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Stressful Life Events and Health-Related Quality of Life in College Students

Teresa M. Damush Ron D. Hays M. Robin DiMatteo

Researchers examined the relationship between recent stressful life events in the past year and health-related quality of life (HRQOL) among 350 college students. Results indicate that stressful life events (i.e., autonomous, distressful, family or parental, and sexual life events) were related to poorer HRQOL. Furthermore, gender did not moderate the relationship between stressful events and HRQOL.

Various researchers have documented an association between the number of life change events experienced by an individual and his or her vulnerability to physical illness (Holmes & Rahe, 1967; Scaloubaca, Slade, & Creed, 1988). Attending college is a major life transition for late adolescents or young adults that includes a number of potentially stressful events such as relocation, separation from family members, and development of new peer relationships. These and other types of life event stress may detrimentally affect health-related quality of life (HRQOL)—that is, functioning and well-being in physical, mental, and social domains of life. In one study, for example, first year undergraduates who sought help in a student health center for psychological or physical symptoms tended to report experiencing adverse life events in the previous year such as a dissolution of a close relationship, or a death or serious illness in the family (Scaloubaca, Slade, & Creed, 1988). However, merely experiencing a life change or event does not necessarily result in a negative outcome. According to Lazarus and Folkman (1984), individuals tend to make subjective, cognitive appraisals of life events. An event that is negatively perceived has a greater potential for having an unfavorable impact on HRQOL (Siegel & Brown, 1988).

In addition, the influence of stressful life events on HRQOL may differ by gender. Previous research has suggested that females and males tend to differ in their perceptions of many life events (Burke & Weir, 1978; Tolan, Miller, & Thomas, 1988). In one study, 16- to 18-year-old females rated events as more stressful than did their male counterparts (Tolan et al., 1988). However, Tolan et al. did not find any gender differences in the prevalence of experiencing stressful life events. In contrast, other research has suggested an absence of gender differences in perceptions of stressors, but differences in the prevalence of experiencing stressful life events. For example, in one study female high school adolescents reported experiencing more stressors, especially regarding interaction with friends; but the researchers observed no gender differences in stress reactivity (Gore, Aseltine, & Colton, 1992). In another study, females aged 12 to 14 reported experiencing more negative life events than did males, and males aged 12 to 14 reported more positive events than females (Compas, Davis, & Forsythe, 1985). In yet another study, adult women of all marital statuses except separated or divorced were significantly more likely to report negative health events (e.g., major illness, major injury, or hospitalization) than adult men (Thoits, 1987).

Researchers have also found gender differences in HRQOL. Previous studies have indicated that female adolescents and adults tend to report worse emotional well-being than males (Gore et al., 1992; Holmes & David, 1989; Nelson, Hays, Arnold, Kwoh, & Sherbourne,

Teresa M. Damush is a postdoctoral Fellow at the Institute for Health & Aging at the University of California, San Francisco. Ron D. Hays is Senior Policy Analyst with the RAND Corporation, Santa Monica, California. M. Robin DiMatteo is Professor of Psychology at the University of California, Riverside. Preparation of this article was supported in part by Grant AA 07852 from the National Institute on Alcohol Abuse and Alcoholism.

1989; Nacoste & Wise, 1991; Siddique & D'Arcy, 1982; Thoits, 1987). Furthermore, research on college students has suggested that women tend to report more intense fear, joy, love, and sadness than do men (Grossman & Wood, 1993).

Although researchers have focused on different sources of stress for adolescents and the differential impact on gender among adolescents (Clarke, 1995; Newcomb, Huba, & Bentler, 1981; Sherman & Walls, 1995; Siegel & Brown, 1988; Tolan, et al., 1988), few researchers have compared the impact of different kinds of undesirable life events on HRQOL in female and male college students (Scaloubaca et al., 1988; Tyrell, 1992). Ge, Lorenz, Conger, Elder, and Simons (1994) suggested the need for additional research to assess adolescent gender differences in reactivity to different types of stressors. Furthermore, Frazier and Schauben (1994) highlighted a need for specific information on the types of stressors college students are experiencing and the particular impact these stressors may have on adjustment, university counseling centers need such information to develop preventive and therapeutic programs. Moreover, Frazier and Schauben 1994 emphasized the need for researchers to examine areas of adjustment other than anxiety and depression that may be affected by stressors.

In this study the researchers examine the relationship between specific self-reported life events and HRQOL in a sample of male and female college students enrolled at a West Coast university. They evaluated the following hypotheses: (a) college students who reported experiencing negative life events would have worse HRQOL than students who did not report these events; and (b) the associations between stressful life events and HRQOL would vary by gender, with stronger negative associations for females than males.

METHOD

Participants

The sample consisted of 350 West Coast university students enrolled in an introductory psychology course. Included were 49.1% freshmen, 35.4% sophomores, 12.3% juniors, and 3.1% seniors. The respondents' ages ranged from 16 to 29 years, with a mean of 19 years. Of those surveyed, 50.0% were Caucasian, 36.8% Asian, 9.7% Hispanic, 1.4% African American, and 3.1% reported Other ethnicity. The sample was 57.2% female, and 2.0% of the respondents were married. Ninety-eight percent reported not married at assessment.

Measures

Socially Desirable Response Set (SDRS). The researchers included five items from the Marlow-Crowne scale to measure the extent to which individuals respond in a socially desirable manner (Hays, Hayashi, & Stewart, 1989). For example, one SDRS item is "I am always courteous even to people who are disagreeable." Internal consistency and 1-month test-retest reliabilities of 0.68 and 0.75 respectively had been previously reported (Hays et al., 1989). A higher score reflects more socially desirable responses.

HRQOL Measures. The researchers combined forty-eight items from the Medical Outcomes Study functioning and well-being battery (Stewart et al., 1992) into measures (number of items and previously reported internal-consistency reliability estimates in parentheses) of anxiety (6 items, 0.92), sense of belonging (3 items, 0.87), cognitive functioning (6 items, 0.87), depression (13 items, 0.95), current health perceptions (7 items, 0.88), bodily pain (2 items, 0.94), positive affect (7 items, 0.94) and social functioning (1 item) (Stewart et al., 1992). The researchers used the HRQOL measures to evaluate several facets of subjective functioning and well-being. Anxiety, depression, sense of belonging, and positive affect measures assessed aspects of emotional well-being. Cognitive functioning pertained to concentration and memory. Current health perceptions were the overall evaluations of physical and mental health status. Bodily pain involved pain severity and interference with daily activities. Social functioning assessed the extent to which health interfered with typical social activities. Each dimension was assessed in relation to the previous 4 weeks, except for current health perceptions, for which

the time frame was "now."

The HRQOL measures were scored on a 0 to 100 possible score range, with higher scores reflecting more of the construct being tapped, except for bodily pain and cognitive functioning. For example, a high score on the anxiety measure was interpreted as greater anxiety, and a higher score on the cognitive functioning and bodily pain measures reflected worse cognitive functioning and freedom from pain. These scores represent the percentage of total possible score achieved.

Table 1 contains internal consistency reliabilities and descriptive statistics for the HRQOL scales in this sample. The reliabilities of the multi-item scales ranged from 0.74 to 0.92, reflecting very reliable measurement (Nunnally, 1978). The minimum and maximum scores in Table 1 indicate a wide distribution of scores, ranging from extremely low to extremely high functioning and well-being. A higher score on the quality of life measures, bodily pain and cognitive functioning, indicated less of the construct (e.g., a higher pain scored indicated less self-reported bodily pain). A higher score on the remaining quality of life measures reflected more of the construct (e.g., a higher anxiety score indicated more self-reported anxiety).

Stressful Life Events. The questionnaire included a Multidimensional Assessment of Stressful Life Events battery (Newcomb, et al., 1981). The measure, designed for adolescents, includes 39 stressful life events in 7 different areas: family/parents, accident/illness, sexuality, autonomy, deviance, relocation, and distress (see Table 2). Respondents first rated the perceived impact of each event if it were to happen to them, and they used a 5-point response scale, from 1 (*very unhappy*) to 5 (*very happy*). Respondents also reported the occurrence of each event by selecting from three response choices: *never happened*; *happened, but not in the last 12 months*; and *happened in the last 12 months.*

Procedure

The researchers administered the questionnaire at prescheduled times in a classroom in exchange for course credit. Time to complete the question-

TABLE 1.
Descriptive Statistics for Health-Related Quality of Life Measures

Scale	Number of Items	Internal Consistency Reliability[a]	Mean	Standard Deviation	Minimum Score	Maximum Score
Anxiety	6	0.86	27.21	16.44	0	96.67
Belonging	3	0.74	66.31	22.96	0	100.00
Cognitive Functioning	6	0.81	20.32	14.76	16.67	100.00
Depression	13	0.92	23.15	15.52	0	81.54
Current Health Perceptions	7	0.85	72.39	20.08	3.57	100.00
Bodily Pain	2	0.74	72.01	22.81	0	100.00
Positive Affect	7	0.90	61.39	17.94	2.86	97.14
Social Functioning	1	N/A	72.00	27.59	0	71.99

[a] Cronbach's (1951) alpha coefficient was used to estimate internal consistency reliability.

[b] N/A = not applicable to single-item measure. The health-related quality of life measures were transformed linearly to a 0 to 100 possible score range.

TABLE 2.
Zero-Order Correlations (Product Moment) Among Recent Stressful Life Events and Health-Related Quality of Life

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	Family/Parents	1.00														
2.	Accident/Illness	0.08	1.00													
3.	Sexuality	0.01	–0.03	1.00												
4.	Autonomy	–0.16**	–0.10	0.15**	1.00											
5.	Deviance	0.03	0.06	0.11*	–0.03	1.00										
6.	Relocation	0.11*	0.15**	–0.13**	–0.10	–0.03	1.00									
7.	Distress	0.26#	0.11*	0.11*	–0.09	0.17**	0.06	1.00								
8.	Anxiety	0.21#	–0.02	0.08	–0.02	–0.01	0.04	0.26#	1.00							
9.	Depression	0.17**	0.08	0.14**	0.12*	0.00	–0.05	0.36#	0.64#	1.00						
10.	Bodily Pain	–0.15**	–0.10	–0.01	0.04	–0.01	0.09	–0.22#	–0.33#	–0.44#	1.00					
11.	Cognitive Functioning	0.17**	0.03	0.02	0.01	0.06	0.00	0.30#	0.63#	0.67#	0.35#	1.00				
12.	Current Health Perceptions	–0.21#	–0.05	–0.07	–0.11*	–0.01	0.02	–0.26#	–0.38#	–0.49#	0.47#	–0.37#	1.00			
13.	Positive Affect	–0.09	–0.02	–0.16**	–0.25#	–0.04	0.05	–0.29#	–0.45#	–0.72#	0.32#	–0.47#	0.47#	1.00		
14.	Sense of Belonging	–0.09	0.02	–0.24#	–0.15**	–0.08	0.11*	–0.21#	–0.28#	–0.50#	0.16**	–0.35#	0.33#	0.61#	1.00	
15.	Social Functioning	–0.11*	–0.04	–0.02	–0.02	0.05	0.00	–0.24#	–0.41#	–0.53#	0.54#	–0.37#	0.42#	0.42#	0.18***	1.00

Note. $N = 350$.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. #$p \leq .0001$.

naire ranged from 30 to 45 minutes. To ensure confidentiality, respondents placed completed questionnaires in envelopes before returning them. There were no refusals to participate. All students who came to the classroom at the specified times completed the instruments.

RESULTS

The average number of life events occurring in the previous 12 months was 8.9, with an observed range from 0 to 20 (possible range of 0 to 34). The average number of life events that had occurred over the life span, but not during the previous 12 months, was 9.7, with an observed range from 0 to 23. The correlation between the occurrence of life span and recent past events was negative ($r = -.24$, $p < .0001$). Individuals who experienced fewer stressful events in the past were more likely to report the occurrence of recent stressful events.

Associations Between Stressful Life Events and HRQOL

The researchers computed zero-order product moment correlations to evaluate associations between stressful life events experienced in the recent past and HRQOL measures (see Table 2). For this analysis the perceived impacts of the life events were rescored from values of 1 to 5 to −2, −1, 0, 1, 2, with a positive score denoting a more negative perceived effect. The total sample was included in the correlational analysis. If a respondent did not experience the particular life event within the past 12 months, he or she was assigned a rating of 0 (neutral). For each of the seven areas of life events, an aggregate impact score was composed by totaling across each event within the area.

Intercorrelations among life event categories tended to be small, but several correlations were statistically significant. Events in the distress category revealed the greatest number of associations with the other areas. Ratings of distressful events were related to family/parents events ($r = 0.26$, $p < .0001$), accident/illness events ($r = .11$, $p < .05$), sexuality events ($r = 0.11$, $p < .05$), and deviance events ($r = 0.17$, $p < .01$).

In addition, the results revealed that HRQOL measures were strongly intercorrelated. Respondents who reported greater anxiety, bodily pain, or depression also reported less sense of belonging, less positive affect, and poorer social functioning, current health perceptions and cognitive functioning. These associations are consistent with those found in the Medical Outcomes Study of chronically ill patients (Stewart et al., 1992).

College students who experienced life events in the family/parents area that they perceived to be negative also reported greater anxiety ($r = 0.21$, $p < .0001$), depression ($r = 0.17$, $p < .01$), and bodily pain ($r = -0.15$, $p < .01$) than other college students. In addition, they reported worse cognitive functioning ($r = 0.17$, $p < .01$), social functioning ($r = -0.11$, $p < .05$), and current health perceptions ($r = -0.21$, $p < .0001$) than other students. Individuals who experienced sexuality life events that they perceived to be negative reported greater depression ($r = 0.14$, $p < .01$), less positive affect ($r = -0.16$, $p < .01$), and a lower sense of belonging ($r = -0.24$, $p < .0001$) than other college students. Negative autonomous life events were significantly related to poorer current health ($r = -.11$, $p < .05$) and exhibited similar significant relationships with HRQOL measures as did sexuality life events.

As expected, experiencing distressful life events was related to greater anxiety ($r = 0.26$, $p < .0001$), depression ($r = 0.36$, $p < .0001$), and bodily pain ($r = -0.22$, $p < .0001$). In addition, stressful events in this category were associated with poorer cognitive functioning ($r = 0.30$, $p < .0001$), worse perceptions of current health ($r = -0.26$, $p < .0001$), less positive affect ($r = -0.29$, $p < .0001$), a lower sense of belonging ($r = -0.21$, $p < .0001$), and poorer social functioning ($r = -0.24$, $p < .0001$).

Interestingly, college students experiencing negative relocation life events also reported a greater sense of belonging ($r = 0.11$, $p < .05$). This counterintuitive finding may be a result, for example, of college students finding refuge at school and feeling a greater sense of belonging in their peer environment subsequent to family relocation. Surprisingly, accident/illness and

TABLE 3.
Varimax Rotated Factor Pattern

	Factor 1 (Dysphoria)	Factor 2 (General Health)	Factor 3 (Well-Being)
Cognitive Functioning	**0.71**	−0.24	−0.27
Depression	**0.60**	−0.40	−0.53
Anxiety	**0.72**	−0.27	−0.20
Social Functioning	−0.29	**0.63**	0.16
Bodily Pain	−0.18	**0.76**	0.08
General Health	−0.23	**0.50**	0.34
Positive Affect	−0.30	0.30	**0.77**
Sense of Belonging	−0.18	0.07	**0.70**

deviance life events were not significantly related to HRQOL.

Gender as a Moderator of the Stressful Events–HRQOL Relationship

The researchers conducted analyses to examine whether the effects of stressful life events on HRQOL varied by gender. As in the preceding analysis, they used aggregate impact scores composed of totals across each event within each of the seven areas of life events. In addition, the eight HRQOL measures were factor analyzed to determine their dimensionality. Three factors were found to have eigenvalues exceeding 1.0 (see Table 3): dysphoria, general health, and well-being. A varimax rotation of the factors was performed. Cognitive functioning, anxiety, and depression showed high factor loadings onto the first factor, Dysphoria. Bodily pain, current health perceptions, and social functioning revealed moderate to high factor loadings onto Factor 2, General Health. Positive affect and sense of belonging displayed high factor loadings onto Factor 3, Well-Being. The researchers then created three factor composite scores.

To identify a parsimonious subset of independent variables, the researchers regressed, Dysphoria, General Health, and Well-Being on demographics (gender, age, race, and school year), SDRS, life event aggregate scores, and all interactions between gender and the other independent variables. The researchers dummy coded gender, race, and school year variables as, respectively, 1 = *female* and 0 = *male*; 1 = *applicable race* (Caucasian, Hispanic, Asian, African American, or other race) and 0 = *nonapplicable race*; and 1 = *applicable year in school* (freshman, sophomore, junior, or senior) and 0 = *nonapplicable year*. Three separate forward stepwise regression models (.05 significance entry level) were run (one for each HRQOL factor).

Significant independent variables ($p < .05$) identified from any of the three forward regression analyses just described were then included in simultaneous multiple regression models. For models with significant gender interactions, the main effects were also entered into the simultaneous model. The SDRS measure did not display any significant associations with HRQOL; therefore, the researchers did not include it in the simultaneous regression models. Because of the large sample size and multiple analyses, a stringent alpha level of .01 was adopted for significance in the simultaneous regression models.

As shown in Table 4, distressful life events ($\beta = 0.32$, $p < .0001$), and family life events ($\beta = 0.14$, $p < .01$) had significant direct effects on Dysphoria ($F(3, 340) = 19.70$, $p < .0001$), accounting for 14% of the variance. Thus, stressful life events pertaining to distress, and family were uniquely related to greater dysphoria. Distressful life events ($\beta = -0.27$, $p < .0001$) were significantly related to General Health (see Table 4). Approximately 10% of the variance in General Health was accounted for, $F(2, 341) = 19.15$, $p < .0001$. Respondents who rated distressful life events as stressful reported worse health. Seventeen percent of the variance in Well-Being was explained ($F(6, 337) = 12.70$, $p < .0001$) by autonomous ($\beta = -0.18$, $p < .001$), sexual ($\beta = -0.17$, $p < .001$), and distressful life events ($\beta = -0.28$, $p < .0001$). Thus, respondents who rated autonomous, sexual, and distressful life events as stressful reported less well-being. Gender did not significantly interact with stressful life events for these three HRQOL dimensions.

DISCUSSION

This study elucidates the sources of stress associated with HRQOL among college students. The results provided substantial support for the first hypothesis. College students who reported experiencing stressful life events also reported worse HRQOL; however, this association was not upheld for all areas of stress or HRQOL. The area of stress most strongly related to HRQOL was distressful life events. Some of the distressful life events (e.g., "thoughts about suicide" and "started seeing a therapist") are similar to the HRQOL mental health measures. Therefore, the relationship between HRQOL and distressful life events may be circular. Negative ratings of distressful events were related to greater dysphoria, poorer general health, and less well-being. Negative perceptions of family events were associated with more dysphoria. Stressful autonomous and sexuality events were correlated with reduced well-being. Surprisingly, deviance, illness, and relocation life event areas had no

TABLE 4.
Regressions of Dysphoria, Health, and Well-Being on Race, Gender, and Stressful Life Events

	Dysphoria	General Health	Well-Being
Independent Variables			
Autonomous Life Events			–0.18***
Distressful Life Events	0.32****	–0.27****	–0.28****
Family/Parental Life Events	0.14**		
Sexual Life Events			–0.17***
F value	19.70****	19.15****	12.70****
Degrees of Freedom	(3, 340)	(2, 341)	(6, 337)
Adjusted R^2	.14	.10	.17

Note. Only statistically significant ($p \leq .01$) independent variables for simultaneous regression models are shown. All entries are standardized betas.

**$p \leq .01$. ***$p \leq .001$. ****$p \leq .0001$.

significant direct effects on HRQOL. This may in part be due to the fact that the sample reported a low rate of deviant, illness, and relocation life events. The associations between life events and HRQOL in the current study were consistent with those found in previous research. For example, researchers who assessed stressful life events of adolescents using the same instrument as in the current study found similar associations between stressful life events and depression (Newcomb, et al., 1981). These researchers found negative family life, sexual, relocating, deviant, autonomy, and distressful life events to be associated with greater depression.

The negative association of autonomous life events with well-being in the current study was significant, but the effect of family/parental life events was not. This finding is consistent with Gore et al.'s (1992) research on adolescents. Also, family/parental life events had a significant effect on greater dysphoria. Autonomous and sexual life events were not associated with dysphoria or general health. Several explanations are possible for the family/parental events results. Negative perception of life events involving the family may be related to greater dysphoria because individuals may perceive the previously secure home base and supporting resources to be disrupted or no longer available. For example, when the family experiences financial difficulties, the family lifestyle may be altered. College students may believe that if any future problems occur, familial support may not be available to them. Thus, anxiety may exist because of a perceived lack of resources to manage stressful situations (Lazarus & Folkman, 1984).

The HRQOL factor analysis results in this study were similar to those reported by Lepper et al. (1995). Two of the factors identified in this study, Dysphoria and Well-Being, had been included in previous research together as a general mental health factor (Hays, Sherbourne, & Mazel, 1995; Hays & Stewart, 1990; Stewart, King, Killen, & Ritter, 1995).

The results of this study did not provide support for the second hypothesis, which proposed that gender was a moderator of the relationship between stressful life events and HRQOL. Contrary to findings from previous studies (Conger, Lorenz, Elder, Simons, & Ge, 1993; Ge et al., 1994; Hannon, Day, Butler, Larson, & Casey, 1983), gender interactions with life event ratings were nonsignificant for the HRQOL factors. Furthermore, the perceptions of stressful life events and gender accounted for only a modest amount of variance in HRQOL. Some research suggests that personality (Clarke, 1995) and social support may moderate the relationship between perceptions of stressful events and HRQOL and that these variables may differ by gender (Sherman & Walls, 1995). In one study, Sherman and Walls found social support to be very influential in the perception of stress and symptoms for female college students but not at all for male students.

Although the current findings offer insight into the sources of stress that affect HRQOL, this study has some limitations. The assessment was collected only once; thus, no causal relationships can be inferred from this data. Poor HRQOL may predispose an individual to experience stressful life events. Crossed-lagged panel designs offer a much stronger basis for causal inferences (Hays, Marshall, Wang, & Sherbourne, in press). Furthermore, this sample of college students included individuals from one psychology class, thus limiting the generalizability of these results.

Nonetheless, the results of this study pinpoint the areas of stress that can affect HRQOL during late adolescence and young adulthood. Specifically, autonomous, distress, family/parental, relocating, sexual, and deviance events may negatively affect dysphoria, general health, and well-being. Moreover, the impact of life events on college men and women appears to be similar.

Additionally, college professionals must recognize that college students can be affected by the stressful life events surrounding their families. Little research has focused on the effects of stressful family life events on college students, perhaps because researchers assume that college students are consumed with their intimate relationships and social development outside of the family. However, the importance

of family life events has been magnified recently by the increasing cost of living, which has forced many college students to commute to college while continuing to live with their families. Moderating factors such as living arrangements (with parents, or with roommates on campus, or off campus) may contribute to greater knowledge of the stress-health relationship in this population, and these factors need to be incorporated into future studies.

Correspondence concerning this article should be addressed to Teresa M. Damush, Institute for Health & Aging, UCSF Box 0646, Laurel Heights, San Francisco, CA 94143-0646; tdamush@itsa.ucsf.edu

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