

Locus of Control: Differences Among College Students' Stress Levels

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ABSTRACT - The present study, wherein 210 college students self-reported an overall perceived stress level (mild, moderate, or severe) and then completed (1) the *Student Life-Stress Inventory*, and (2) the *Locus of Control, Internality, Powerful Others, and Chance Scale* extends the work of Gadzella (1994a) on correlates of student stress. As in 1994, these findings showed significant correlations between the severe stress group scores and the Powerful Others and Chance scales and significant differences between the mild and severe stress group on the Chance scale.

The U.S. Census (2004) indicated that in 2001 over 15 million Americans were enrolled in college. In the transition from high school to college, students certainly experience many stressors (e.g., D'Zurilla & Sheedy, 1991; Zaleski, Levey-Thor, & Schiaffino, 1998). The stress students experience in college may affect their academic performances, and many of them attribute their successes and failures to their experiences of internal and external stressors (e.g., Weiner, 1990).

Concerning the measurement of such experiences, psychologists have defined stress as a stimulus (e.g., Holmes & Rahe, 1967), a response (e.g., Selye, 1976), or a stimulus-response interaction (e.g., Lazarus & Folkman, 1984). The *Student-Life Stress Inventory* (SSI; Gadzella, 1991) includes each of those definitions of stress and organizes them around a model designed by Morris (1990). The SSI has 51 items divided into two sections: stressors and reactions to stressors. The stressors section measures different kinds of stressors across five categories, *frustration, conflict, pressure, change, and self-imposed*. The reactions to stressors section includes four categories, *physiological, emotional, behavioral, and cognitive appraisal*. The SSI also measures students' overall perceived stress level: *mild, moderate, or severe*.

Since 1991, a host of researchers have used the SSI to understand students' stress levels. For example, some have investigated the relationship between stress level with age and gender (Gadzella & Fullwood, 1992), marital status (Gadzella, Fullwood, & Tomcala, 1992), on faculty perceptions of students' stress (Misra, McKean, West, &

Russo, 2000), athletic involvement (Farrey, 2004) and comparing American-born and International students (Misra & Castillo, 2004).

Another important variable is the perceived locus of such experiences. Rotter (1966) developed his Internal-External Expectancies Scale (I-E Scale) to measure "locus of control of reinforcement." Rotter viewed locus of control as an attribution where individuals' behaviors were functions of their expectations and reinforcements. For example, individuals scoring internal on the I-E Scale believed that they were responsible for their own fate, and those scoring external on the scale believed that other people and forces substantially influenced their decisions and behaviors.

Rotter's scale was a bi-directional, one-dimensional conceptualization; that is, it ranged from internal to external (I-E), and thus a person could not endorse an item in both an internal and external direction. Levenson (1981) introduced an alternative to Rotter's I-E Scale by proposing three independent dimensions of locus of control: *Internality* (I), *Powerful Others* (P), and *Chance* (C). Levenson's Internality scale corresponded to Rotter's Internality dimension and her Powerful Others and Chance scales corresponded to Rotter's External dimension. For example, in the event of a car accident, an individual with the Internality locus of control might think, "I had an accident because I am a poor driver." An individual with Powerful Others locus of control view might think, "I had an accident because the other person was a poor driver." An individual with Chance locus of control view might think, "I had an accident because of bad luck."

A few previous studies used the SSI and the IPC Scale concurrently. Specifically, Gadzella, Masten, and Stacks (1994) correlated SSI scores, learning strategies, test anxiety, and IPC scores. Their results indicated that undergraduates showed significant correlations between the P scores on the IPC Scale and the *frustrations* and *changes* stressors of the SSI. They also found significant correlations between the C scores on the IPC and the *frustrations*, *conflicts*, *changes*, *physiological* categories, and total stress scores of the SSI. In another study, Gadzella (1994a) investigated students' attributions using the IPC scores among the three stress level groups as measured by the SSI. Findings showed no differences among the stress levels scores for the I scale, significant differences for the C scale, and were mixed for the P scale. Such results gave rise to the present study, which questions whether a more current investigation would yield similar findings.

Given the advancements in technology that have occurred since 1994 (e.g., camera phones, Internet, satellite technology), as well as the various terrorist incidents and armed conflicts since 2001, American students have been exposed to a proliferation of potentially stressful images and information, often in real time. As such, it is possible that they have changed with respect to self-reported stress, and stress-related attributions. If so, the relationships between the SSI scores and the IPC scores could have changed over time. Thus, the purpose of this study was to replicate and extend the results reported by Gadzella (1994a).

Method

Participants

The participants in this study were 210 volunteers enrolled in classes at a Texas university. There were 131 (62.38%) women and 79 (37.62%) men; the average age was 25.1 ($SD = 7.4$); they were 10 (4.76%) freshmen, 33 (15.71%) sophomores, 58 (27.62%) juniors, 70 (33.33%) seniors, 33 (15.71%) graduate students, and 6 (2.86%) did not identify their college classification. Students reported their overall level of stress as mild ($n = 50$, 23.81%), moderate ($n = 133$, 63.33%), and severe ($n = 27$, 12.86%).

Instruments and Procedures

Two instruments were used in this study: the SSI (Gadzella, 1991) and the IPC (Levenson, 1981). As noted previously the SSI is a 51-item, self-report inventory designed to measure students' academic stress. Respondents report their perceived overall stress level on the SSI answer sheet as mild, moderate, or severe. Then, they respond to each of the SSI items by using the 5-point Likert-type response format ($1 = \text{never}$, $2 = \text{seldom}$, $3 = \text{occasionally}$, $4 = \text{often}$, and $5 = \text{most of the time}$). The SSI items measure stressors and reactions to stressors. In the stressors section, there are five categories of items: *frustrations*, *conflicts*, *pressures*, *changes*, and *self-imposed*. In the reactions to stressors section, there are four categories of items: *physiological*, *emotional*, *behavioral*, and *cognitive appraisal*. The total score is the summation of the scores in the two sections. Test-retest reliability and internal consistency measures (Cronbach's alpha) are both above 0.75 (Gadzella, 1994b; Gadzella & Baloglu, 2001).

Levenson's instrument has 24 statements, eight for each of the three scales (Internality, Powerful Others, and Chance). Individuals respond to the questionnaire with a 6-point Likert-type response format ($-3 = \text{strongly disagree}$, $-2 = \text{disagree somewhat}$, $-1 = \text{slightly disagree}$, $+1 = \text{slightly agree}$, $+2 = \text{agree somewhat}$, and $+3 = \text{strongly agree}$). A constant number (24) is added to avoid negative values. Levenson (1974) reported test-retest reliabilities on the IPC Scales as .64, .74, and .78, respectively, and Lee, (1976) found similar results.

Participation in the study was voluntary and following informed consent participants were given the two instruments. The administration of the inventories was counterbalanced across subjects. Participation took approximately 15 minutes.

Results

Total stress scores among the three stress level groups are presented in Table 1, and show significant differences among the groups, $F(2, 207) = 42.52$, $p < .01$). Tukey post-hoc tests further revealed that all groups differed significantly ($p < .01$) from one another. Correlations between the stress level groups and the IPC Scale scores are presented in Table 2.

Significant correlations obtained between the severe stress level group and the Powerful Others scale ($r = .44$, $p < .05$) and the Chance scale ($r = .63$, $p < .01$). When the three stress level groups scores were combined, the total stress scores correlated significantly with the Powerful Others scale, $r = .17$, $p < .05$ and the Chance scale, $r = .25$, $p < .01$ scores, respectively.

Table 1
Means, Standard Deviations, and F-ratios for the Three Stress Level Groups on the Total SSI Scores.

Stress Levels	Number	<i>M</i>	<i>SD</i>	<i>F</i> _{2,207}
Mild	50	121.18	21.66	42.52**
Moderate	133	139.01	21.71	
Severe	27	170.41	25.56	

** $p \leq .01$

Table 2
Correlations between the Total Stress and Locus of Control IPC Scale Scores for the Three Stress Levels and Total Groups.

Stress Levels	Number	Locus of Control Scales		
		I	P	C
Mild	50	.08	-.01	.16
Moderate	133	-.01	.11	.12
Severe	27	-.21	.44*	.63**
Total	210	-.04	.17*	.25**

* $p \leq .05$; ** $p \leq .01$

Analyses of variance found no significant differences on IPC scale scores within any of the stress level groups. Looking between stress level groups, results showed a significant difference between the mild and the severe stress level groups on the Chance scale, $F(1, 75) = 4.01$, $p < .05$ scores.

Discussion

The purpose of this study was to explore how participants, with different levels of stress, attributed the causes of their behavior and experience, and to compare those findings with the results Gadzella reported in 1994. Data showed a positive significant correlation between the severe stress level and Chance score of the IPC. Simply stated, participants with severe stress make more behavioral attributions to chance. Similar results were found in the Gadzella (1994a) study. In sum, results suggest that subject's under severe stress follow the maxim "life is a chance, so you might get lucky."

In comparing the three stress level groups on each of the IPC scales the analyses showed no significant differences among the groups. However, comparing IPC Scale scores for just the mild and severe stress level groups showed that the severe stress level group had a significantly higher mean than did the mild group.

Our point of departure for this study was to see how results would compare to students' responses from about 15 years ago (e.g., Gadzella, 1994a). All of the significant findings in the present study were also reported by Gadzella in 1994. However, the original study also showed differences between the Powerful Others and Chance scales scores across the three stress level groups. Although participants in both studies were drawn from the same Texas university, and are fairly representative of college students at most mid-sized American public universities, one potential limit on these findings is the generalizability of the sample.

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