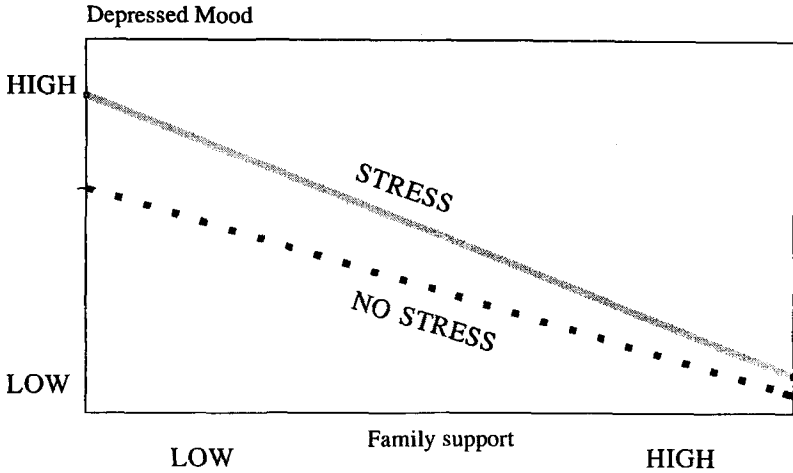
Depressed Mood

Fig. 1. Conditional effects of family support and personal stress. This figure presents the slope of family support on depressed mood, separately among youth with and without major personal stresses (see Note 4).

Table V. Protective Effects of Social Support and Intraindividual Resources: Significant Two-Way Interactions[a]

Stress × resource interaction	Main effects		
	Stress variable	Resource variable	Interaction effects
Personal Events × Family Support	$.252^b$ (.075)	$-.494^b$ (.200)	$-.166^b$ (.094)
Personal Events × Talking with Friends	$.283^b$ (.079)	$.574^b$ (.206)	$-.243^b$ (.116)
Family Events × Family Support	$-.217^b$ (.098)	$-.959^b$ (.173)	$.315^b$ (.121)
Friend Events × Friend Support	$.186^b$ (.084)	$.123$ (.178)	$-.164^b$ (.097)
Friend Events × Mastery	$.185^b$ (.056)	$-.894^b$ (.159)	$-.225^b$ (.086)
Friend Events × Social Integration	$.141^b$ (.052)	-1.460^b (.172)	$-.160^b$ (.083)
Problems with parents × Social Integration	$.331$ (.213)	-1.510^b (.165)	$-.609^b$ (.351)
Problems with Friends × Mastery	$.604^b$ (.176)	$-.934^b$ (.154)	$-.700^b$ (.273)
Problems with Friends × Social Integration	$.599^b$ (.174)	-1.430^b (.170)	$-.715^b$ (.279)

[a]Each row presents regression coefficients (and standard errors) from separate models estimating the additive and interactive effects of particular Time 2 stress and resource variables. Models controlled for the main effects of all 10 stress and resource variables measured at both Times 1 and 2, Time 1 depressed mood, and the 5 background variables.
[b]$p \leq .05$, one-tailed tests.

There were five significant interaction terms in Table V involving mastery and social integration. These intraindividual protective resources were particularly effective in ameliorating the impact of turmoil in friendship networks. The coefficients for the interactions of both mastery and social integration with friendship-related stresses were all negative, and for these interactions, like the others, graphs indicated that having these resources to draw on when faced with diverse friendship stresses reduced their emotional impact. In addition, social integration ameliorates the negative effects of interpersonal problems with parents (b = -.609, SE = .351). Consistent with our hypotheses regarding the developmental constraints on cross-domain buffering processes, there was no evidence that friend support ameliorated the effects of family stresses, nor was there evidence that family support shielded youths from problems with friends.

In contrast with this pattern of interactions, we observed a different conditional association involving family support and family events, which is presented graphically in Figure 2. In contrast with the idea of stress buffering, this figure shows that *unsupported* youth are somewhat protected from the emotional effects of family turmoil, being no more depressed than those who have no family problems. It is likely that youth who feel less family support are able to distance themselves from family problems, bringing about some mental health benefits. This finding, though unexpected,
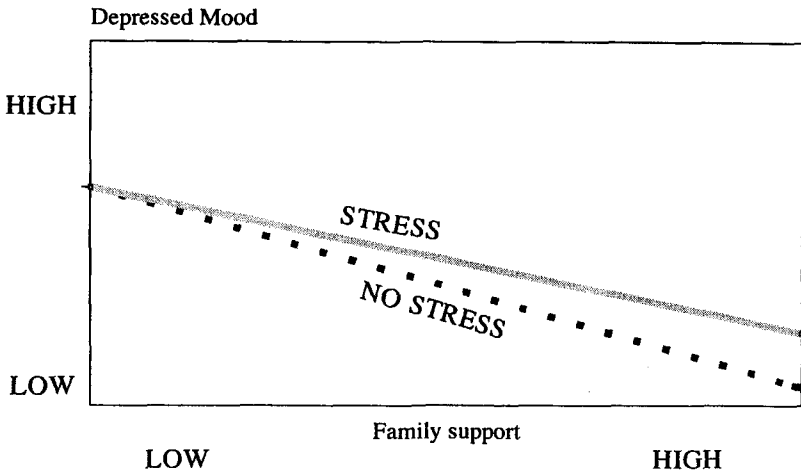

Fig. 2. Conditional effects of family support and family stress. This figure presents the slope of family support on depressed mood, separately among youth with and without major family stresses (see Note 4).

is consistent with a considerable body of research on parental divorce indicating that for some children who experience family turmoil successful coping involves distancing themselves from family relations (Wallerstein & Kelly, 1980).

The extent to which these findings offer support for the hypotheses should be carefully evaluated. As shown in Table I, the predictions suggested an enhanced potential for stress buffering in the friendship domain, in contrast with constraints on the effective use of peer or family support in the family domain. In addition, because matching constraints should not be operative for the domain of personal stressors, we hypothesized maximum stress-buffering potential for this class of stressors. On the whole, the evidence is strongest for the predictions involving the family and peer stresses and supports. Stress-buffering effects were also evidenced for the personal stressors, but there were fewer than expected. Thus, although the pattern of effects provided a good fit with the hypotheses, only 9 of the 17 hypothesized stress-buffering effects were statistically confirmed. For example, we would have expected talking with friends to buffer the effects of friend stress, as was the case with friend support, but there was no such evidence. As noted above, because some items in this measure linked frequency of interaction to talking about problems, this measure may be confounding level of support with level of stress. In addition, in evaluating these findings, it must be emphasized that for matching theory predictions to be supported stress-buffering effects must be evidenced. For several of our predictions negative findings are not surprising and say more about the nature of stress than about matching theory. For example, mastery and social integration did not buffer the effects of family events on depression, which is not unexpected because many family events represent eruptions in long standing problems that are relatively intractable. In sum, although all predictions were not confirmed, a total of eight stress-buffering interactions were observed, a number that is unlikely to have occurred by chance. Evidence indicates that youths can successfully draw upon family to cope with serious personal events, reaffirming the role of family supports in adolescent stress resistance. Consistent with our predictions, there were no interactions involving family stress and peer support, but the broader base of coping resources appears to be useful for ameliorating the effects of peer-related stressors.

Gender Differences in Resilience

The final research question concerns the extent to which these results are further specified through a consideration of gender. To test for gender

differences in protective processes, the regression models estimated in the previous analyses were expanded to include terms representing three-way interactions involving gender, each stressor, and each protective factor, along with all lower order interaction terms. (The intercepts, main effects, and lower order interaction terms for the variables constituting each three-way interaction are presented in Appendix B).

Table VI presents the statistically significant three-way interaction effects obtained in these analyses. Here, we utilized two-tailed tests of significance, because we did not have strong directional hypotheses. In the first column of this table the coefficients for the three-way interactions are presented, while Columns 2 and 3 compare the corresponding Stress × Resource interactions, separately for boys and girls. For the most part, gender differences in stress-buffering processes were restricted to the friendship domain, and for each of these three-way interactions, the gender difference favored boys. In other words, boys appeared to be more effective in drawing upon social and intraindividual resources in the face of serious friendship stresses than did girls. Comparing the results in Columns 2 and 3 of this table, we see that both the Friend Problems × Family Support (b = −1.45, SE = .505) and the Friend Problems × Friend Support coefficients (b = −1.48, SE = .483) were negative and significant for boys but weak and positive for girls, suggesting that social support from both sources—even from within the family domain—served as effective buffers of boys' problems with their friends. Figure 3a and b shows the striking difference between boys and girls in this respect. For boys, there was a stress-buffering pattern involving friendship support and friendship problems. High levels of social support were indeed protective, but the other aspect of this interaction was the extreme vulnerability of boys to depressed mood when they had a combination of high events and low support. There was no stress-buffering effect for the girls. Instead, Figure 3b shows data consistent with the idea that strong involvement with friends can amplify stress effects. With respect to the intraindividual resources, gender differences were also striking. Graphs of these gender-specific processes indicated that mastery and social integration served to ameliorate the effects of friendship conflict for boys but not for girls. In contrast, the conditional effect of problems with parents and mastery is stronger among girls (b = −.803, SE = .406), indicating an important resource that served to buffer the effects of family stresses for girls.

Two findings among the gender interactions further elucidate the conclusions we have reached about the matching predictions. First, most prominently, buffering processes associated with friendship problems and involving peer support and the global protective factors are not as effective for girls as for boys. This signifies that for the one domain of experience where matching theory predicts that psychosocial resources can be very use-

Table VI. Gender Differences in Protective Processes: Significant Three-Way Interactions[a]

Stress × Resource	3-way interaction b (SE)	Boys b (SE)	Girls b (SE)
Problems with Parents × Mastery	-1.40^b (.632)	.520 (.466)	$-.803^b$ (.406)
Problems with Friends:			
× Family Support	1.74^b (.667)	-1.45^b (.505)	.518 (.408)
× Friend Support	2.22^b (.680)	-1.48^b (.433)	$.781^c$ (.463)
× Mastery	1.48^b (.585)	-1.62^b (.440)	$-.204$ (.358)
× Integration	1.59^b (.624)	-1.92^b (.481)	$-.340$ (.360)

[a]This table presents coefficients for the significant three-way interactions of gender with the Time 2 stress and resource variables. Models controlled for all lower order interaction terms, the main effects of the 10 stress and resource variables measured at both Time 1 and 2, Time 1 depressed mood, and the 5 background variables. Columns 2 and 3 present coefficients for the Two-Way Stress × Resource interactions, separately by sex.
[b]$p \leq .05$.
[c]$p \leq .10$.

ful in reducing depressed mood, this is not the case for girls. Second in the two-way interactions we did not find family support to be efficacious in buffering the effects of friendship stresses, but further analysis reveals stress buffering in this domain for boys and not girls. Again, this finding indicates a protective advantage for boys over girls and underscores the continuing role of family support in boys' management of peer-related problems. This finding, however, is inconsistent with the cross-domain matching predictions. Finally, the results do reveal an additional stress-buffering effect not evidenced in the overall analysis. For girls, sense of mastery is useful in buffering the emotional effects of problems with parents.

DISCUSSION

The point of departure for this work is our interest in the implications of adolescent development for more refined approaches to the study of social supports, as is increasingly called for in stress research. Social developmental changes during adolescence were expected to constrain the ability of certain types of support to protect youths from the effects of certain types of stresses. The pattern of findings was consistent with our predictions: The depressive effects of stresses in family and friendship domains were not buffered by social resources that youths may be unable or unwilling to draw upon to meet the challenge elicited by those stressors. However, peer and family resources did enable youths to effectively manage other types of stresses (such as personal events).

Boys

Depressed Mood

HIGH

STRESS

NO STRESS

LOW

Friend support

LOW   HIGH

Girls

Depressed Mood

HIGH

NO STRESS

STRESS

LOW

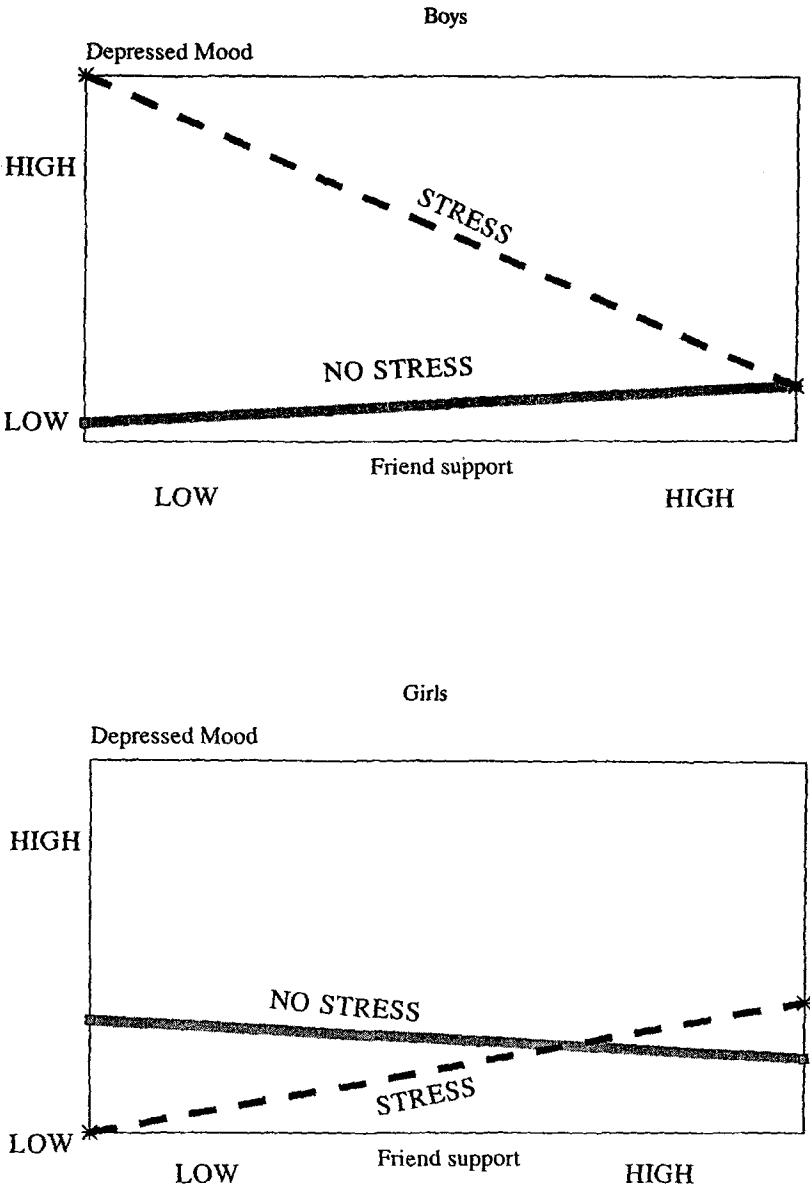LOW   Friend support   HIGH

Fig. 3. Conditional effects of friend support and friend stress (a) for boys, (b) for girls. This figure presents the friend slope of support on depressed mood for boys and girls, separately among those with and without major friend stresses (see Note 4).

Previous research has indicated that the friendship domain is a source of preoccupation and negative emotion in adolescence (Larson & Asmussen, 1991). Our findings also underscore the salience of friendships. Findings from the additive model (see Table IV) indicate that both measures of friendship-related stresses were strongly associated with change in depressed mood. The interactive models yielded five significant stress-buffering effects involving the two friendship-related stressors, suggesting that the emotional impact of friendship stressors can be managed if protective resources are adequate. But this does not appear to be the case for girls where interpersonal problems with friends are involved. Boys' support from peers buffered the negative emotions associated with this conflict, while for girls, having strong peer support appeared to amplify emotional responses to stress. From the viewpoint of matching theory, these findings highlight a problem in girls' regulation of stress: The friendship domain is one domain for which peers and the global resources have the potential to be quite efficacious, but this does not occur for girls.

This pattern of findings is consistent with the position taken by Nolen-Hoeksema and Girgus (1994) on girls' depressed mood in suggesting that girls are more affected than boys by the stresses of adolescence. However, our data diverge from their view by revealing problems in the *mobilization* of protective resources, whereas they emphasize the *availability* of protective resources among girls. More research at the intersection of gender socialization theory and the matching theory of stress buffering is called for. In addition, some attention should be given to the finding that sense of support may function to intensify depressive responses to stress among girls. This effect may reflect the fact that girls who report high levels of support from a class of individuals are also highly invested in those relationships. When stresses jeopardize those relationships, distress is likely to follow. For boys, it seems, support and emotional investment may not be so closely intertwined. Because there is only limited evidence of this phenomenon in these analyses, however, it should not be overemphasized.

In contrast with findings on friendships, there were many fewer protective effects involving family stresses. Some previous research has suggested that family conflict constrains the mobilization of family support, leading us to predict that family support would not buffer the negative effects of family conflict. In one important respect our findings do not appear to support this theoretical position. The pattern shown in Figure 2 suggests that *low* levels of family support actually seem to be protective for adolescents who experience family stresses. While seemingly counterintuitive, this finding is consistent with other research showing that youths tend to detach themselves from troubled family environments, resulting in a diminished emotional vulnerability to family stresses (Wallerstein & Kelly, 1980).

To date, much research on stress-buffering processes has examined whether social supports and other coping-related resources are present or absent, and has proceeded on the assumption that when stress buffering does not occur, the interactive model of stress-buffering must be called into question. This paper suggests that this decision should not be made on this basis, since a consideration of the match or mismatch among particular stresses and resources might dictate a limited set of buffering effects in the first place. Our findings not only lend support to the utility of matching stressful stimuli and protective resources but extend this line of thinking through consideration of the norms that define the appropriate match. That is, processes of support are developmentally and normatively guided (Jacobson, 1986), thus limiting or channeling the effective use of these resources. It is perhaps for this reason that some researchers argue that social support may be widely called upon as an avenue of last resort, or for the strategic purpose of bolstering self-esteem, which is a central factor in the regulation of negative emotion (Pearlin et al., 1981). The fact that some types of protective factors have very specific domains within which they can operate also offers one reason why having more coping-related resources is better.

Finally, these distinctive patterns of interactions should also encourage more research that examines how the functioning of protective resources is shaped by social context. In examining stress-buffering processes, we have considered the well-documented developmental changes in the adolescent's orientation to parents and peers, and have also considered how gender might further specify these relationships. The limitations of our data do not allow us to explore whether these patterns might differ for adolescents from different racial or ethnic backgrounds, or for those who are very poor. Theory in these areas should be reviewed, and the implications for stress buffering should be examined. In addition, an interesting question is whether we would have found more protective effects involving parental support for peer-related problems had our sample been somewhat younger, and thus less immersed in the peer world, or somewhat older, and had passed through the period of heightened tensions with parents. The relative age homogeneity of our high school population prohibited us from pursuing this issue, so we see our findings as documenting a pattern of stress buffering during a very specific set of adolescent years.

Study Limitations

Limitations of the study design and instrumentation necessarily temper our interpretations of findings and limit generalizations. First, regarding

measurement, the somewhat low reliability of the friend and family support measures may have played a role in confirming our predictions that there would be few stress-buffering effects involving these variables in the family and peer domains. Multiplicative interaction terms derived from less than perfect measures may be of such low reliability that there is little power to detect significant interaction effects (Busemeyer & Jones, 1983). However, because family support was useful in buffering the effects of personal stresses, as was peer support for peer stress, we are inclined to see these results as supporting our predictions, and not merely as a consequence of measurement error. A second measurement issue concerns the high intercorrelations of depressed mood with the global coping resources, sense of integration ($f = -.54$) and mastery ($r = -.52$), which may reflect some overlap in the item content of the scales and indicate some redundancy between these measures. These intraindividual factors may only appear to be efficacious across domains due to this redundancy. However, there were gender differences in the effects of the integration and mastery variables in offsetting the depressing effects of friendship stresses. This suggests that there is some substance to these measures that is driving differential effects of this nature.

As noted above in the discussion of procedures, our analytic strategies followed from the decision to rely on the stress assessments obtained at the second interview in order to establish a reasonably short time lag between stressors and subsequent depressed mood. Given these choices, we cannot be sure that the occurrence of life events and the effects of the protective variables preceded changes in depressed mood assessed at the second interview. It is possible that changes in mood occurring after the first interview come first and bring about these stressors, or that depressed individuals provide biased reports of the levels of stress and quality of relationships in their lives. Accepting this limitation, the pattern of interaction effects offers some confidence in the matching perspective and a stress buffering interpretation. For example, we would not expect that reporting biases or measurement error would produce an artifactual set of effects in the friendship domain, but not in the family domain. Nevertheless, continued research on risk and resiliency must be attentive to using study designs and assessment strategies that are optimal for testing predictions and documenting longitudinal processes.

In addition, our analyses should be replicated in other samples of adolescents, including those that better represent minorities, lower socioeconomic status youth, and inner city as well as rural youth. Finally, as in all population-based research using self-report screening scales, we must caution against viewing these findings within a psychopathological framework. However, from a prevention viewpoint, because these more norma-

tive experiences predict high levels of distress and identify subgroups at particular risk, these findings do have important mental health implications.

APPENDIX A:

Measures of Stress and Social Support

Acute Life Events: 3 Scales

Personal events (8 items)
Health, school, money, job, pregnancy, rape/victimization, leaving home,
  change in household composition.
Family events (10 Items)
  Parent and sibling events involving: health, problems with law; parental
  separation, remarriage, problems between parents, parents' job prob-
  lems, and parental death; sibling unwanted pregnancy.
Friend events (13 items)
  Friend events: money, job problems, parental divorce, pregnancy, health
  and alcohol problems, leaving home; relationship problems with parents
  and siblings; parents' relationship problems, sibling divorce, sibling
  health problems, and sibling unwanted pregnancy.

Relationship Problems: 2 Scales

Relations with Friends (2 Items)
  Rejected by or lost friend
Relations with Family (2 Items)
  Arguments with parents increased or new problems developed

Social Support: 3 Scales

Family Support (3 Items)
  Parents make child feel loved and wanted
  Parents trust child
  Child enjoys being with family members
Friend Support (2 Items)
  Friends make child feel that they care
  Friends express interest in how child is doing
Talking with Friends (9 Items)

Frequency of talking about: school work and grades, behavior toward friends and problems with friends, things at work (if working), the future and job plans, relationship with a particular boy or girl, sexual concerns, minor family problems, your abilities.

APPENDIX B:

Intercepts, Main Effects, and Lower Order Interaction Terms for 3-Way Interactions Presented in Table VI

Stress by Resource Interactions

Problems with Parents × Mastery	.984 + .278 Sex − .406 PrbPar − .891 Mastry + .797 Sex*PrbPar − .246 Sex*Mastry + .648 PrbPar*Mastry −1.40 3wayIxn
Problems with Friends × Family Support	.757 + .661 Sex + 1.25 PrbFrd − .362 FamSup − 1.52 Sex*PrbFrd − .640 Sex*FamSup − 1.25 PrbFrd*Famsup + 1.74 3wayIxn
Problems with Friends × Friend Support	.861 + .596 Sex + 1.39 PrbFrd + .244 FrdSup − 1.97 Sex*PrbFrd − .536 Sex*FrdSup − 1.42 PrbFrd*Frdsup + 2.22 3wayIxn
Problems with Friends × Mastery	.708 + .582 Sex + 1.34 PrbFrd − .571 Mastry − 1.11 Sex*PrbFrd − .667 Sex*Mastry − 1.66 PrbFrd*Mastry + 1.48 3wayIxn
Problems with Friends × Social Integration	.745 + .479 Sex + 1.34 PrbFrd − 1.14 SocInt − 1.09 Sex*PrbFrd −.507 Sex*SocInt − 1.81 PrbFrd*SocInt + 1.59 3wayIxn

Note. All models also contain the full complement of stressors, resources, and background controls.

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