

Winter 12-9-2019

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Undergraduates and Stress

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Honors Project

Submitted to the Honors College

at Bowling Green State University in partial fulfillment of the
requirements for graduation with

University Honors, 12/14/19

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Undergraduates and Stress

Mahra Crone

9 December 2019

Abstract

America is facing a serious mental health crisis, which may be an effect of increased chronic stress. Students, in particular, are vulnerable to this hazard as most face a moderate to extreme amount of stress. The programs which colleges and universities have put into place are outdated. Ineffective treatment of mental health crises leads to disastrous consequences. The present study analyzed the effects of major and grade level on stress level and sources of stress for undergraduate universities at both a large, public university and a small, private college. The author found that a student's grade level and choice of major both significantly affect their sources of stress. Further research would support the implementation of new programs at colleges and universities to address the diversity of their students' stressors.

Introduction

Stress is an issue with which each individual wrestles on a regular basis. The researcher's interest in the subject stems from her own experience with stress during college, and how it contributed to her diagnosis of Generalized Anxiety Disorder and Major Depressive Disorder. American media gives viewers the impression that first-year college students find the transition to college difficult, due to increased academic expectations, as well as the struggle of living on one's own. The media also perpetuates the stereotype that those

who major in a STEM (science, technology, engineering, and math) subject face a more difficult course load than others.

In the researcher's experience, sophomore year of undergraduate college was more difficult than freshman year. The differences in academic difficulty between that and freshman year seemed to be more pronounced than those between freshman year and high school. Additionally, the hardship of living on one's own increased dramatically. Having neither expected nor prepared for these difficulties, the researcher faced intensifying levels of stress which caused her mental health to bottom out.

Her experience is all too common – not only among undergraduates, but American citizens as well. The United States is facing a mental health crisis. Robert Whitaker (2005) found that diagnoses of severe mental illness have increased fivefold over the last 50 years, and have doubled since 1987 (p. 23). Research has supported that one such cause of this increase may be chronic stress (Marin et al., 2011). When a person is stressed, their body produces a type of hormone called glucocorticoids (p. 583). Exposure to these hormones for an extended period of time, such as in the case of chronic stress, can cause psychopathologies to develop (p. 585). Students are particularly vulnerable to the incidence of chronic stress; in fact, one research group found that the majority of undergraduates can be classified as either moderately or extremely stressed (Campisi et al., 2012). Most students seemed to

concern themselves with their lack of time, money, and falling grade-point averages (Whitman et al., 1984, p. 24). However, it is more likely that there is a unique combination of stressors that affect each student (p. 24).

American colleges and universities have mounted programs in order to relieve what they can of their students' stress, however, a study found that these may not be as effective as intended (Adams et al., 2016). Another source also asserted that institutions may be hesitant to implement new programs due to a lack of funds (Whitman et al., 1984, p. 86). Most of the current stress-reduction resources are targeted to first-year students to aid in the difficult transition between high school and college. This practice appears to negate upperclassmen stress, while perpetuating the largely false assumption that freshman year is the most stressful of the four undergraduate years. This problem applies to different areas of study as well. Many undergraduates are or have been under the misconception that STEM studies are objectively more difficult, and so perhaps students majoring in other areas do not feel justified in seeking counseling services due to their own academic-induced stress. If one falls victim to the mindset that their major is easier, they may feel that it is their fault for being stressed, rather than the fault of their environment.

When student stress is not appropriately addressed, there can be disastrous consequences. One research group found that 31.58% of pharmacy students and 29.2% of medical students engaged in stress-related substance abuse (Al-Shagawi et al. p. 2999). Most of those interviewed cited the reasons behind their

actions as relating to the size of their course load, and the difficulty of examinations, quizzes, and assignments (p. 3000). An extreme consequence of failing mental health resources can be found in the recent tragedy at Virginia Tech University (Rhodan, 2016). A distressed student shot and killed 32 of his classmates and faculty, before committing suicide (Rhodan, 2016). It later came to light that he had been treated by the university's counseling services not once, but *three* times (Rhodan, 2016). Clearly, something must be changed.

When stereotypes concerning which students are the "most" stressed, and which stressors affect whom are maintained, students are left with false expectations. These expectations are inevitably shattered, which leaves students more distressed than they would have been, had they been properly prepared with more accurate expectations. The researcher sought to discern whether or not there is truly a difference in amount of stress between students of different grade levels or majors, or at least, a difference in the stressors which they face. The first hypothesis, then, was that stress level is affected by both grade level and major. The second hypothesis was that sources of stress differ depending on grade level and major. With more accurate information concerning differing levels and sources of stress, colleges and universities may be able to implement more effective stress-reduction resources and prevent unsavory consequences.

Methods

A survey was created using Google Forms and distributed to Bowling Green State University's (BGSU) College of Arts

and Sciences department heads, BGSU's Honors College, the researcher's personal Facebook page, local and national Alpha Xi Delta Facebook pages, BGSU "Class of" Facebook pages for 2018, 2019, and 2021, and finally, Franklin & Marshall College's "Class of" Facebook pages for 2018, 2019, and 2020. The survey began with a statement of informed consent, followed by demographic questions regarding the subject's grade level and major. The researcher then sorted each major into the college at BGSU in which that major could be found. Subjects were presented with five questions from S. Cohen's Perceived Stress Scale (PSS) (1988), which has been used throughout the literature to quantify perceived stress from a level of 0-5. The questions were as follows:

"In the last month, how often have you felt that you were unable to control the important things in your life?"

"In the last month, how often have you felt nervous and 'stressed'?"

"In the last month, how often have you felt confident about your ability to handle your personal problems?"

"In the last month, how often have you felt that things were going your way?"

"In the last month, how often have you found that you could not cope with all the things that you had to do?"

The survey also included a question that allowed subjects to select which of the following eight stressors impacted them: lack of time for managing courses, examinations, academic course load, social and interpersonal issues, differences between high school and college, separation from family, post-graduate career, and financial expenses. The subjects could choose more than one stressor, but had to select at least one.

In all, the survey accumulated 226 responses. The researcher performed 5 ANOVA's, with alpha set to 0.05, to analyze each of the five PSS questions. Regarding the eight stressors, two Chi-Squared tests were performed for each, totaling at 16. Again, the alpha was set to 0.05. Six responses were left out of analysis: two from alumni, who fell outside of the target subject, one who did not consent to the use of their data, and three whose majors could not be effectively sorted into colleges at BGSU.

Results

Tables I-V show the results of the five ANOVAs performed. The alpha for each variable is highlighted. All five tests show that neither grade level nor major significantly affect stress level.

Table I. Results from the first ANOVA, which analyzed responses to the question: "In the last month, how often have you felt that you were unable to control the important things in your life?" Stress level was not significantly impact by either grade level ($p = 0.637$) or major ($p = 0.589$).

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Grade Level	0.584434995	3	0.19481167	0.583906	0.63689543	3.49029482
Major	0.972134091	4	0.24303352	0.72844	0.58948538	3.25916673
Error	4.003626455	12	0.33363554			
Total	5.560195542	19				

Table II. Results from the second ANOVA, which analyzed responses to the question: “In the last month, how often have you felt nervous and ‘stressed’?” Stress level was not significantly impacted by either grade level ($p = 0.860$) or major ($p = 0.772$).

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Grade Level	0.137485	3	0.045828	0.249931	0.859855	3.490295
Majors	0.32839	4	0.082097	0.447728	0.772231	3.259167
Error	2.200372	12	0.183364			
Total	2.666247	19				

Table III. Results from the third ANOVA, which analyzed responses to the question: “In the last month, how often have you felt confident about your ability to handle your personal problems?” Stress level was not significantly impacted by either grade level ($p = 0.430$) or major ($p = 0.436$).

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Grade Level	0.541578	3	0.180526	0.990089	0.43033	3.490295
Major	0.74376	4	0.18594	1.019783	0.435795	3.259167
Error	2.187996	12	0.182333			
Total	3.473333	19				

Table IV. Results from the fourth ANOVA, which analyzed responses to the question: “In the last month, how often have you felt that things were going your way?” Stress level was not significantly impacted by either grade level ($p = 0.173$) or major ($p = 0.744$).

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Grade Level	0.869283	3	0.289761	1.966287	0.172928	3.490295
Major	0.288171	4	0.072043	0.488874	0.744061	3.259167
Error	1.768374	12	0.147364			
Total	2.925827	19				

Table V. Results from the fifth ANOVA, which analyzed responses to the question: “In the last month, how often have you found that you could not cope with all the things that you had to do?” Stress level was not significantly impacted by either grade level ($p = 0.913$) or major ($p = 0.652$).

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Grade Level	0.321418	3	0.107139	0.172464	0.912948	3.490295
Major	1.560825	4	0.390206	0.628122	0.651631	3.259167
Error	7.454726	12	0.621227			
Total	9.33697	19				

A selection of the results from the 16 Chi-Squared tests are shown in Tables VI-IX. Those that are presented are the only four of

the 16 tests which showed significant results. The alpha for each variable is highlighted.

Table VI. The Chi-Squared test which analyzed the effects of major on the subjects’ selection of the “lack of time for managing courses” stressor. A student’s major does have a significant impact on whether or not they will stress about lack of time for managing courses ($p < 0.001$)

Lack of time for managing courses				
	Actual	Total	Expected	Percentage
Arts and	81	114	63.33333	71.0526316
Business	11	14	7.777778	78.5714286
Educatio	26	36	20	72.2222222
Health ar	1	43	23.88889	2.3255814
Technolo	1	9	5	11.1111111
	0.555556		1.09E-06	

Table VII. The Chi-Squared test which analyzed the effects of grade level on the subjects’ selection of the “academic course load” stressor. A student’s grade level does have a significant impact on whether or not they will stress about academic course load ($p = 0.025$).

Academic Load				
	Actual	Total	Expected	Percentage
Freshman	51	58	41.94642857	87.93103448
Sophomore	39	46	33.26785714	84.7826087
Junior	47	63	45.5625	74.6031746
Senior	25	57	41.22321429	43.85964912
	0.723214286		0.024736358	

Table VIII. The Chi-Squared test which analyzed the effects of grade level on the subjects' selection of the "differences between high school and college" stressor. A student's grade level does have a significant impact on whether or not they will stress about differences between high school and college ($p = 0.008$).

Differences between High School and College				
	Actual	Total	Expected	Percentage
Freshman	8	58	3.107142857	13.79310345
Sophomore	1	46	2.464285714	2.173913043
Junior	0	63	3.375	0
Senior	3	57	3.053571429	5.263157895
	0.053571429		0.00755338	

Table IX: The Chi-Squared test which analyzed the effects of grade level on the subjects' selection of the "post-graduate career" stressor. A student's grade level does have a significant impact on whether or not they will stress about their post-graduate career ($p = 0.027$).

Post-graduate career				
	Actual	Total	Expected	Percentage
Freshman	27	58	35.21428571	46.55172414
Sophomore	22	46	27.92857143	47.82608696
Junior	38	63	38.25	60.31746032
Senior	49	57	34.60714286	85.96491228
	0.607142857		0.027211243	

Discussion

Based upon the results, the researcher accepts the first null hypothesis: neither grade level nor major have a significant impact on one's stress level.

However, the results partially support the second hypothesis that

both grade level and major affect the stressors by which students are impacted. Tables VII through IX show that grade level will impact whether students stress about their academic course load, the differences between high school and college, and their post-graduate

career. Table VI shows that a student's major will affect whether they stress about their lack of time for managing courses.

Conclusion

This study supports the notion that college and university's outdated mental health resources need to be repaired. Though the sample size is limited, the data show that students will be impacted by different stressors, depending on both their major and grade level.

In their book, Whitman et al. (1984) discuss the concept of "stress inoculation," which is a means of preparing students for the upcoming struggles of academia. The idea involves telling students exactly what to expect from their undergraduate career; what hurdles they will need to overcome, what problems they will face, etc. In doing so, students are better prepared for the stressful event than those who were not given the preparatory information (p. 19). Based on her data, the researcher suggests that colleges and universities implement small-group discussions during the orientation weekend that they hold for incoming first-years. Freshman can be sorted into groups that contain upperclassman volunteers based upon similar demographics, such as major, gender, sexuality, and socioeconomic class. The upperclassmen can then practice stress inoculation by providing the incoming students with accurate expectations of what struggles they

will face over the next four years. By implementing this easy and cost-effective program, colleges and universities can take an important step in addressing the mental health epidemic sweeping our nation.

Further research regarding undergraduates and stress can be done to discern whether there exists an impact on stress level or sources of stress from the interaction of grade level and major. This information would greater promote the need for the aforementioned stress inoculation program.

Acknowledgements

The researcher would like to extend her upmost gratitude to Dr. Meredith Gilbertson, Mr. Jay Jones, and Mrs. Chrissy Shaal for their help and expertise throughout the process of completing this study.

Conflict of Interest Disclosure

The author has no conflicts of interest to report.

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