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Gender, Instrumentality, and Expressivity: Moderators of the Relation Between Stress and Psychological Symptoms During Adolescence[1]

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Examined the roles of gender, instrumentality, and expressivity as moderators of the relations between stressful events and psychological symptoms in samples of junior high (n = 93), senior high (n = 140), and college students (n = 145). Female adolescents in all three samples reported more overall negative events than did males. Females in the junior and senior high samples reported more negative interpersonal stresses than did males. However, there were no indications in any of the samples of a stronger relation between negative events and psychological symptoms for adolescent females than males. Further, there was little evidence that instrumentality or expressivity moderated the relations between negative events and psychological symptoms. In each sample, certain stresses were most strongly related to psychological symptoms: family stresses in the junior high, peer stresses in the senior high, and academic stresses in the college sample. Implications of the findings for developmental changes in stress during adolescence are discussed.

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Cognitive-transactional models of stress and coping posit that the characteristics of both persons and environments interact to determine the degree to which an individual experiences a given event or encounter as stressful, as well as the severity of psychological and physical symptoms associated with the encounter (e.g., Lazarus & Folkman, 1984; Moos, 1984). Previous investigators, however, have typically aggregated a wide range of stressful events into a single index of stress and have rarely examined individual difference factors (e.g., age, gender, personality dimensions) that might place certain individuals at greater risk to experience events as stressful and develop symptoms following exposure to specific types of stressful events (see reviews by Compas, 1987; Johnson, 1986). The modest correlations between such aggregate stress variables and measures of symptoms may be masking larger correlations with symptoms for certain subsets of individuals and subcategories of events. Accordingly, the present study investigated the importance of gender as well as instrumental and expressive traits as risk factors in relation to various categories of stressful events among younger, middle, and older adolescents.

Gender has been found to be an important risk factor for stress-related dysfunction among adults (Kessler, 1979; Markush & Favero, 1974), and some of the factors which potentially influence adult risk may be rooted earlier in the life-span. For example, there is evidence that adolescent females have a more external locus of control than males (e.g., Doherty & Baldwin, 1985), that adolescent females experience their social role as more conflict-ridden than do adolescent males (Douvan & Adelson, 1966), and that adolescent females feel less favorably about being a member of their own sex than do adolescent males (Simmons & Rosenberg, 1975). Each of these factors may render females more vulnerable to the demands of stressful situations than males.

In addition, adolescent boys and girls may be differentially sensitive to certain types of events. A number of reports indicate that self-esteem and identity of adolescent girls are closely linked with skill and success in interpersonal relationships, whereas self-esteem and identity of adolescent boys are associated with tangible achievement (Bardwick, 1971; Douvan & Adelson, 1966; Marcia, 1981; Montemayor, 1982). Thus, adolescent girls may have more of a personal investment in interpersonal events than boys, and so may be more at risk for experiencing negative interpersonal events, for perceiving interpersonal events as highly stressful, and for experiencing symptoms in relation to this stress. Similarly, adolescent boys may be more at risk for experiencing stress and symptoms than girls in relation to achievement-related life events (see Lazarus & Folkman, 1984, pp. 56-63, for a discussion of the role of personal commitments in the stress process).

Adolescent females, like adult females, also may be more at risk than males for experiencing stress related to negative events occurring in the lives of others in their social network, events that Kessler and McLeod (1984) term "network events." Offer, Ostrov, and Howard (1981) reported that adolescent girls are more likely than boys to respond empathically if a tragedy befalls a friend, and Gilligan (1982) reported that, through the adolescent period, girls' emphasis on their relationships and connections with others tends to evolve into an ethic of responsibility for seeing to the needs of others; both of these findings are consistent with factors cited by Kessler and McLeod in explaining adult women's greater risk for network stress. The possibility that, relative to males, adolescent females experience more negative network events, perceive those network events that occur as more stressful, and experience more symptoms in relation to these events has yet to be studied.

Although prior findings are somewhat conflicting, evidence from a few studies indicates that adolescent females report more major negative events than males (Burke & Weir, 1978; Compas, Howell, Phares, Williams, & Ledoux, 1989b; Compas, Slavin, Wagner, & Vannatta, 1986; Swearingen & Cohen, 1985a), more daily negative events than males (Compas, Davis, & Forsythe, 1985; Compas et al., 1989b), or report more negative events in certain event subcategories (Burke & Weir, 1978; Compas, Slavin et al., 1986; Newcomb, Huba, & Bentler, 1981). Similarly, a few studies report a greater association of overall negative life events or certain subtypes of events with psychological symptoms among females than males (Johnson & McCutcheon, 1980; Lawrence & Russ, 1985; Siddique & D'Arcy, 1984; Vaux & Ruggiero, 1983). Findings in favor of greater risk among males for event reporting or stress-related symptoms are rare (Compas, Slavin et al., 1986; Johnson & McCutcheon, 1980; Newcomb, Huba, & Bentler, 1981). The majority of the studies, however, use relatively brief measures of life stress, which inadequately sample the range of important events of relevance to adolescents, particularly for purposes of identifying the risks associated with specific domains of stress.

It is possible that, in addition to gender, the personality traits of instrumentality and expressiveness may be important to understanding vulnerability or resistance to stressful events during adolescence. Although there is little evidence that instrumentality or expressiveness, as typically measured by self-report scales, is related to actual sex-role behaviors or attitudes (Spence & Helmreich, 1980), adolescents who perceive themselves as possessing more of the socially desirable, self-assertive, instrumental trait typically labeled "masculinity" may be more likely to perceive stressful occurrences as less threatening and/or they may utilize more effective coping strategies. That is, instrumentality may be an important coping resource. Two findings are

consistent with this position. First, high levels of instrumentality—either alone or combined with high levels of expressivity (i.e., androgyny)—have been linked to high levels of self-esteem in a number of studies of adolescents (e.g., Lamke, 1982a, 1982b; Massad, 1981; Rust & McCraw, 1984; Wells, 1980; Ziegler, Dusek, & Carter, 1984). Since one reason that stress is thought to be psychologically harmful is that it poses a threat to the individual's self-esteem, individuals with high levels of self-esteem may be relatively protected from stress, a finding for which there is some support among adults (S. Cohen & Edwards, 1989). Second, Frank, McLaughlin, and Crusco (1984) found that college students with high levels of instrumentality were less likely to use self-blaming defenses than students with low levels of instrumentality, a pattern which in turn was associated with lower levels of psychological symptoms. This suggests that instrumentality may be associated with a more positive adjustment in the face of stress.

Three studies of stress in relation to instrumental and expressive traits have been conducted with college students, the results of which suggest that androgynous females may experience stressful life events as less undesirable than other females (Shaw, 1982), and that instrumentality and/or androgyny may lessen the relation between negative stressful events and psychological symptoms for both male and female (Nezu, Nezu, & Peterson, 1986; Roos & Cohen, 1987). Towbes, Cohen, and Glyshaw (1989), investigating the role of instrumentality and expressivity as moderators of the association of major life events and psychological symptoms among junior and senior high boys and girls, found a stress-buffering effect of instrumentality among senior high girls only. Among junior high girls, higher levels of instrumentality were associated with fewer symptoms under low levels of stress, but instrumentality served no stress-buffering role for junior high girls or boys under high stress.

The present study of younger, middle, and older adolescents examines gender, instrumental traits, and expressive traits in relation to negative major and daily events reported in a number of subcategories. A unique feature of this study is the use of a measure of stressful events which incorporates a relatively complete inventory of daily events of adolescence, in addition to major events. These subcategories were chosen because they represent domains of potential importance for adolescents: network events, family events, peer events, intimacy events, and academic events. Based on the literature, it was expected that female adolescents would report more overall negative events than males, particularly more interpersonal events (network, peer, intimacy, family), that females would rate both overall negative events and negative interpersonal events as more stressful than males, and that females would show a greater association of these events with psychological symptoms than males. Male adolescents were expected to report more negative

academic (i.e., achievement-related) events than females, to rate them as more stressful, and to show a greater association of these events with psychological symptoms. Furthermore, it was expected that both instrumentality and androgyny would serve to protect adolescents from developing psychological symptoms associated with overall stressful events.[3]

The three age groups represent three general periods of adolescent development (although there certainly are individual differences in biological and psychological development): Early adolescence is marked by puberty and entrance to junior high school (Simmons & Blyth, 1987); middle adolescence is usually distinguished by greater adolescent autonomy within the family (Smetana, 1988) and deeper intimacy in the peer group (Youniss, 1980); and late adolescence often brings increased responsibility for important decisions regarding work and intimate relationships as well as separation from home (Levinson, 1986). The utilization of the three different age groups allows for juxtaposition of three sets of findings in an exploratory manner; the existing literature does not provide a basis for offering hypotheses regarding developmental patterns in reports of or effects of specific categories of stress.

METHOD

Participants

Junior High Students. Participants were 93 sixth- and seventh-grade students (43 male, 50 female) with a mean age of 12.2 years (SD = 0.85, range = 11 to 14 years old) drawn from three schools in rural areas of Vermont. Socioeconomic status (SES), calculated using the procedures described by Hollingshead (1975), was as follows: 1.3% fell in Class I (menial worker, unskilled laborer); 20.0% in Class II (semiskilled work); 25.3% in Class III (skilled craftsperson, clerical work); 34.7% in Class IV (medium business, minor professional); and 18.7% in Class V (major business and profession-

[3]Androgyny has been conceptualized as a balance between instrumentality and expressiveness (e.g., Bem, 1975), or alternatively, as high levels of both instrumentality and expressiveness (e.g., Spence & Helmreich, 1978). The approach to data analysis taken in the present study allowed for empirical testing of both conceptualizations of androgyny. Significant interactions between negative events and instrumentality as well as negative events and expressivity which indicate that high levels of both of these traits moderate the association between stress and symptoms would provide support for an additive model, in which androgyny is conceptualized as high in both instrumental and expressive traits. A significant interaction between instrumentality, expressivity, and negative events, in the absence of lower level effects, would support the balance conceptualization if both androgynous and undifferentiated participants were protected from the effects of stress (see Hall & Taylor, 1985).

al). Eighteen of the junior high students provided insufficient data for calculating SES.

Senior High Students. Participants were 140 tenth-, eleventh-, and twelfth-grade students (50 male, 90 female) with a mean age of 16.5 years (SD = 0.86, range = 14 to 18 years old) drawn from two schools in rural Vermont. Hollingshead scores for this sample were as follows: none of the students fell in Class I, 5.8% were in Class II, 26.3% in Class III, 46.7% in Class IV, and 21.2% in Class V.

College Students. Participants were 145 students (51 male, 94 female), drawn from two public institutions in Vermont. The ratio of male-to-female students was roughly representative of the distribution of male to female in the classes from which they were drawn. Students had a mean age of 18.7 years (SD = 0.53, range = 17 to 20 years). With regard to SES, none of the students fell in Class I, 5.7% fell in Class II, 14.2% in Class III, 40.4% in Class IV, and 39.7% in Class V.

Comparisons of mean Hollingshead SES scores among the three samples indicated that the SES of the junior high sample was significantly lower than the SES of the high school sample, $t(211) = 2.61$, $p < .01$, and the SES of the high school sample was in turn significantly lower than the SES of the college sample, $t(277) = 3.44$, $p < .001$. However, SES scores were not associated with the dependent variables (symptom scores) or with the overall numbers of stressful events reported within any of the three samples. Thus, it was not necessary to include SES scores as covariates in the analyses to follow.

Measures

Stressful Events

Stressful events in the lives of adolescents were assessed with the Adolescent Perceived Events Scale (APES; Compas, Davis, Forsythe, & Wagner, 1987), a self-report measure of major and daily life events. There are three versions of the APES designed for younger adolescents (164 items, administered to the junior high school sample); middle adolescents (205 items, administered to the high school sample); and older adolescents (210 items, administered to the college sample). Five items concerning sexual events (e.g., "losing virginity") were omitted in versions of the measure administered to the high school students and some of the junior high students at the request of local school boards. Items on the scale were drawn from open-ended responses of adolescents in Vermont, and thus provide a relevant and representative sample of major events (e.g., death of a relative, parents'

divorce) and daily events (e.g., taking care of younger brothers or sisters, studying or doing homework, waiting in lines) for the present samples.[4]

Students of all ages indicate those events that have occurred during the prior 3 months, and rate these events on a 9-point Likert scale for their desirability: (−4) *extremely undesirable,* (0) *neither desirable nor undesirable,* (+4) *extremely desirable.* The senior high and college samples also completed a 9-point Likert scale for impact of event: (1) *no impact at all,* (9) *very extreme impact.* The reason for this variation in scales administered by age is that multidimensional scaling analyses have indicated that younger adolescents distinguish among avents on the basis of their desirability, whereas middle and older adolescents distinguish between events on the basis of their desirability and impact (Compas et al., 1987). Two negative event variables are utilized here: a simple count of negative events (i.e., events with desirability ratings from −1 to −4); and the mean stressfulness of negative events, which for junior high students is the mean desirability score for negative events that have occurred in the last 3 months, and for high school and college students is the mean of the product of Desirability × Impact scores for negative events that have occurred in the last 3 months. Counts of positive events (desirability ratings +1 to +4) and neutral events (desirability rating = 0) were also computed. Psychometric properties of the APES are detailed in Compas et al. (1987). Two-week test-retest reliability of event occurrence, desirability, and impact have been shown to be adequate, and adequate concurrent validity has been obtained among college student roommate pairs for reports of event occurrence, desirability, and impact.

In order to test the hypotheses of the present study, five graduate student researchers familiar with the stress and coping literature categorized events on the APES into five subcategories, in the following order: network events, intimacy events, family events, peer events, and academic events. Only events for which four of the five raters agreed on a category were included in the category. Kuder-Richardson-20 (KR-20) coefficients of reliability were calculated for the occurrence of events in the five categories. For network events (e.g., "Something bad happens to a friend") KR-20s were .81 for the younger adolescent APES (23 items), .79 for the middle adolescent APES (27 items), and .68 for the older adolescent APES (27 items). For intimacy

[4]A number of items on each version of the APES were judged to be confounded with the dependent measures of psychological symptoms, following the criteria used by Dohrenwend, Dohrenwend, Dodson, and Shrout (1984), and were therefore omitted from the analyses; these included 20 items on the older and middle adolescent versions of the APES, and 18 items on the younger adolescent version of the APES. An item was judged to be confounded if the content overlapped with the content of an item on the symptom measure (e.g., "Change in personal health or fitness"), or was a specific concern or worry (e.g., "Worries about school performance").

events (e.g., "Breaking up with or being rejected by a boyfriend or girlfriend") KR-20s were .73 for younger adolescents (13 items), .70 for middle adolescents (12 items), and .60 for older adolescents (14 items). For family events (e.g., "Problems or arguments with parents, siblings, or family members") KR-20s were .63 for younger adolescents (12 items), .72 for middle adolescents (14 items), and .58 for older adolescents (14 items). For peer events (e.g., "Friend moves away from you or you move away from a friend") KR-20s were .76 for younger adolescents (12 items), .64 for middle adolescents (17 items), and .74 for older adolescents (20 items). For academic events (e.g., "Doing poorly on an exam or paper") KR-20s were .54 for younger adolescents (13 items), .47 for middle adolescents (18 items), and .64 for older adolescents (19 items). Many items on each version of the APES were not classified into any of the subcategories.

Pearson correlations among the event categories for young adolescents ranged from .24 to .51, for middle adolescents from .22 to .53, and for older adolescents from .00 to .45, thus indicating substantial to moderate degrees of independence among the various categories. Pearson correlations of the number of negative events for each category with the mean stressfulness score for that category ranged from .07 to .32 in the junior high sample, from .15 to .35 in the high school sample, and from .00 to .25 in the college sample; thus the two stressful event variables provided a considerable degree of nonredundant information.

Instrumental and Expressive Traits

Instrumental and expressive traits were assessed with the Personal Attributes Questionnaire (PAQ; Spence & Helmreich, 1978). The PAQ consisists of 24 sets of bipolar, dispositional descriptions along which participants rate themselves on a 5-point scale. Separate instrumentality and expressivity scores are obtained for each participant. The PAQ masculinity scale (here labeled "instrumentality") contains socially desirable instrumental attributes (e.g., independent, self-confident) whereas the PAQ femininity scale (here labeled "expressivity") contains socially desirable expressive attributes (e.g., kind, aware of others' feelings). Correlations between the two scales for the present samples, ranging from .03 to .41, were typical of those obtained in prior studies (Spence & Helmreich, 1978). Coefficient alphas for the instrumentality scale ranged from .59 in the junior high sample to .75 in the college sample; for the expressivity scale, coefficient alphas ranged from .72 in the high school sample to .78 in the junior high sample.

Psychological Symptoms

Self-reports of junior high students' internalizing and externalizing emotional/behavioral problems were obtained with the Youth Self-Report (YSR)

form of the Child Behavior Checklist (Achenbach & Edelbrock, 1987). The YSR consists of a checklist of 102 behavior problem items rated (0) *not true,* (1) *somewhat or sometimes true,* and (2) *very true or often true* of the respondent during the prior 6 months. (The YSR also includes 16 socially desirable items that were excluded from the analyses.) Normative data for the YSR are based on nonreferred samples of children and adolescents. Test–retest reliability of the total behavior problem score used here (a sum of the item ratings) for clinically referred adolescents aged 11 to 18 has been shown to be excellent over a 1-week period (r = .87) (Achenbach & Edelbrock, 1987).

High school and college students completed the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1983), a self-report measure consisting of 90 items spanning a broad array of psychological symptoms. The respondent rates each item along a severity scale from (0) *no distress* to (4) *extreme distress,* according to how much the symptom has distressed him or her during the past week.[5] The present analyses utilized the Global Severity Index (GSI) of the SCL-90-R, an overall index of psychological distress, which is computed by taking the mean of the severity ratings for the 90 items. Reliability and validity of the GSI have been demonstrated to be excellent (Derogatis, 1983). Coefficient alphas for the GSI in the present study were also excellent (senior high sample, alpha = .97; college sample, alpha = .96).

Procedures

Junior High Sample. Data were collected as part of a larger study of stress in junior high students and their parents for which participants' families were paid $25 for their participation. Consent forms were sent home to all parents of seventh-grade students at two schools, and parents of sixth-grade students at a third school. Aproximately 50% of eligible families agreed to participate, and were included in the sample. All student questionnaires were administered in the schools by a research assistant over 2 days along with several other measures completed by students and their parents.

High School Sample. The procedures were similar to those used with the junior high sample, although students were recruited specifically for this study and were not paid for their participation. Approximately 40% of those contacted agreed to participate. All questionnaires were administered in the schools at a single time point, under the direction of a research assistant.

[5]The time frames of the stress measures differ from those of the symptoms measures within each sample, and the time frames of the symptom measures differ across samples (i.e., the stress measures assess events occurring in the last 3 months, and the symptom measures assess symptoms of the last 6 months in the junior high sample or the last week in the other samples). In each case, standardized measures were used unaltered, in order to be consistent with prior studies. However, the effect of the varying time frames of these measures on the findings of this and other studies is unclear.

College Students. Students were recruited from psychology and human development courses at two public colleges in Vermont. At one institution, students were recruited through a poster that advertised a study of stress in college students for which students would receive extra course credit. These students appeared at a designated time and place and received consent forms which were similar to those completed by the younger samples, although instead of signing the form they were simply told that they could leave if they did not wish to participate. No names or consent forms were collected by the researchers. At the second institution, a researcher visited students' psychology and human development classes. The class instructor had informed the students in advance that class time would be spent participating in a research project, and if they chose not to participate they were free to either read quietly or leave the class for that day. Approximately 90% of students in these classes agreed to participate.

RESULTS

Descriptive Data

Means and standard deviations on each of the stress and symptom variables and for the instrumentality and expressivity scales are presented in Table I. Among junior high students, the mean total behavior problem raw score on the YSR translates to a *T* score of 52 for males and 54 for females, based on the norms reported by Achenbach and Edelbrock (1987). Among high school students as well as college students, the mean SCL-90 General Severity Index (GSI) scores for both genders most closely approximate a rating of "a litle bit" on the 5-point severity scale. The GSI mean scores for high school students translate to a *T* score of 57 for males and a *T* scores of 56 for females, and the GSI mean scores for college students translate to a *T* score of 58 for males and 53 for females, based on normative data provided by Derogatis (1983). The PAQ scores for male and female high school and college students were approximately equivalent to normative data provided by Spence and Helmreich (1978) (normative data are not available for junior high students on the PAQ). Pearson correlations among the various negative event categories, psychological symptom scores, and PAQ scores are presented for the junior high sample in Table II, for the high school sample in Table III, and for the college sample in Table IV.

Number of Negative Events as a Function of Gender, Instrumentality, and Expressivity

For each sample, a three-way ANOVA was performed, with number of overall negative events reported as the dependent variable, and gender,

Table I. Mean Number of Negative Events, Psychological Symptoms, and Instrumentality and Expressivity

	Junior high				High school				College			
	Male		Female		Male		Female		Male		Female	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Negative events												
Total[a]	14.33	9.56	23.70	12.09	19.28	9.79	24.92	11.37	19.28	9.79	24.92	11.37
Network	2.16	2.06	3.74	3.06	1.54	2.06	3.51	2.76	2.49	1.99	3.81	2.34
Family	1.42	1.35	2.80	1.97	1.92	1.96	2.81	2.21	1.61	1.47	1.86	1.45
Intimacy	0.74	1.03	1.60	1.26	0.98	1.06	1.42	1.21	1.43	1.17	1.51	1.24
Peer	1.44	1.65	2.26	2.04	2.24	1.92	3.03	2.06	2.78	1.99	3.27	1.76
Academic	1.70	1.75	2.04	1.77	2.88	1.95	2.96	1.80	3.33	2.09	3.31	1.82
Positive events	34.86	15.76	38.92	11.63	34.46	9.93	41.09	10.53	44.24	11.47	49.38	10.37
Neutral events	6.95	7.63	7.46	7.86	10.24	6.79	7.79	6.47	7.45	5.86	6.40	4.01
Total behavior problems (Jr high) or Global Severity Index	43.60	21.62	52.28	22.38	0.87	0.51	1.17	0.58	0.83	0.57	0.98	0.49
Instrumentality	21.28	4.45	19.80	4.47	21.04	4.74	20.03	4.05	20.37	4.59	21.88	5.02
Expressivity	20.33	5.28	23.10	4.61	21.92	4.56	23.82	3.41	18.52	4.83	24.28	4.47

[a]Numbers of total negative events exceed the sum of the numbers reported in the five subcategories, as many events on the APES were not classified into these subcategories.

Table II. Pearson Correlation Coefficients of Number of Negative Events, Psychological Symptoms, and Instrumentality and Expressivity in Junior High Sample ($N = 93$)[a]

Variable	2	3	4	5	6	7	8
1. Network events	.516	.350	.542	.319	−.102	.005	.378
2. Family events	—	.486	.509	.264	−.284	.022	.680
3. Intimacy events		—	.419	.372	−.293	−.074	.475
4. Peer events			—	.287	−.256	−.157	.395
5. Academic events				—	−.167	.038	.270
6. Instrumentality					—	.411	−.345
7. Expressivity						—	−.196
8. Total behavior problems							—

[a]A multistage Bonferroni procedure (Larzelere & Mulaik, 1977) was used to control for Type I error rate. Correlations greater than .269 are significant at $p < .004$.

Table III. Pearson Correlation Coefficients of Number of Negative Events, Psychological Symptoms, and Instrumentality and Expressivity in High School Sample ($N = 140$)[a]

Variable	2	3	4	5	6	7	8
1. Network events	.544	.313	.529	.232	−.081	.190	.312
2. Family events	—	.349	.487	.379	−.073	.045	.276
3. Intimacy events		—	.305	.225	.059	.206	.241
4. Peer events			—	.253	−.200	.172	.402
5. Academic events				—	−.204	.041	.248
6. Instrumentality					—	.026	−.297
7. Expressivity						—	.154
8. Global severity index							—

[a]A multistage Bonferroni procedure (Larzelere & Mulaik, 1977) was used to control for Type I error rate. Correlations greater than .224 are significant at $p < .004$.

Table IV. Pearson Correlation Coefficients of Number of Negative Events, Psychological Symptoms, and Instrumentality and Expressivity in College Sample ($N = 145$)[a]

Variable	2	3	4	5	6	7	8
1. Network events	.493	.104	.439	.043	.090	.132	.126
2. Family events	—	.173	.438	.221	.067	−.031	.089
3. Intimacy events		—	.229	.086	−.084	.029	.137
4. Peer events			—	.327	−.031	−.116	.225
5. Academic events				—	−.192	−.130	.262
6. Instrumentality					—	.204	−.285
7. Expressivity						—	−.099
8. Global severity index							—

[a]A multistage Bonferroni procedure (Larzelere & Mulaik, 1977) was used to control for Type I error rate. Correlations greater than .221 are significant at $p < .004$.

instrumentality (high vs. low, based on median splits performed separately for each gender), and expressivity (high vs. low) as independent variables. In each of the three samples, females reported more negative events than males, junior high, $F(1, 87) = 16.84$, $p < .001$; senior high, $F(1, 132) =$

6.37, $p < .05$; college students, $F(1, 137) = 8.09$, $p < .01$. No other effects were significant.

Separate three-way multivariate analyses of variance (MANOVAs) were performed for each sample with gender, instrumentality, and expressivity as the independent variables, and numbers of negative network, family, intimacy, peer, and academic events as the multivariate dependent variables. In the junior high sample, multivariate tests indicated that only the main effect for gender was significant, $F(5, 81) = 3.32$, $p < .01$. Univariate tests revealed that females reported more negative network events, $F(1, 85) = 4.65$, $p < .05$; negative intimacy events, $F(1, 85) = 11.53$, $p < .001$; negative family events, $F(1, 85) = 8.48$, $p < .01$; and negative peer events, $F(1, 85) = 4.77$, $p < .05$ than males. In the senior high sample, multivariate tests again indicated a main effect for gender only, $F(5, 128) = 3.99$, $p < .01$. Univariate analyses for the effect of gender indicated that females reported more negative network events, $F(1, 132) = 16.80$, $p < .001$, and more negative intimacy events, $F(1, 132) = 4.67$, $p < .05$, than males. In the college sample, no significant multivariate effects were obtained, although univariate tests did indicate that females reported more negative network events than males, $F(1, 137) = 4.06$, $p < .05$. Thus, the hypothesis that females would report more negative events than males was supported in each of the three samples, the hypothesis that females would report more negative interpersonal events held in the junior high and partially in the high school but not in the college sample, and the hypothesis that males would report more negative academic events was not supported in any sample.

Perceived Stressfulness of Negative Life Events as a Function of Gender, Instrumentality, and Expressivity

Three-way ANOVAs were performed to test for the effects of gender, instrumentality (high vs. low), and expressivity (high vs. low) on the mean stressfulness ratings of reported overall negative events (i.e., mean desirability ratings in the junior high, mean of Desirability × Impact ratings in the senior high and college samples). In the junior high sample, there was a main effect for gender, with females rating negative events as more undesirable than males, $F(1, 85) = 6.24$, $p < .05$. In the senior high sample, results indicated a main effect for expressivity only, $F(1, 131) = 13.29$, $p < .001$, with high expressive students ratings negative events as more undesirable than low expressive students. In the college sample, no significant effects were found, indicating that the perceived stressfulness of overall negative events did not vary as a function of gender, instrumentality, or expressivity.

Three-way ANOVAs were performed to test for the effects of gender, instrumentality, and expressivity on the mean stressfulness ratings of events reported in each of the various event subcategories. It was necessary to perform five separate ANOVAs rather than one MANOVA for the various mean weight stress variables, since the number of cases varied for each of the dependent variables in this analysis. The reason for this is that mean weights were calculated only for negative events that had occurred, and some students did not report having experienced events in some of the subcategories of stress during the past 3 months. The alpha levels were set at .01 for these analyses. In the junior high sample, there was an Instrumentality × Expressivity interaction in relation to negative peer events, $F(1, 62) = 16.28$, $p < .001$. Analysis of simple effects revealed that high instrumental/low expressive (i.e., instrumental) students rated negative peer events as less undesirable than both high instrumental/high expressive (i.e., androgynous) students, $F(1, 62) = 13.59$, $p < .01$; and low instrumental/low expressive (i.e., undifferentiated) students, $F(1, 62) = 11.70$, $p < .01$. In the high school sample, there was a significant main effect for expressivity with regard to negative peer events, with high expressive students rating these events as more stressful than low expressive students $F(1, 112) = 10.24$, $p < .01$. In the college sample, main effects were obtained for gender in relation to mean weightings of negative network events, $F(1, 123) = 7.38$, $p < .01$; and negative peer events, $F(1, 130) = 12.36$, $p < .001$. In both cases female students weighted the negative events as more stressful than male students. The hypothesis that females would rate overall negative events as more stressful than males was thus supported in the junior high sample only, the hypothesis that females would rate interpersonal events as more stressful than males was partially supported in the college sample, and the hypothesis that males would rate negative academic events as more stressful than females was unsupported.

Stepwise Regression Analyses

In order to determine which of the various subcategories of stress best predict psychological symptoms, stepwise regression analyses were performed in which either YSR total behavior problem scores or GSI scores, depending on the sample, were regressed on each of the event subcategories. In the junior high sample, negative family events entered into the regression equation first, accounting for 46% of the variance in total behavior problems, $F(1, 91) = 78.10$ $p < .001$, multiple $R = .68$. Negative intimacy events entered in the second step, accounting for an additional 2% of the variance. No other negative event variables added significantly to the prediction of YSR scores. In

the high school sample, the regression program entered peer events into the equation first, accounting for 15.58% of the variance in psychological symptoms, $F(1, 138) = 26.65$, $p < .001$, multiple $R = .40$. None of the other event subcategories significantly added to the variance accounted for by peer events. In the college sample, the program entered negative academic stress into the equation first, accounting for 6.23% of the variance in the GSI, $F(1, 143) = 10.57$, $p < .01$, multiple $R = .26$. None of the other event subcategories significantly added to the variance accounted for by academic events.

The unique predective power of each of the event subcategories was examined by testing the significance of the percentage of variance in psychological symptoms accounted for by each event subcategory after controlling for the effects of the other event subcategories (i.e., the squared semipartial correlation). The results are consistent with the stepwise analyses. That is, only negative family events in the junior high sample ($r^2 = .20$, $p < .001$), negative peer events in the high school sample ($r^2 = .05$, $p < .01$), and negative academic events in the college sample ($r^2 = .04$, $p < .01$) have significant unique predictive power.

Gender, Instrumentality, and Expressivity as Moderators of the Relation Between Stressful Events and Psychological Symptoms

In order to test the extent to which gender, instrumentality, and expressivity moderate the relation between stressful events and symptoms, six regression equations were developed for each sample, one for each of the various stress variables (i.e., total negative events, and the five subcategories of negative events) (see Finney, Mitchell, Cronkite, & Moos, 1984, and Baron & Kenny, 1986, for discussions of moderating effects). In each analysis, main effects for gender (dummy coded), negative events, instrumentality, and expressivity were entered as a first step, the various two-way interactions between each of these four variables were entered as a second step, and the various three-way interactions were entered as a third step.[6] The interaction terms tested whether the relations of each of the stress variables with symptoms was dependent upon gender, upon the level of instrumental and/or expressive traits, or upon both gender and the traits.

[6]Terms for the two-way interactions between instrumentality and expressivity, instrumentality and gender, and expressivity and gender were included in the equations to estimate the various three-way interactions correctly for negative events (cf. J. Cohen & Cohen, 1983). The results for these terms are not presented, however, since they are not relevant to the hypotheses presented here.

Junior High Sample. For the junior high sample, six regression analyses were performed in which YSR total behavior problem scores were the dependent variable. There was a main effect of overall negative events on YSR scores, after controlling for gender, instrumentality, and expressivity, with the unstandardized regression coefficient $b = 1.12$, $p < .001$. This effect was not significantly moderated by gender, instrumentality or expressivity. Regarding the various subcategories of stress, there were main effects for negative family events ($b = 8.11$, $p < .001$) and for negative network events ($b = 2.65$, $p < .01$) on YSR scores, after controlling for the effects of gender, instrumentality, and expressivity; these main effects were not moderated by the other three variables. Instrumentality × Expressivity × Stress interactions were present in the equations for negative intimacy events ($b = .27$, $p < .01$), and negative peer events ($b = .11$, $p < .05$). With regard to intimacy stress, only instrumental (i.e., high instrumental/low expressive) students did not show increased behavior problems with increased intimacy stress, as expressive (i.e., high expressive/low instrumental), androgynous (i.e., high instrumental/high expressive), and undifferentiated (i.e., low instrumental/low expressive) students evidenced increased behavior problems with increased intimacy stress. Neither instrumental nor expressive students showed increased behavior problems with increased peer stress, but both androgynous and undifferentiated students evidenced increased behavior problems with increased peer stress.

High School Sample. In the high school sample, six regression analyses were performed in which GSI scores were the dependent variable. There was a main effect for instrumentality in each of the six equations, after controlling for the main effects of expressivity, gender, and the various stress variables, reflecting the fact that low instrumental high school students had significantly higher GSI scores than high instrumental high school students. In addition, after controlling for gender, instrumentality, and expressivity, there were main effects for overall negative events ($b = .02$, $p < .001$), as well as for negative network events ($b = .05$, $p < .01$), negative intimacy events ($b = .10$, $p < .01$), negative peer events ($b = .09$, $p < .001$), negative family events ($b = .06$, $p < .01$), and negative academic events ($b = .06$, $p < .05$). Gender, instrumentality, and expressivity did not moderate any of these effects.

College Sample. In the college sample, six regression analyses were performed in which GSI scores were the dependent variable. As in the high school sample, there was a main effect for instrumentality in each of the six equations, indicating that low instrumental college students had significantly higher GSI scores than high instrumental college students. A main effect was obtained for overall negative events in relation to psychological symptoms ($b = .02$, $p < .001$), after controlling for the effects of gender, instrumentality, and expressivity. The association of negative events with symptoms was not

moderated by gender, instrumentality, or expressivity. Regarding the various subcategories of stress, negative intimacy events were not significantly related to psychological symptoms after controlling for the effects of gender, instrumentality, and expressivity. There were main effects for negative peer events ($b = .06$, $p < .05$) and negative academic events ($b = .07$, $p < .01$) on psychological symptoms which were not moderated by gender, instrumentality, or expressivity. In the equation including negative family events, there was a negative Family Events × Expressivity interaction ($b = .02$, $p < .05$), and in the equation regarding negative network stress, there was a negative Network Event × Expressivity interaction ($b = .01$, $p < .05$). In both cases, increased stress was associated with decreased psychological symptoms among students with lower levels of expressivity, with virtually no increase in psychological symptoms among students at the sample mean for expressivity, and with increased psychological symptoms among individuals with higher levels of expressivity. Thus there was no support for the hypothesis that females would evidence a stronger stress–symptom relation. The hypothesis that instrumentality would serve a protective role regarding the association of stress and symptoms received only limited support in the junior high sample, and the hypothesis that androgyny would also serve such a proctective function was not supported.

DISCUSSION

The findings support the hypothesis that females report more stress during adolescence than do males, including more stress in their relationships with peers and family members. There is no evidence that males report more stress from achievement-related events, and there is little support for a protective function of instrumentality or androgyny. Notably, there is no evidence that females were more at risk than males for developing psychological symptoms in association with stressful events. These findings, which were obtained with a more complete inventory of daily as well as major events than those used in prior studies, both extend and qualify the prior work on gender differences in adolescence. The principal findings concerning gender as a risk factor can be usefully organized in accordance with three aspects of the stress process: (a) perception of event occurrence; (b) perceived stressfulness of the event (i.e., short-term distress); (c) association with psychological symptoms.

Perceived occurrence of events is indexed in the present study by the number of stressful events reported. Females in all three samples reported more overall negative events than did males. This is consistent with a number of prior findings regarding stressful events in adolescents (Compas et al., 1985; Compas, Slavin et al., 1986; Swearingen & Cohen, 1985a). Fur-

ther, junior high females reported more negative events in each of the interpersonal subcategories (i.e., network, family, peer, intimacy) than did males, senior high females reported more negative network and intimacy events than did males, but college females did not report more of any subcategory of event (although, as noted, there was a trend in the direction of females reporting more network events than did males). These findings of greater reports of stressful events among junior and senior high females in interpersonal domains are consistent with the premise that adolescent females have a greater investment in interpersonal relationships than do males (Marcia, 1981; Montemayor, 1982). In contrast, there was no support for the hypothesis that males are more likely to report academic stress or associated distress.

The perceived stressfulness of events was represented in the present study either through the desirability ratings (junior high) or the Desirability × Impact ratings (senior high, college). The hypothesis that females would rate overall negative events as more stressful than would males held in the junior high sample only. Gender was not a risk factor for perceiving overall negative events as more stressful among senior high students, although high expressivity was. College females rated only negative network and peer events as more stressful than males did. The findings indicate that early adolescence may be for females a period of particular risk for experiencing events as stressful. Along this line, Davis and Compas (1986) found that desirability ratings on the APES had a strong positive relation to the students' perception that they could cope with events ($r = .84$), suggesting that junior high females may also perceive themselves as less able than males to cope on their own with the stress.

However, despite the fact that female adolescents indicated the occurrence of more overall stressful events, and, particularly in the junior high sample, greater undesirability of stressful events than adolescent males, stressful events were not more highly related to psychological symptoms for female than male. This suggests that the coping of adolescent females may be effective at moderating the impact of stress, perhaps more effective than they themselves anticipate. That is, despite the fact that females report experiencing more stress than males, they may "rise to the occasion," finding the resources required in order to meet the stressful demands.

Caution must be exercised in interpreting these findings, for two main reasons: (a) the measurement relies on self-reports of stress and symptoms; and (b) there are alternative hypotheses for interpretation of the stress–symptom association. Regarding the first point, it is possible that the pattern of findings reflecting greater numbers of stressful events reported by females than males is indicative of females' greater willingness to admit to the occurrence of events. Further, research has indicated that females may be more emotionally reactive to events than males are (e.g., Diener, Sandvik, & Lar-

sen, 1985), and such reactivity may affect not only subjective weightings of events but also the tendency to perceive events as negative, thus potentially increasing the simple count of negative events. These problems are reflective of measurement concerns facing the field of psychosocial stress research (Dohrenwend et al., 1984; Dohrenwend & Shrout, 1985; Lazarus, DeLongis, Folkman, & Gruen, 1985). Unless reports are obtained from external raters such as parents and teachers, the researcher must rely on self-reports of event occurrence, which are potentially subject to distortions in recall and reporting and do not allow for disentanglement of event occurrence from event perception. Unfortunately, the use of external raters does not solve the problem, as such raters are not likely to be aware of many of the stresses facing youngsters, particularly daily stresses. The use of self-reports of psychological symptoms is a matter of similar concern. The recent analysis by Achenbach, McConaughy, and Howell (1987) of the low correspondence of reports of children's psychological symptoms by various informants—including self-reports, parent reports, and teacher reports—indicates that it may be best to consider adolescents' self-reports as a perspective on their own maladjustment, in that there does not seem to be a single "true" standard of their emotional/behavioral problems.

The second point of caution involves the issue of the association of stress and symptoms. Prior longitudinal studies of stress in adolescents have shown that stressors appear to be consequences of prior symptoms to at least the same degree as symptoms are consequences of stressors (L. H. Cohen, Burt, & Bjork, 1987; Compas, Howell, Phares, Williams, & Giunta, 1989a; Compas, Wagner, Slavin, & Vannatta, 1986; Swearingen & Cohen, 1985b). Since a cross-sectional design was utilized in the present study, no conclusion regarding the causal direction in the association of stress and symptoms is possible. Further, there has been considerable concern that measures of stress, particularly self-report measures of daily events, may be confounded with measures of psychological symptoms (e.g., Dohrenwend et al., 1984; Dohrenwend & Shrout, 1985). Although 20 APES items were removed from the analyses in an effort to reduce the potential for such confounding, it remains possible that the association of the self-reported stresses with self-reported symptoms is the result of a third variable, such as an appraisal process that influences both stress and symptom responses. Any serious effort to sort out this problem entails measurement of stress through multiple methods, and utilizing multiple sources of information.

A more modest approach taken by some researchers has been to analyze separately events judged as potentially under the respondent's control versus uncontrollable events, with the argument that controllable events are most likely to be a function of individual appraisals and confounded with symptoms, and thus should not be considered as an independent variable

(e.g., L. H. Cohen et al., 1987; Rowlison & Felner, 1988; Swearingen & Cohen, 1985b). We did not attempt to distinguish between controllable and uncontrollable events, because, in practice, it is very difficult to make such distinctions. Most events are determined by multiple causes, and the degree to which an event is independent or dependent of the individual varies from person to person and circumstance to circumstance (Monroe & Peterman, 1988), thus necessitating knowledge of the particular situation beyond that which is provided by event checklists. Further, even if it could be conclusively demonstrated that a particular event is controllable for most individuals, the event is still not necessarily *a function* of psychological symptoms. For example, the APES item, "Broke up with boyfriend/girlfriend" may well be a controllable event, yet few researchers would argue that such a frequent occurence in adolescence is merely a psychological symptom, and thus should not be included in analyses of the effects of stress in adolescence.

It is important to consider three additional sets of findings. First, the lack of a consistent finding in favor of a moderating role of instrumentality in the association of stress with psychological symptoms was unexpected, given that instrumentality was found to act as a "stress buffer" in prior studies of college students and young adolescents (Nezu et al., 1986; Roos & Cohen, 1987; Towbes et al., 1989). We assessed a much wider range of stressors of everyday relevance to adolescents than did prior investigations. Thus one plausible hypothesis for the discrepancy between the present findings and past findings is that the beneficial effects of instrumentality in either the stress appraisal process or the coping process may be applicable only with regard to low-frequency acute stressors. Further, the measures of psychological symptoms in prior studies have addressed depression and anxiety, whereas the measures used in the present study included a much wider array of symptoms of distress. The protective effects of instrumentality may be limited to certain types of distress as well.

Second, although separate regession equations for each subtype of stress indicated that some were associated with psychological symptoms within each sample, stepwise regression analyses, as well as regression analyses that test the unique predictive power of each stress subtype, tentatively suggest a developmental patterning to the importance of stressful events. Among junior high students, family events were most highly associated with behavior problems and, in the high school sample, peer events were more highly related with psychological symptoms than were other stresses. This progression from family to peers as the domain of greatest psychological import is consistent with some prior studies on the social development of adolescents (e.g., Coleman, 1974, 1981; Offer et al., 1981; Steinberg, 1987). Not surprisingly, academic events represented the domain with the greatest potential psychological costs for college students, because the challenges and threats of academic work are particularly salient for those older adolescents who are attending

college and presumably have invested themselves in academic achievement. These age-related findings are considered preliminary, as there was considerable cross-sample variation, including variation in SES and the response rates. Different measures of both stress and symptoms were also used across the samples. Each of these factors underscores the need for caution in interpreting the present findings and the necessity of further studies of age differences in adolescent stress.

Third, our findings regarding network events imply that females much younger than the adults studied by Kessler and McLeod (1984) experience more stress than males related to negative events in the lives of others. Both junior and senior high females reported more negative network events than did males and, although multivariate analyses for numbers of negative events reported by college students were not significant, univariate tests indicated that college females reported more negative network events than did males. Additionally, college females rated negative network events as more stressful than did males. Thus, adolescent females may be more sensitive than males to the well-being of others, consistent with Gilligan's (1982) formulation that, as early as junior high school, females' relationships are more rooted in their sense of connectedness and caring for others, whereas males' relationships may entail more emotional separation and autonomy. Unlike Kessler and McLeod's adult sample, however, adolescent females were not more at risk than adolescent males for the development of symptoms in relation to the stress of others. Rather, only high-expressive college students were more at risk than low-expressive college students, a finding that makes sense in light of the fact that expressivity is conceptually similar to nurturance of others (e.g., expressivity items on the PAQ include: "Warm in relations with others"; "Kind"; "Aware of others' feelings").

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