Stress Reactivity and Vulnerability to Depressed Mood in College Students

Gary Felsten

Department of Psychology, Indiana University – Purdue University Columbus
4601 Central Avenue, Columbus, IN, 47203, U.S.A.

Correspondence to:
Gary Felsten, Department of Psychology
Indiana University – Purdue University Columbus
4601 Central Avenue, Columbus, IN 47203, USA.
Tel: 812-348-7274
Fax: 812-348-7276
E-mail: gfelsten@iupui.edu

Summary

Two studies reported here found that in response to common, minor stressors, stress reactivity (defined as mean stress per stressor) was a stronger predictor than total stress of depressed mood in traditional and nontraditional college men and women. A prospective study found individual reactivity scores varied over time, but relationships between stress and depressed mood held across four monthly assessments. Stress reactivity also accounted for more incremental variance in depressed mood than total stress after controlling for previous depressed mood. When students in the cross-sectional study were classified into reactivity groups, scores for depressed mood increased steadily for students in the very low through high reactivity groups, as did percentages of students with depressed mood scores that might indicate depression in normal populations. This study also found that stress reactivity was more strongly correlated than total stress with neuroticism and its facets (or traits) of depression, anxiety, and vulnerability to stress in the five-factor model of personality. Taken together, these studies suggest that elevated stress reactivity to minor stressors may indicate diminished ability to cope with everyday challenges and may predict increased vulnerability to depressed mood in a normal population.

Stress Reactivity and Vulnerability to Depressed Mood in College Students

The assumption that stress accumulates over time to cause or trigger episodes of disorder (Rabkin & Struening, 1976) has guided research in stress and health for over three decades. It was a guiding principle in the pioneering development of the Social Readjustment Rating Scale (Holmes & Rahe, 1967) and subsequent life events inventories, which measure cumulative stress from exposure to minor and major events requiring adaptive responses. Sufficient stress to trigger disorder may accumulate from exposure to one or more very stressful events or a greater number of less stressful events. Many studies have supported this model by demonstrating reliable, but generally modest correlations between cumulative life events stress and negative physical and psychological health outcomes (Johnson & Sarason, 1979).

More recent efforts to assess stress have often employed "hassles" inventories, which measure stress from commonly occurring, minor stressors. There are theoretical and practical reasons for this approach. Many researchers found that major stressors occurred too infrequently to account for most of the stress that people experienced. Furthermore, many researchers study stress and outcomes in convenience samples such as college students, who generally experience few major stressors and little serious disorder, but frequent minor stressors, negative mood states, and deficits in performance. Hassles inventories are also based on the assumption that stress accumulates to cause or trigger negative outcomes. This approach has been successful and many studies found cumulative stress from minor stressors was a stronger predictor of physical and psychological disorder than stress from major life events, even when the same studies employed both measures of stress (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Kanner, Coyne, Schaefer, & Lazarus, 1981; Monroe, 1983).

Hassles and life events inventories differ primarily in the nature of events listed. Life events inventories include items that cover a broader range of potential stress and required adaptation. Although the cognitive-transactional model of stress (Lazarus & Folkman, 1984) posits that individuals may vary greatly in appraising the stressfulness of any event, life events inventories include some items that most people might rate as slightly stressful and some items that most people might rate as extremely stressful. Individuals could achieve high cumulative stress scores by experiencing one or more very stressful events or a greater number of less stressful events. In contrast, and consistent with their name, hassles inventories do not contain any items that most people would consider especially stressful. They were developed in response to the hypothesis that the cumulative effect of frequent exposure to everyday stressors could trigger disorder. Yet, some hassles inventories allow respondents to rate minor stressors as extremely stressful and some respondents do so. Brantley and Jones (1989) suggested that individuals who rate minor stressors as very stressful may be dispositionally or temporarily more vulnerable to stressors and less able to cope. They might be expected to accumulate stress more quickly and be more likely to experience negative affective states than individuals who rate minor stressors as less stressful. It is also possible, however, that such individuals by virtue of their vulnerabilities to stress, may experience greater negative affect even if they do not accumulate more total stress.

Felsten (2002) tested this hypothesis by measuring mean stress per stressor (stress reactivity) and total stress in response to minor stressors, and found stress reactivity was the stronger predictor of depressed mood in college women. Reactivity was also moderately correlated with neuroticism, a stable dimension of personality associated with ineffective coping, vulnerability to stress, poor adjustment, and negative affect (Costa & McCrae, 1992). Based on this association,

the author suggested that greater stress reactivity in response to minor stressors might be a stable marker for vulnerability to stress and a predictor of negative outcomes. The study was limited in that it included only women, did not evaluate associations between stress reactivity and personality in detail, and provided no actual test of the stability of stress reactivity. The present report addressed those limitations by reevaluating archival data, some of which have been previously published (Felsten, 1996a, b). These archival data contain measures appropriate for addressing the issues described above, but were not previously used in that manner.

Study 1

Study 1 was a reanalysis of some of the published data from a cross-sectional study (Felsten, 1996a) used to evaluate expressive and neurotic hostility in the context of the five-factor model of personality (Costa & McCrae, 1992; McCrae & John, 1992). The reanalysis permitted evaluation of how strongly total stress and stress reactivity predicted depressed mood in men and women and also allowed a more detailed evaluation of personality correlates of stress reactivity. Data from the hostility inventory were not used in the reanalysis.

Method

Participants

Participants included 100 women and 63 men who were undergraduate students at a small campus of a public university in the Midwest. Mean age was 23.6 years ($SD = 6.0$) for men and 25.9 years ($SD = 9.0$) for women. Almost all students were White and many were nontraditional students who worked for pay and/or were married. Participants provided informed consent.

Materials and Procedure

NEO PI-R. The revised NEO Personality Inventory (Costa & McCrae, 1992) is a 240-item self-report questionnaire used to assess the five major domains of personality described by the five-factor model. The domains are labeled neuroticism (N), extraversion (E), openness (O), agreeableness (A), and conscientiousness (C). Each domain consists of six facets or interrelated traits, and each facet is assessed with eight items. The inventory has been extensively validated (Costa, McCrae, & Dye, 1991; McCrae & Costa, 1987) and has good reliability and validity.

Daily Stress Inventory. The DSI (Brantley & Jones, 1989) is a valid (Brantley, Waggoner, Jones, & Rappaport, 1987) 58-item, self-report instrument used to measure the frequency and impact of commonly occurring, minor life events. The stressfulness of situations encountered is rated on a 7-point scale, ranging from "not stressful" to "caused me to panic." The DSI provides three measures of stress: number of events experienced, total perceived impact of those events (total stress), and ratio of total impact to number of events, which is a measure of stress reactivity. Item ratings were rescaled down one unit so that a rating of 1 (occurred but was not stressful) was reassigned a value of 0. Such items contributed to the number of stressors, but not the total stress experienced, in the calculation of mean stress reactivity.

Beck Depression Inventory. The BDI (Beck & Steer, 1987) is a 21-item self-report inventory used to assess the severity of symptoms of depression in adolescents and adults. It is a reliable

and valid instrument (Beck, Steer, & Garbin, 1988) that has been used extensively in normal and clinical populations.

Students completed all inventories at one sitting with instructions to complete the BDI and DSI with reference to the week ending the day of testing.

Results

Descriptive statistics appear in Table 1. Men and women did not differ on most variables, but women scored higher than men on stress reactivity, $t(161) = 2.6$, $p < .05$, neuroticism, $t(161) = 2.5$, $p < .05$, and agreeableness, $t(161) = 3.4$, $p < .01$. Women scored higher than men on three neuroticism facets (anxiety, depression, and vulnerability to stress) and four agreeableness facets (straightforwardness, altruism, compliance, and modesty). Although most scores for depressed
----
Insert Table 1 about here
----
mood were low, 18.4% of students had scores of 15 or greater, which suggest possible depression in normal populations (Oliver & Simmons, 1984).

Depressed mood correlated more strongly with stress reactivity than with total stress in men ($r = .59$, $p < .001$ versus $r = .39$, $p < .01$) and women ($r = .53$, $p < .001$ versus $r = .34$, $p < .01$). Partial correlations between total stress and depressed mood, controlling for stress reactivity, were weak and not significant ($r = .01$ for men; $r = -.15$ for women), whereas partial correlations between stress reactivity and depressed mood, controlling for total stress, remained moderate and significant ($r = .48$, $p < .001$ for men; $r = .46$, $p < .001$ for women).

Table 2 shows significant correlations between personality measures, stress measures, and depressed mood. Because of the many comparisons, correlations significant at the $p < .001$ level are indicated as significant. Because of differences in sample size, some correlations did not reach significance in men although correlations of equal magnitude were significant in women. Only the neuroticism domain was significantly correlated with either measure of stress in men and women. It was strongly correlated with stress reactivity and moderately correlated with total stress. In men, all facets (traits) of neuroticism except impulsiveness correlated significantly with stress reactivity, but only the vulnerability to stress facet correlated significantly with total stress. In women, all facets of neuroticism were significantly correlated with stress reactivity, and all except impulsiveness were correlated with total stress. Differences in correlation strength were generally small. Although the other domains of personality were not significantly correlated with stress, a few of their facets were. The stronger associations were with stress reactivity, which was negatively correlated with competence from the conscientiousness domain in men, and with trust from the agreeableness domain and dutifulness from the conscientiousness domain in women.

Insert Table 2 about here

Neuroticism and all of its facets except impulsiveness correlated with depressed mood in men and women. Depressed mood correlated negatively with the domain of extraversion and its facet of positive emotions in all students and its facet of gregariousness in women. Outside of neuroticism and extraversion, competence correlated negatively with depressed mood in men,

and the agreeableness facets of trust (negatively) and modesty (positively) correlated with depressed mood in women.

Using the rating scale for the DSI, I classified students into four stress reactivity groups, labeled very low ($n = 58$), low ($n = 67$), moderate ($n = 34$), and high ($n = 4$). Scores for the number of stressors experienced, total stress, depressed mood, neuroticism, and extraversion appear in Table 3 for all groups. One-way analysis of variance (excluding the high reactivity group because of the small n) found the overall effect of reactivity group to be significant for all variables except extraversion, all $Fs(2, 156) \geq 5.1$, all $ps < .01$. Contrasts showed all differences to be significant at $p < .01$ for depressed mood, total stress, and neuroticism. Number of stressors was lower for the very low reactivity group than for low and moderate reactivity groups, which did not differ from each other. These data show that stress reactivity and not number of stressors accounted for greater total stress in the moderate than in the low reactivity group. The percentage of individuals with BDI scores above 15, which may indicate possible depression in normal populations (Oliver & Simmons, 1984), was 3.4%, 9.0%, 23.5%, and 100% for students in the very low through high reactivity groups, respectively.

Insert Table 3 about here

Considering that neuroticism is a stable personality dimension, it may be more appropriate to consider the percentages of individuals with different levels of neuroticism (based on normative data; Costa & McCrae, 1992), that fell into the various reactivity groups. Of the 72 students with very low through average neuroticism scores, 52.8% were in the very low stress reactivity group, 41.7% were in the low group, and 5.6% were in the moderate group. Of the 59 students with high neuroticism scores, 28.8%, 49.2%, and 22.0% fell into the very low, low, and moderate reactivity groups, respectively. Of the 32 students with very high neuroticism scores, 9.4%, 25.0%, 53.1%, and 12.5% fell into the very low, low, moderate, and high stress reactivity groups, respectively. The data show that moderate and high stress reactivity to minor stressors was rare among college students, but increasingly common at higher levels of neuroticism.

Study 2

Study 2 reanalyzed data from one cohort of students in a study of hostility, stress, and depression (Felsten, 1996b). Students in this cohort completed the same stress and depression inventories used in Study 1 on four occasions approximately one month apart. Reanalysis of their data allowed a prospective evaluation of the relationship between stress reactivity and depressed mood over a period of several months. Hostility data were not used in the reanalysis.

Method

Participants

Forty undergraduate students at a small, private college in the Northeast provided complete data for this reanalysis. Participants included 17 men, 21 women, and two students who did not indicate gender. All students attended school full-time; most were 18 to 21 years of age, White, and from middle and upper-middle class families. All students provided informed consent.

Materials and Procedure

Students completed the Daily Stress Inventory (DSI; Brantley & Jones, 1989) and the Beck Depression Inventory (BDI; Beck & Steer, 1987) four times at approximately one-month intervals, following instructions to rate all items for the period of the past week. The inventories are described in Study 1, above.

Results

Mean scores for the monthly measures of stress and depressed mood in men and women appear in Table 4. Independent samples *t*-tests found no gender difference for any measure and data were combined for further analyses. Repeated measures analysis of variance (using the Greenhouse-Geisser epsilon to correct for violations of sphericity) found overall differences across assessments in number of stressors $F(3, 117) = 30.1, p < .001$, total stress $F(3, 117) = 17.0, p < .001$), and depressed mood $F(3, 117) = 2.8, p = .05$. Contrasts showed number of stressors and total stress decreased from month 1 to month 2 to month 3, and then leveled off, whereas depressed mood was higher in the first month than in the next three months. Stress reactivity did not differ across assessments. These analyses assessed systematic changes over time in mean measures, but did not evaluate individual variability irrespective of the order of assessments. To test whether individuals varied in reactivity over time, I created four variables for each individual's lowest to highest reactivity scores. Repeated measures analysis of variance

----
Insert Table 4 about here

(Greenhouse-Geisser corrected) found an overall significant difference, $F(3, 117) = 61.1, p < .001$, and contrasts found each level of reactivity differed from every other level, all $Fs(1, 39) > 38.6$, all $ps < .001$. Thus, individual's reactivity varied over time, but not in a systematic manner.

I evaluated relationships between stress measures and depressed mood for the four monthly assessments using correlations and linear regression analysis. Correlations appear in Table 5. Almost all correlations between either measure of stress and depressed mood were strong, but at each assessment, the correlation was stronger for stress reactivity than for total stress. Partial correlations with depressed mood were stronger for stress reactivity controlling for total stress

----
Insert Table 5 about here
----

than for total stress controlling for stress reactivity. Linear regression analysis found that Time 3 stress reactivity accounted for an additional 17.8% of the variance in Time 3 depressed mood, controlling for Time 2 depressed mood, $F(1, 37) = 20.1, p < .001$. The full model accounted for 67.4% of the variance, $F(1, 37) = 38.2, p < .001$. Time 4 stress reactivity accounted for 8.2% of incremental variance in Time 4 depressed mood after controlling for Time 3 depressed mood, $F(1, 37) = 10.7, p < .01$. The full model accounted for 71.7% of the variance, $F(1, 37) = 46.9, p < .001$. When total stress was substituted in these analyses, it accounted for less than half the incremental variance accounted for by stress reactivity. Neither Time 2 stress reactivity nor total stress added to the variance in Time 2 depressed mood contributed by Time 1 depressed mood.

Discussion

The cross-sectional and prospective studies reported here found that in response to common, minor stressors, stress reactivity was a stronger predictor than total stress of depressed mood in college men and women. This extended an earlier finding that stress reactivity to minor stressors was the better predictor of depressed mood in college women (Felsten, 2002). As in the earlier report, these studies found depressed mood was more strongly correlated with stress reactivity than with total stress, and partial correlations between stress reactivity and depressed mood (controlling for total stress) were moderate, whereas partial correlations between total stress and depressed mood (controlling for stress reactivity) were weak and often not significant. In the prospective study, these findings held across four monthly assessments, and for two of the three assessments when a previous measure of depressed mood was available, current stress reactivity accounted for a significant amount of additional variance in current depressed mood, controlling for previous depressed mood. In each case the added variance was more than twice as great as that obtained when total stress was substituted for reactivity. Although more reactive students in both studies generally had higher levels of total stress, they were more likely than less reactive students to report greater symptoms of depressed mood whether they had high total stress or not. The findings challenge the assumption that stress must accumulate to trigger negative outcomes.

Study 1 (cross-sectional) extended the finding of the earlier report (Felsten, 2002) that stress reactivity was associated with neuroticism, a stable dimension of personality associated with vulnerability to stress and depression (Costa & McCrae, 1992). The present study included evaluation of associations between stress reactivity and the facets or traits within each of the personality domains in the five-factor model of personality (Costa & McCrae, 1992). The study found neuroticism to be strongly correlated with stress reactivity, but only moderately correlated with total stress in men and women. It also found all of the facets of neuroticism in women, and all but the impulsiveness facet in men, were correlated with stress reactivity. Correlations with reactivity were generally stronger than those with total stress. The facet most strongly associated with stress reactivity was depression, followed by anxiety and vulnerability to stress. No other domains and few facets outside of neuroticism correlated with stress reactivity (or with total stress). These results suggest stress reactivity is a good predictor of vulnerability to negative affect and depressed mood in particular. Study 1 also found that very few students with low to average neuroticism were in the moderate reactivity group and none was in the high group, whereas 22% of students with high, and 53% of students with very high neuroticism were in the moderate reactivity group, and 12.5% of students with very high neuroticism were in the high reactivity group. Thus, large responses to minor stressors were rare in this sample of normal college students, but increasingly likely for students with high and very high neuroticism.

Study 2 evaluated the stability of stress reactivity over four monthly assessments. Although mean reactivity for all participants did not differ systematically over time, analysis of individual differences in reactivity, irrespective of time of measurement, found significant differences. In other words, stress reactivity in individuals varied over the four monthly assessments. Brantley and Jones (1989) suggested that individuals who rate minor stressors as very stressful may be dispositionally or temporarily more vulnerable to stress. The present study supported both possibilities; although some individuals had consistently low or high reactivity scores, many had scores that varied over time. The correlation and regression analyses indicated that variations in depressed mood accompanied variations in reactivity, and that reactivity contributed to variance in depressed mood controlling for previous depressed mood. These findings suggest reactivity does not predict depressed mood simply because both are correlated with neuroticism. Although

neuroticism was not assessed in the prospective study, it is a stable dimension of personality, and individuals varied over time in reactivity and depressed mood. Furthermore, Felsten (2002) found that stress reactivity contributed to incremental variance in depressed mood after controlling for both neuroticism and previous depressed mood.

The present findings were consistent with the cognitive-transactional model of stress, which explains that relationships between stress and outcomes differ between individuals because they are moderated by coping, self-esteem, social support, control, opportunities, constraints, culture, and other psychosocial variables (Lazarus, 1999; Lazarus & Folkman, 1984). Variability in these factors at all levels of stress reactivity could partially account for differences in depressed mood. Because the most reactive individuals generally had the highest levels of neuroticism, they likely also had fewer beneficial stress moderators, and consequently higher levels of depressed mood. Consistent with this, Felsten (2002) reported that women with higher stress reactivity used more avoidance coping and experienced greater symptoms of depressed mood. The cognitive-transactional model also posits that the same psychosocial resources that moderate relationships between stress and outcomes influence appraisal of the stressfulness of events in the first place. In other words, individuals who perceive their resources for dealing with stressors as deficient, are more likely to appraise minor stressors as more stressful, less likely to cope effectively with that stress, and more likely to experience depressed mood.

The present studies found students with greater stress reactivity were more likely to have BDI scores indicative of possible depression in normal populations (Oliver & Simmons, 1984). Although links between stress and disorder appear most salient for individuals prone to severe depression, depressed mood is far more common, and while not nearly as devastating, it is also not benign. Depressed mood predicted reduced immune function in diverse groups of people (Weisse, 1992) and delayed hospital discharge in patients and disability and absentee days in workers (Beck & Koenig, 1996). It was among the stronger predictors of suicide in adolescents (Werenko, Olson, Fullerton-Gleason, Lynch, Zumwalt, & Sklar, 2000) and serious suicide attempts in suicidal patients (Hall, Platt, & Hall, 1999).

In summary, the main finding in both a cross-sectional and a longitudinal study was that in response to minor stressors, stress reactivity was a better predictor than total stress of depressed mood in college men and women. Although reactivity often contributed to higher total stress, more reactive students reported greater symptoms of depressed mood whether they had high total stress or not. The findings, which challenge the assumption that stress must accumulate to trigger negative outcomes, were consistent with recent studies of other forms of disorder. Wittrock and Foraker (2001) found that headache sufferers reported greater reactivity than headache-free controls in response to everyday events, and Wolff, Crosby, Roberts, and Wittrock (2000) found binge eaters reported greater reactivity to daily stressors on binge days than on non-binge days.

Given that common, minor stressors occur and greater reactivity to such stressors predicts depressed mood and other disorders, beneficial interventions would focus on reducing reactivity. Appropriate interventions could deal with those modifiable psychosocial resources that influence cognitive appraisal of stressors and moderate relationships between stress and outcomes. Skill building and development of stronger social support are some examples. The efficacy of such interventions could be tested both in individual therapeutic settings and in experimental research.

References

Beck, D. A., & Koenig, H. G. (1996). Minor depression: A review of the literature. *International Journal of Psychiatry in Medicine, 26,* 177-209.

Beck, A. T., & Steer, R. A. (1987). *Beck Depression Inventory Manual.* San Antonio: The Psychological Corporation.

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Reviews, 8,* 77-100.

Brantley, P. J., & Jones, G. N. (1989). *Manual for the Daily Stress Inventory.* Odessa, FL: Psychological Assessment Resources.

Brantley, P. J., Waggoner, C. D., Jones, G. N., & Rappaport, N. B. (1987). A daily stress inventory: Development, reliability, and validity. *Journal of Behavioral Medicine, 10,* 61-74.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO PI-R Professional Manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., McCrae, R. R., & Dye, D. A. (1991). Facet scales for agreeableness and conscientiousness: A revision of the NEO Personality Inventory. *Personality and Individual Differences, 12,* 887-898.

DeLongis, A., Coyne, J. C., Dakof, G., Folkman, S., & Lazarus, R. S. (1982). Relationship of daily hassles, uplifts, and major life events to health status. *Health Psychology, 1,* 119-136.

Felsten, G. (1996a). Five-factor analysis of Buss-Durkee Hostility Inventory neurotic hostility and expressive hostility factors: Implications for health psychology. *Journal of Personality Assessment, 67,* 179-194.

Felsten, G. (1996b). Hostility, stress, and symptoms of depression. *Personality and Individual Differences, 21,* 461-467.

Felsten, G. (2002). Minor Stressors and depressed mood: reactivity is more strongly correlated than total stress. *Stress and Health, 18,* 75-81.

Hall, R. C. W., Platt, D. E., Hall, R. C. W. (1999). Suicide risk assessment: A review of risk factors for suicide in 100 patients who made severe suicide attempts: Evaluation of suicide risk in a time of managed care. *Psychosomatics, 40,* 18-27.

Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research, 11,* 213-218.

Johnson, J. H., & Sarason, I. G. (1979). Recent developments in research on life stress. In V. Hamilton & D. M. Warburton (Eds.), *Human Stress and Cognition: An Information Processing Approach.* (pp. 205-236). New York: John Wiley

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparisons of two modes of stress measurement, Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine, 4,* 1-39.

Lazarus, R. S. (1999). *Stress and Emotion: A New Synthesis.* New York: Springer.

Lazarus, R. S., & Folkman S. (1984). *Stress, Appraisal, and Coping.* New York: Springer.

McCrae, R. R., & Costa, P. T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 54,* 81-90.

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60,* 175-215.

Monroe, S. M. (1983). Major and minor life events as predictors of psychological distress: Further issues and findings. *Journal of Behavioral Medicine, 6,* 189-205.

Oliver, J. M., & Simmons, M. E. (1984). Depression as measured by the DSM-III and the Beck Depression Inventory in an unselected adult population. *Journal of Consulting and Clinical Psychology, 52,* 892-898.

Rabkin, J. G., & Struening, E. L. (1976). Life events, stress, and illness. *Science, 194,* 1013-1020.

Weisse, C. S. (1992). Depression and immunocompetence: A review of the literature. *Psychological Bulletin, 111,* 475-489.

Werenko, D. D., Olson, L. M., Fullerton-Gleason, L., Lynch, A. W., Zumwalt, R. E., & Sklar, D. P. (2000). Child and adolescent suicide deaths in New Mexico. *Crisis, 21,* 36-44.

Wittrock, D. A., & Foraker, S. L. (2001). Tension-type headache and stressful events: The role of selective memory in the reporting of stressors. *Headache, 41,* 482-493.

Wolff, G. E., Crosby, R. D., Roberts, J. A., & Wittrock, D. A. (2000). Differences in daily stress, mood, coping, and eating behavior in binge eating and nonbinge eating college women. *Addictive Behaviors, 25,* 205-216.

Table 1

Descriptive Statistics for Stress, Depressed Mood, and NEO PI-R Domains

	Men (*n* = 63)		Women (*n* = 100)	
	M	*SD*	*M*	*SD*
Age	23.6	6.0	25.9	9.0
Number of Stressors	32.2	14.6	31.3	13.4
Total Stress	53.8	37.4	66.8	45.8
Stress Reactivity	1.6*	.8	2.0*	.9
Depressed Mood	8.3	7.2	9.8	7.5
Neuroticism	88.3*	23.7	98.3*	25.3
Extraversion	115.5	19.6	115.1	20.9
Openness	116.8	19.8	114.1	17.8
Agreeableness	110.4*	20.5	120.8*	15.8
Conscientiousness	110.9	19.9	113.1	20.0

Note. * Means for men and women differed, p < .05.

Table 2
Correlations between Measures of Personality, Stress, and Depressed Mood

	Men			Women		
	Total Stress	Stress Reactivity	Depressed Mood	Total Stress	Stress Reactivity	Depressed Mood
NEO PI-R Domains						
Neuroticism	.399*	.615*	.611*	.578*	.630*	.704*
Extraversion	-.153	-.236	-.404*	-.128	-.213	-.407*
NEO PI-R Facets						
N1: Anxiety	.294	.500*	.510*	.529*	.570*	.607*
N2: Angry Hostility	.338	.452*	.430*	.502*	.495*	.564*
N3: Depression	.352	.556*	.631*	.492*	.538*	.717*
N4: Self-consciousness	.268	.528*	.403*	.445*	.438*	.492*
N5: Impulsiveness	.141	.239	.237	.263	.322*	.267
N6: Vulnerability	.433*	.521*	.538*	.455*	.570*	.594*
E2: Gregariousness	-.021	-.196	-.309	-.156	-.218	-.335*
E6: Positive emotions	-.239	-.376	-.531*	-.039	-.172	-.434*
A1: Trust	-.188	-.284	-.362	-.314*	-.368*	-.428*
A5: Modesty	.192	.200	.220	.157	.196	.315*
C1: Competence	-.295	-.411*	-.406*	-.113	-.143	-.220
C3: Dutifulness	-.159	-.150	-.169	-.290	-.368*	-.134

Note. *p < .001. Domains and facets that did not correlate significantly are not displayed.

Table 3
Means for One-Way Analysis of Variance for Students Categorized into Reactivity Groups[a]

| | Stress Reactivity | | | | | | | |
| | Very Low (n = 58) | | Low (n =67) | | Moderate (n = 34) | | High (n = 4) | |
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Number of Stressors	27.2	12.6	33.8	13.7	35.1	14.7	31.3	13.8
Total Stress	27.6	19.4	65.8	28.8	103.9	44.1	132.0	59.9
Depressed Mood	5.1	4.5	9.5	6.5	13.4	6.7	28.5	11.7
Neuroticism	78.0	21.7	95.4	19.7	114.9	17.9	141.8	13.1
Extraversion	119.1	17.8	116.3	20.6	109.6	21.7	90.3	18.9

Note. [a]Analysis of variance did not include students in the high reactivity group. Overall differences between groups were significant at $p < .01$ for all variables except extraversion.

Table 4

Descriptive Statistics for Measures of Stress and Depressed Mood

| | Men (*n* = 17) | | | Women (*n* = 21) | |
	M	*SD*		*M*	*SD*
			Month 1		
Number of Stressors	30.4	12.7		32.2	12.9
Total Stress	49.3	33.0		61.6	40.5
Stress Reactivity	1.7	1.0		1.9	1.0
Depressed Mood	8.1	7.7		10.6	9.0
			Month 2		
Number of Stressors	23.4	13.9		25.2	10.7
Total Stress	37.1	29.5		49.0	28.5
Stress Reactivity	1.7	1.0		1.9	1.0
Depressed Mood	6.1	7.0		9.4	9.3
			Month 3		
Number of Stressors	20.5	15.2		20.1	8.1
Total Stress	30.7	27.0		38.3	25.4
Stress Reactivity	1.5	1.1		1.9	1.0
Depressed Mood	6.3	8.0		8.0	6.4
			Month 4		
Number of Stressors	19.9	14.7		20.5	10.0
Total Stress	28.4	22.7		38.1	29.6
Stress Reactivity	1.6	1.1		1.8	1.0
Depressed Mood	6.2	8.4		9.1	10.0

Table 5

Correlations and Partial Correlations between Depressed Mood and Measures of Stress

	Depressed Mood	
	Bivariate	Partial[a]
Month 1		
Total Stress	.697***	.337*
Stress Reactivity	.786***	.586***
Month 2		
Total Stress	.571***	.232
Stress Reactivity	.709***	.550***
Month 3		
Total Stress	.603***	.238
Stress Reactivity	.728***	.552***
Month 4		
Total Stress	.603***	.359*
Stress Reactivity	.720***	.584***

Note. [a]Controlled for other measure of stress. *p < .05; ***p < .001