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Article

The Effect of Gender on Stress Factors: An Exploratory Study among University Students

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Abstract: This study examined the relationship between gender and reactions to stress among university students. University students were surveyed on how they typically responded when under perceived stress. There were significant differences between males and females concerning their reactions to stress. Overall, more females experienced higher levels of depression, frustration, and anxiety than their male counterparts when reacting to stress. Males also tended to have other psychological reactions different from those listed on the survey. In addition, while the stress reaction of anger was barely statistically insignificant, more females expressed anger than males as a reaction to stress.

Keywords: gender; stress; coping; university students

1. Introduction

The topic of gender is one that is often discussed in the realm of health and disease. In the biological sciences, the focus tends to be on how gender affects particular diseases [1]. In other words, do biological genetic markers exist for each sex that predispose one to particular ailments? In the social sciences, gender tends to focus on how socially constructed gender norms affect our conditioned response to those ailments [2–5]. In other words, are we socially programmed by gender to respond to ailments in a particular way?

Several studies have concluded that social expectations affect how we react to stress and their psychological effects [6,7] and that men and women are exposed to different types of stress and deal with that stress based on cultural norms [8]. This type of restrictiveness of gender roles can have negative implications [9,10].

Eisler [11] has suggested that men are affected more greatly than women when it comes to adhering to societal gender norms and can lead to anger and poor health decisions. It has further been concluded that male stress has a relationship to variation in aggression and violence [12,13]. For women, gender role stress has been linked to body image issues, as well as eating disorders [14].

Certain professions carry a unique set of circumstances that present higher than usual stress levels. Numerous studies have linked higher levels of stress to occupations such as nurses, teachers, and correctional officers [15–17]. Interestingly however, there is another group of people that are presenting higher than normal stress levels as well, and this group is university students. Although research is not as abundant, studies have linked stress, depression and anxiety among university students [18]. It has been shown that this is a formative time period for young adults and can have lasting repercussions on psychological and health related issues [18,19]. Several studies have also linked university students, stress, and gender [20,21] and noted that female students had higher levels of depression than male students [22,23].

This paper seeks to understand the relationship between gender and stress among university students attending a 4-year central California university.

2. Methods and Hypothesis

In this section, the study population is identified and the data collection procedures and limitations of the study are presented.

2.1. Study Population

The university students that participated in this study were enrolled at a state university located in the Central Valley of California—a region internationally known for agricultural production. With over 23,000 students, it serves the majority of central California. It has a female enrollment of approximately 58% and 44% of students are of Hispanic ethnicity. The majority of students are under the age of 35. The university is primarily a commuter school and a large percentage of students are also employed and/or have families. Many are also first generation university students [24]. These demographics may be conducive to higher than usual stress levels and present a unique challenge to typical college life.

2.2. Data Collection

The study instrument was a survey that was approved by the campus institutional review board. Five hundred surveys were distributed to students during the Spring semester of 2011. Surveys were distributed in two ways. Approximately 60% of the surveys were conducted in classrooms. General Education classes were chosen in order to have the most diversity among students. Professors administered the survey at the conclusion of classes. Students gave verbal approval and had the option of opting out of the survey. Surveys were anonymous. Additionally, this study became part of a Medical Geography course assignment regarding surveys. Students administered approximately 40% of the surveys on campus. Once again, students gave verbal approval and had the option of opting out of the survey and they were anonymous. The response rate was therefore unable to be tracked.

Students were asked their gender (male or female) and how they usually react when under stress. They were given the choices of anger, depression, aggression, escape or hide, use stress reduction techniques, frustration, anxiety, and none of the above. They could select all that applied. Stress response choices were based on common known responses to stress cited in social sciences literature across several disciplines (see literature cited in Introduction), as well as informal class discussions.

Ultimately, 224 surveys were deemed useable for this particular study. Many were excluded due to lack of sufficient information and/or unanswered questions. *i.e.*, those that did not select a gender, those that did not answer the question regarding stress reactions, or those that chose not to complete the survey.

2.3. Limitations of Data Collection

As with all surveys, this study was aware of the possibility of inaccuracy of respondents. In addition, the respondents may have biased their responses towards what perceptions or behaviors their social constructs promote. Several people were involved in administering the surveys. It was taken into consideration that each person may have had different methods for recording information (some may have given the survey to the respondent to complete, while others may have asked the questions orally). Furthermore, some variables used in the survey may not have been adequately defined. This will be addressed in more depth in the conclusion. It was also taken into consideration that not providing additional gender categories other than male and female may have resulted in some not answering the question, however including other options would have resulted in inconclusive results for this particular study. It is also possible that either gender may be unaware of their own stress responses due to entrenched gender roles, however this is an inherit issue of most studies involving behavioral gender responses.

2.4. Hypotheses

Hypothesis: Gender is associated with reactions to stress.

> Hypothesis 1.1: Men are more likely than women to respond to stress with anger, aggression, escaping or hiding, or an alternative method not listed.
>
> Hypothesis 1.2: Women are more likely than men to respond to stress with depression, using stress reduction techniques, frustration, and anxiety.

2.5. Analysis

After data collection, survey data were coded and entered in an Excel statistical spreadsheet. Cross tabulation and chi square analyses were done on eight stress reaction variables and gender. The stress reaction variables were anger, depression, aggression, escape or hide, use stress reduction techniques, frustration, anxiety, or none.

3. Results

3.1. Cross Tabulations

The data show there is *no* significant association between gender and anger. While it was hypothesized there would be a difference between males and females regarding anger and that males

would more likely to anger, the data do not support this (See Table 1). In fact, although just barely not statistically significant, more women than men expressed anger as a response to stress.

Table 1. Cross tabulation analysis between gender and anger.

Observed Frequencies			
	No	*Yes*	*Total*
Male	93	19	112
Female	81	31	112
Total	174	50	224
(95% level of confidence)			

The data show there *is* a significant association between gender and depression. The association also supports the hypothesis that females would more likely react with depression (See Table 2).

Table 2. Cross tabulation analysis between gender and depression.

Observed Frequencies			
	No	*Yes*	*Total*
Male	96	16	112
Female	84	28	112
Total	180	44	224
(95% level of confidence)			

The data show there is *no* significant association between gender and aggression. While it was hypothesized there would be a difference between males and females regarding aggression and that males would more likely to select aggression, the data do not support this (See Table 3).

Table 3. Cross tabulation analysis between gender and aggression.

Observed Frequencies			
	No	*Yes*	*Total*
Male	99	13	112
Female	102	10	112
Total	201	23	224
(95% level of confidence)			

The data show there is *no* significant association between gender and escape or hide. While it was hypothesized there would be a difference between males and females regarding aggression and that males would more likely to select escape or hide, the data do not support this (See Table 4).

Table 4. Cross tabulation analysis between gender and escape or hide.

Observed Frequencies			
	No	*Yes*	*Total*
Male	97	15	112
Female	98	14	112
Total	195	29	224
(95% level of confidence)			

The data show there is *no* significant association between gender and stress reduction techniques. While it was hypothesized there would a difference between males and females regarding stress reduction techniques and that females would be more likely to select use stress reduction techniques, the data do not support this (See Table 5).

Table 5. Cross tabulation analysis between gender use stress reduction techniques.

Observed Frequencies			
	No	*Yes*	*Total*
Male	84	28	112
Female	88	24	112
Total	172	52	224
(95% level of confidence)			

The data show there *is* a significant association between gender and frustration. The association also supports the hypothesis that females would more likely react with frustration (See Table 6).

Table 6. Cross tabulation analysis between gender and frustration.

Observed Frequencies			
	No	*Yes*	*Total*
Male	65	47	112
Female	42	70	112
Total	107	117	224

The data show there *is* a significant association between gender and anxiety. The association also supports the hypothesis that females would more likely react with anxiety (See Table 7).

Table 7. Cross tabulation analysis between gender and anxiety.

Observed Frequencies			
	No	*Yes*	*Total*
Male	83	29	112
Female	60	52	112
Total	143	81	224
(95% level of confidence)			

The data show there *is* a significant association between gender and none of these. The association also supports the hypothesis that males would be more likely to select this answer (See Table 8).

Table 8. Cross tabulation analysis between gender and none of these.

Observed Frequencies			
	No	*Yes*	*Total*
Male	87	24	111
Female	101	11	112
Total	188	35	223
(95% level of confidence)			

3.2. Summary of Statistical Analysis

Chi square, degrees of freedom and significance of each variable clearly show some significant differences between males and females concerning their reactions to stress (See Table 9). These differences reside in the stress reactions of depression, frustration, anxiety, and other stress factors (*i.e.*, none of the stated stress factors). Overall, more females experience higher levels of depression, frustration, and anxiety than their male counterparts when reacting to stress. However, more males tend to have other psychological reactions different from those listed in the survey when reacting to stress. In addition, as mentioned above, while the stress reaction of anger was barely statistically insignificant, more females expressed anger than males as a reaction to stress.

Table 9. Gender effects on stress reactions.

Stress Reaction	Chi Square	Degrees of Freedom	Significance	Interpretation
Anger	3.71	1	0.05	No Relationship
Depression	4.07	1	0.04	Relationship
Aggression	0.44	1	0.51	No Relationship
Escape or hide	0.04	1	0.84	No Relationship
Use Stress Reduction Techniques	0.40	1	0.53	No Relationship
Frustration	9.47	1	0.00	Relationship
Anxiety	10.23	1	0.00	Relationship
None of these	5.87	1	0.02	Relationship

4. Conclusions, Discussion and Future Research

This study aimed to explore the relationship between gender and stress responses among university students. Being exploratory in nature, much was learned that will improve future research within, as well as outside, the current study population. A survey was administered to 224 university students that asked them their gender and stress reaction; their stress reaction choices were anger, depression, aggression, escape or hide, use stress reduction techniques, frustration, anxiety, and none of these. The analyses resulted in only half of the stress reaction variables being significant when compared to gender. Depression, frustration, anxiety, and none of these had a relationship, whereas anger, aggression, escape or hide, and use stress reduction techniques, had no relationship. This is particularly interesting since results ran counter to much of the published research, particularly in terms of anger and aggression.

Since this was an exploratory study, it has raised several questions for future research. The incidence of male students choosing a stress reaction not listed on the survey suggests that an additional study to ascertain the other psychological stress reactions that males tend to express more than females is needed. A fill-in option could also be provided on the survey that would allow respondents to write in their own responses if listed responses did not adequately describe their reaction to stress. Furthermore, two of the stress response options may need to be better defined and differentiated. The stress response "aggression" may need to be defined more clearly to distinguish between varying types (*i.e*., physical, emotional, relational, *etc*.). The stress response "escape or hide" should be differentiated in the future and may produce different results if listed as separate stress responses rather than

combined into one option. A more robust survey addressing these issues may produce results that clearly demonstrate implications that lead to actionable recommendations for universities.

The unique demographics at the institution in which the study took place could also be further explored. Do stress reactions correlate with whether a student is married, divorced, in a relationship, or single? It was noted that many students at this university have families, but the details of the family structure are unknown. It was also noted that many students also work. Could stress reactions correlate with the number of hours a student works? Finally, does ethnicity place a role in stress reactions? Are there gender norms layered with ethnic norms that result in different stress reactions? These and other questions could be explored by administering surveys at institutions with similar study body demographics in order to see if these are local phenomena or if results can be extrapolated. These data could then be compared with surveys administered at institutions with varying demographics for cross-cultural and cross-regional analyses.

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Conflict of Interest

The author declares no conflict of interest.

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