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AN ANALYSIS OF THE CATEGORIES IN THE STUDENT-LIFE

STRESS INVENTORY

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ABSTRACT

The purpose was to assess the nine categories of the Student-life Stress Inventory (SSI). Five categories were stressors (Frustrations, Conflicts, Pressures, Changes, and Self-imposed) and four were reactions to stressors (Physiological, Emotional, Behavioral, and Cognitive Appraisals). Participants were 336 undergraduates who rated their overall stress as mild, moderate, and severe. Internal consistencies ranged from .61 to .86 indicating that the SSI categories were fairly reliable measures. F-ratios for all categories, except the Cognitive Appraisals, were different among the three stress groups. The severe stress group rated the categories higher than the moderate and mild stress groups, respectively, and the moderate stress group rated the categories higher than the mild stress group. Post hoc analysis showed differences between paired groups for all categories except Conflicts. In the Conflicts category, the difference was between the severe and mild stress groups. These data indicate that the remaining seven SSI categories are valid measures.

INTRODUCTION

Most people experience some type of stress. Eustress is referred to as good and challenging experiences. Distress is referred to as bad and harmful stressful situations. Students who enroll in colleges and universities have high expectations. They sign up for numerous courses and get involved in various activities. Some of these activities are enjoyable and challenging; whereas, others may be overwhelming and stressful. It seems

that some of the students are faced with more and more stressors as they have combined their schooling with working part-time (or more) hours, as well as being devoted to family obligations. Thus, they may experience stressors that are impeding their academic performance. If one wants to understand the kind of stress students are experiencing, it is desirable, first, to investigate how students perceive their overall stress, and secondly, how they rate their stressful situations and reactions to these stressors.

In general, stress can be viewed as the demands and changes one perceives and/or experiences. Some theorists and researchers have studied stress as variables, that is, situations that affect us (stimuli), and how we respond to these stressors (responses). For instance, Holmes and Rahe (1967) defined stress as a <u>stimulus</u> variable. They explored the relationships between stressful life events and physical illnesses. According to their theory, changes in personal relationships, work, finances, etc. can be stressful, even when they are welcomed events.

Selye (1976) defined stress as a <u>response</u> (physiological arousal) elicited by different external events (stimuli). Selye (1974) formulated a theory about how one reacts to stress. He referred to it as the general adaptation syndrome. In this model, the body's stress responses go through three stages: alarm, resistance, and exhaustion. The alarm reaction occurs when an organism recognizes some threat. If the threat continues, the physiological arousal rises or levels off when the organism becomes accustomed to the threat. However, if the stress continues, the body resources for fighting it may be depleted and the organism enters the exhaustive stage. Selye (1994) pointed out that there is a link between one's stress and physical illness.

Lazarus and Folkman (1984) defined stress as a specific <u>stimulus-response transaction</u> that threatens an individual. In this model, the stress one experiences is not in a situation (event) or in a person, but is an interaction between the situation and the person depending on how the person appraises the situation and adapts to it (Goleman, 1979; Weiten, Lloyd, & Lashley, 1990). Although Lazarus and Folkman studied different kinds of hassles or stressors (trivial events associated with one's everyday living), their focus was how the individual interprets the situation. They described these interpretations as primary and secondary appraisals. The primary appraisal was viewed as one's initial evaluation of the stressful event by deciding whether the stress was relevant or irrelevant to the individual. The secondary appraisal was the evaluation of one's coping resources and whether one had effective strategies to deal with stress (Gadzella, 1991; Martin & Osborne, 1995).

The theorists and researchers (mentioned above) studied stress as variables affecting individuals, such as, stimuli, responses, and interactions between stimuli and responses. However, stress is an individual experience. It is a very complex topic to study and it can be viewed in different ways. There are different kinds of stressors and reactions to stressors that overlap and interact with each other producing multiple behaviors. For example, physiological reactions may also be emotional and/or behavioral reactions.

If one is to understand the different kinds of stressors and the reactions to them, there is a need to group them and study them specifically. It is also desirable to show how

the definitions of the stressors and reactions to them are similar to those referred to by theorists and researchers (Gadzella, 1991). In the present study, stressors are defined as events or situations (stimuli) that demand adjustment beyond the normal wear and tear of daily living. Reactions to stress (responses) are viewed as physiological, emotional, and behavioral. Reactions to stress can also be viewed as appraisals (cognitive approach) that is, evaluating whether the stressors are relevant or irrelevant to the individual and whether one has the knowledge of/and uses effective strategies to cope with the stressors.

Focusing on the students' needs to understand stress, Gadzella (1991), with students who were enrolled in classes studying stress, listed examples of different kinds of stress following the model provided by Morris (1990). After analyzing the various examples, a stress instrument was developed. This instrument, Student-life Stress Inventory, SSI, (Gadzella, 1991) has nine categories of which five are stressors (frustrations, conflicts, pressures, changes, and self-imposed) and four are reactions to the stressors (physiological, emotional, behavioral, and cognitive appraisal).

Previous research studies examined the reliability and validity of the SSI. For instance, in 1991, Gadzella, Fullwood and Ginther computed correlations for 95 students on 3-week test-retest responses for each of the nine categories and total inventory. The internal consistency, on the first response, for the total group on the SSI inventory was .92. For the categories it ranged from .52 (Frustrations) to .85 (Changes). The test-retest correlations for the total group ranged from .57 (Cognitive Appraisals category) to .76 (Emotional category). In another study (Gadzella & Guthrie, 1993), Pearson product-moment correlations were computed for 87 students on 3-week test-retest responses. The correlations for the total inventory were .78 for total group, .92 for men, and .72 for women. Other studies reported different characteristics of students and their stress (Gadzella, 1994; Gadzella & Fullwood, 1992; Gadzella, Fullwood, & Tomcala, 1992), and different patterns of relationships among stressors (Gadzella, Ginther, & Fullwood, 1993). In 2001, Gadzella and Baloglu reported a detailed analysis of the SSI with responses made by 381 students. The internal consistency for the SSI was .92, and for men .90 and women .92. For the categories the internal consistencies ranged from .63 (Self-imposed) to .86 (Changes) and .86 (Physiological). In 2004 (Gadzella), a study of three stress groups on their ratings of stressors and reactions to stressors in five studies reported only the means and standard deviations for the groups.

The above presentation discussed the reason to study stress, what variables and models influenced the development of the Student-life Stress Inventory (SSI), and how the SSI was used and the findings in some of the previous research studies. The purpose of the present study was to assess the reliability and validity of the categories in the SSI by computing the internal consistencies for all the categories in the inventory and determining whether there were significant differences among the three stress groups (who rated their overall stress as mild, moderate, or severe) on their ratings of these categories in the SSI.

METHOD

Participants: There were 336 undergraduates enrolled in psychology classes during the Fall 2002 and Spring 2003 semesters at a state university who participated in

this study. There were 111 men and 225 women; of whom 96 were freshmen, 91 sophomores, 101 juniors, and 48 seniors. They rated their overall stress as mild ($\underline{n} = 81$), moderate ($\underline{n} = 194$), or severe ($\underline{n} = 61$).

Instrument: The Student-Life Stress Inventory (SSI), (Gadzella, 1991) was the instrument used to assess its nine categories. The SSI is a 51-item paper and pencil questionnaire, consisting of nine categories (five stressors and four reactions to stressors). The five stressors are: frustrations, conflicts, pressures, changes, and self-imposed. Frustrations (seven items), assesses experiences dealing with delays in reaching goals, daily hassles, lack of sources, failure to reach set goals, socially being unacceptable, dating disappointments, and denials in opportunities. Conflicts (three items), assesses one's choices between two or more desirable alternatives, between two or more undesirable alternatives, and with both desirable and undesirable alternatives. Pressures (four items), assesses one's competitions, deadlines, overload of activities, and interpersonal relationships. Changes (three items), assesses one's unpleasant experiences, numerous changes at one time, and disruptive life and goals. Self-imposed (six items), assesses one's desire to compete, to be loved by all, worries about everything, procrastinations, solutions to problems, and anxiety in test-taking.

The four reactions to stressors were: physiological, emotional, behavioral, and cognitive appraisal. Physiological (14 items), assesses ones experiences with sweating, stuttering, trembling, rapid movements, exhaustion, stomach problems, breathing problems, backaches, skin reactions, headaches, arthritic pains, and weight losses or weight gains. Emotional (four items), assesses one's experiences with fear, anger, guilt, and grief. Behavioral (eight items), assesses one's experiences with crying, abuse of others, abuse of self, smoking excessively, being irritable toward others, attempting suicide, using defense mechanisms, and separating oneself from others. Cognitive Appraisals (two items), assesses whether one analyzes the stressful situations and uses appropriate strategies to solve stressful situations.

In responding to the SSI, participants must first indicate their overall view of stress as mild = 1, moderate = 2, or severe = 3. Then, they rate each of the 51 items on a 5-point Likert scale of 1 = never, 2 = seldom, 3 = occasionally, 4 = often, and 5 = most of the time. The responses can be reported on an answer sheet (that accompanies the SSI) or on a scantron sheet.

In scoring the SSI, one first reverses the value ratings in items 50 and 51, that is, 1 = 5, and 5 =1, 2 = 4, and 4 = 2. [These two items are stated in a positive manner. For instance, item 50 is phrased "thought and analyzed about how stressful the situations were." A rating of "1" (never) means the person did not think and analyze the stressful situations. Whereas, a rating of "5" (most of the time) means the person thought and analyzed the stressful situations often. Therefore, researchers need to reverse the value ratings in scoring these two items.] The next step in scoring the SSI is to add the value ratings for each item and then add the value ratings for the items in each category. The total value for the SSI is the summation of the nine category value ratings. However, the focus in this study is the value ratings for each of the categories that describe the different stressors and reactions to the stressors.

Procedure: In this study, participants were assigned an identification number. They signed a consent form indicating that the data they provided may be used for research studies. During class periods, on scantron sheets, they indicated their identification number, their overall view of stress as mild = 1, moderate = 2, or severe = 3, and their demographic data as follows: 1 = man, 2 = woman; college status: 1 = freshman, 2 = sophomore, 3 = junior, and 4 = senior. Then, they rated each of the 51 items, using the Likert scale from 1 (never) to 5 (most of the time) as described above under the instrument section. The data were analyzed using the SPSS program.

RESULTS

To determine the reliability of the items in the SSI categories, internal consistencies (alphas) were computed for each of the nine categories and for the whole group. The data (Table 1) show that the lowest alpha (.61) was for the Self-imposed and the highest (.86) was for the Changes category. The internal consistency for the whole inventory was .92. Further analyses of the SSI categories are presented in Table 2. These data show the totals and interquartile ranges, medians, means, and standard deviations for the nine categories and the total SSI. In examining the data (Table 2), among the stressors categories, the Self-imposed category (which includes stressors one imposes on self, e.g., frustrations, pressures, changes, etc.) had a wide range of ratings (from 8 to 30, a median of 21.0, and a mean of 21.3). The current researchers considered it to be the most stressful content area among the stressors categories. In the reactions to stressors, the Physiological category (having a range of ratings from 14 to 68, a median of 30.0 and a mean of 30.7), appears to be the most common type of reactions to stressors. However, note that the Physiological category also includes emotional and behavioral reactions.

Table 1
Internal Consistencies (Alpha) for 336 Responses to the Student-life Stress Inventory by Categories and Total SSI

Category	Alpha
I. Stressors	
Frustrations	.67
Conflicts	.71
Pressures	.75
Changes	.86
Self-imposed	.61
II. Reactions to Stressors	
Physiological	.83
Emotional	.82
Behavioral	.73
Cognitive Appraisal	.77
III. Total SSI	.92

To determine the differences among the three stress groups, analysis of variance for each of the nine categories was computed. The ranges of ratings, means, standard deviations, and $\underline{F}$-ratios on the nine categories for the three stress groups (mild, moderate, and severe) are presented in Table 3. The data show that the ranges for the stress groups on categories were not clearly determined. This is due to some participants having reported a wide range of ratings on various items of the SSI. Thus, their ratings exceeded beyond their stress group's range. However, in the total SSI the range of ratings for the mild stress group was from 79 to 166, moderate stress group from 79 to 194, and severe stress group from 110 to 238.

Table 2

Total and Interquartile Ranges, Median, Mean, and Standard Deviations on Ratings for the Nine Categories of the SSI for 336 Participants

Category	Range	Total	Interquartile	Median	Mean	Standard Deviation
I. Stressors						
Frustrations	7-30	(23)	5	17.00	17.50	4.07
Conflicts	3-15	(12)	2	9.00	8.33	2.04
Pressures	4-20	(16)	4	14.00	13.91	3.23
Changes	3-15	(12)	3	7.00	7.59	2.67
Self-imposed	8-30	(22)	5	21.00	21.34	4.07
II. Reactions to Stressors						
Physiological	14-68	(54)	3	30.00	30.68	8.99
Emotional	4-20	(16)	6	12.00	12.01	3.86
Behavioral	8-39	(31)	9	17.00	18.12	5.32
Cognitive Appraisal	2-10	(8)	4	6.00	5.71	2.16
III. Total	77-238	(161)	32	134.00	135.18	24.64

Data (Table 3) showed that there were significant differences ($\underline{p} < .05$) among the three groups on all categories. Post hoc Tukey $\underline{t}$-tests were computed to determine if there were significant differences between paired groups. Data showed that in all categories, except in the Conflicts, there were significantly higher ratings for the higher stress group ($\underline{p} < .05$) between (a) the severe stress group and the moderate and mild stress groups, respectively, and (b) the moderate stress group and the mild stress group. In the Conflicts category, the post hoc Tukey $\underline{t}$-tests showed there were significant differences ($\underline{p} < .05$) only between the severe and mild stress groups with the severe stress group having higher ratings.

Table 3
Total Range of Ratings, Means, Standard Deviations, and F-ratios on the Nine Categories
for the Three Groups (Mild n = 81, Moderate n = 194, and Severe n = 61) df = 2/335.

Category	Group	Rating Range	M	SD	F-ratio
I. Stressor					
Frustrations	Mild	7-25	15.11	3.66	35.48**
	Moderate	8-25	17.59	3.60	
	Severe	13-20	20.39	4.08	
Conflicts	Mild	3-13	7.77	1.90	6.76**
	Moderate	3-13	8.35	2.02	
	Severe	4-13	9.02	2.12	
Pressures	Mild	4-20	12.25	2.78	35.35**
	Moderate	4-20	13.81	3.06	
	Severe	10-20	11.43	2.78	
Changes	Mild	3-11	6.30	2.14	35.22**
	Moderate	3-15	7.46	2.42	
	Severe	5-15	9.72	2.79	
Self-Imposed	Mild	8-30	19.99	4.41	9.17**
	Moderate	8-30	21.43	3.76	
	Severe	14-29	22.85	4.03	
II. Reactions to Stressors					
Physiological	Mild	14-42	24.93	6.52	38.70**
	Moderate	14-53	31.11	8.00	
	Severe	20-68	36.93	10.18	
Emotional	Mild	4-20	9.51	3.15	38.90**
	Moderate	4-20	12.23	3.64	
	Severe	6-20	14.66	3.41	
Behavioral	Mild	8-30	15.53	4.06	29.11**
	Moderate	8-39	18.01	4.71	
	Severe	10-38	21.84	6.42	
Cognitive Appraisal	Mild	2-10	6.10	2.39	2.02
	Moderate	2-10	5.64	2.03	
	Severe	2-10	5.41	2.20	
III. Total	Mild	79-166	117.47	17.81	62.14**
	Moderate	77-194	136.63	20.47	
	Severe	110-238	157.30	26.41	

*p<.05, **p<001.

DISCUSSION

One purpose of the present study was to analyze the ratings of the items (and categories) of the Student-life Stress Inventory for the total group of 336 participants. Several computations were reported. First, the internal consistencies for the nine categories of the SSI varied from .61 (Self-imposed) to .86 (Conflicts). In the 1991 study

(Gadzella, Fullwood, & Ginther) with 95 subjects, the internal consistencies for the categories varied from .52 (Frustrations) to .85 (Changes). In the 2001 study (Gadzella & Baloglu), the internal consistencies for the categories varied from .63 (Self-imposed) to .86 (Changes) and .86 (Physiological). Overall, the internal consistencies (alphas) for the categories in the SSI from these three studies were very similar. Therefore, one can conclude that, even after 13 years, the categories in the SSI are fairly reliable in measuring the contents in the different types of stressors and reactions to stressors.

Secondly, in the present study the focus was primarily on the different stressors and reactions to stressors. Data were displayed showing the total ranges of the ratings, medians, means, and standard deviations for each of the categories. These data provide additional information that was not reported previously. From the data, one notes that the Self-imposed category (which included stressors one imposes on self) was the most stressful among the stressors categories. The Physiological category (which includes emotional and behavioral reactions) involved the most common reactions to stressors. In providing these additional data on the SSI, there should be a better understanding of how the SSI was constructed, and how it can be used in future research studies.

The second purpose of the present study was to investigate whether there were significant differences among the three stress groups (mild, moderate, and severe) on their ratings of the items in the different stressors and reactions to stressors categories. Some of data found in the present study were similar to that previously reported (Gadzella, 1994, 2004; Gadzella & Baloglu, 2001; Gadzella & Guthrie, 1993). That is, generally, the severe stress group reported significantly higher ratings (stress) than the moderate and mild stress groups, respectively, and the moderate stress group reported significantly higher ratings (stress) than the mild stress group on most of the categories in the SSI. There were two exceptions in the Conflicts and Cognitive Appraisal categories. In the present study, on the Conflicts category, significant differences were found only between the severe stress and mild stress groups. On the Cognitive Appraisal category, there were no significant differences among the three stress groups. Since there were significant differences among the three stress groups on the other seven categories, it can be stated, that the seven categories are valid measures of the stressors and reactions to stressors for this group of participants.

However, there are some limitations with the SSI. The rating values in the Conflicts category did not show significant differences between the severe and moderate stress groups and between the moderate and mild stress groups. Maybe the items in the Conflicts category need to be stated differently and/or an additional item added. In the additional item participants could rate which of the three conflicts was the most stressful. In the Cognitive Appraisal category, there were no significant differences among the three stress groups. This may be due to several reasons. First, the participants might not have read the items in this category carefully. The two items in the Cognitive Appraisal category are stated as to whether one thought and analyzed the stressful situations. If so, these analyses would assist one (positively) in adapting to the stressful situations. Thus, if one appraised the stressful situations often, then one would experience less stress. This is the reason, for reversing the value ratings in these items in the Cognitive Appraisal

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category before adding their values. Secondly, the items in the Cognitive Appraisal category might be too general. They could be stated more specifically, such as, whether one has appraised the stressful situations as relevant or irrelevant, had knowledge of effective strategies to overcome the stressful situations, and used the effective strategies in different stressful events. In doing so, it might be easier for the participants to understand what is asked and easier for the researchers to interpret the data.

In summary, the data in the present study provide more detailed information on the items and categories of the SSI. That is, the reliability and validity of the categories in the SSI, which categories were rated higher and why, and what information was similar to that reported previously. The information in the study also provides an insight as to how the inventory was constructed and its possible use in future research studies.

The difficulty in interpreting some of the data, especially from the Conflicts and Cognitive Appraisals categories, indicated the need to revise and/or include other items in these categories. These changes can be made easily. Other studies can be conducted, for instance, a study of the differences between traditional and non-traditional students on their stressors and reactions to stressors presented in the SSI.

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