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## Differences in Perceived Stress, Locus of Control, and Coping Styles Used by Male and Female STEM and Human Service Majors

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## Differences in Perceived Stress, Locus of Control, and Coping Styles Used by Male and Female STEM and Human Service Majors

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Differences in Perceived Stress, Locus of Control, and Coping Styles Used by  
Male and Female STEM and Human Service Majors

By

Dawn M. Lowe, M.A.

Presented to the Faculty of the Graduate School of

Stephen F. Austin State University

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Differences in Perceived Stress, Locus of Control, and Coping Styles Used by  
Male and Female STEM and Human Service Majors

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## Abstract

The current study sought to determine if program type along with gender could predict the type of coping styles students are more likely to use. Secondly, it endeavored to uncover whether a college student's gender and program type might affect their locus of control and the amount of perceived stress reported. It was hypothesized that female students in Human Service programs would exhibit the most adaptive coping styles, while males in Science, Technology, Engineering, and Mathematics (STEM) programs utilize the most maladaptive coping styles. Moreover, it was postulated that females in Human Service programs would report a more internalized locus of control while males in STEM programs would report a more external locus of control. Additionally, it was believed that females in Human Service programs would report less perceived stress than males in STEM programs. 122 students from Stephen F. Austin State University participated in the study. Participants completed a demographics survey, the Perceived Stress Scale, Brief COPE, and Rotter's Locus of Control Scale by way of Qualtrics.com. A Multivariate Analysis of Variance (MANOVA) was conducted, and the final results indicated that there is not a significant effect of gender and program type on the amount of perceived stress, reported coping style, and locus of control. There was a reported significant effect of gender on each of the dependent variables.

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## **CHAPTER I**

### **Introduction**

College is often considered a time of transition. While there are different demands at various universities, students are often expected to manage both education and independent living for the first time in their lives. Research conducted by the American College Health Association (2014) found that students endorsed stress as the number one factor impacting their educational performance. As students move into their adult life, more academic demands are placed upon them creating more perceived stress.

Although definitions of stress vary, most theories presume that stress begins when a person is exposed to environmental stressors (LaMontagne et al., 2010). Lazarus and Folkman (1984) define stress as the connection between an individual and the environment that the person sees as overwhelming or a danger to their well-being (p. 19). Therefore, it is a person's subjective interpretation of an event, as well as their ability to use adaptive coping styles and resources that lead to their perceived level of stress (Lazarus and Folkman, 1984).

## **CHAPTER II**

### **Literature Review**

#### **Perceived Stress**

According to several research studies, degree programs differ in the amount of perceived stress placed on students (Colman et al., 2016; Cruways, Greenaway, & Haslam, 2015; El-Ghoroury et al., 2012; May & Casazza, 2012; Rice et al., 2015; Rummel, 2015). Research has also found that adaptive coping styles appear to develop with age (Bayram & Bilgel, 2008; Irion, & Blanchard-Fields, 1987). Therefore, understanding how gender and college program type may affect coping styles may prove to be beneficial. This type of information could be used to benefit individual programs so they may begin to provide essential supports to students and improve upon those they currently offer.

#### **Coping**

Folkman (1984) defined coping as the “cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands that are created by a stressful transaction” (p. 843). Four types of both adaptive and maladaptive coping styles were identified by Giancola, Grawitch, and Borchert (2009). Positive coping techniques have been designated as positive reinterpretation, having adequate social support, utilizing active coping, and planning.

Positive reinterpretation techniques consist of finding meaning and focusing on the positive in stressful situations. Adequate social support is comprised of positive support from family and friends. Active coping and planning include reducing procrastination and being proactive to reduce stress. Maladaptive styles include venting, denial, disengagement, and substance use. Venting includes focusing on the negative aspects of the situation and complaining. Denial and disengagement involve procrastination and refusal to accept stressful situations. Finally, substance use is the use of both licit and illicit drugs for the purpose of escape and creating a perceived reduction in stress. Maladaptive coping styles often increase the level of perceived stress and exacerbate stressful situations, while adaptive styles tend to reduce perceived stress.

**Adaptive coping.** The use of adaptive coping styles is an important predictor of future success (Giancola, Grawitch, & Borchert, 2009). Social functioning, as well as emotional states, are drastically affected by the use of coping mechanisms. Better coping can also predict positive emotional and social adjustment. A study of 159 students conducted by Giancola, Grawitch, and Borchert (2009) found that positive outcomes arise from adaptive coping styles and more negative consequences come from maladaptive coping. Furthermore, the use of maladaptive coping styles can lead to problems socially, academically and physically.

**Maladaptive Coping.** Mahmoud, Staten, Hall, and Lennie (2012) assessed 508 full-time undergraduate students to determine if maladaptive coping styles predict an increase of negative emotional outcomes. In this study, they found that maladaptive coping styles were, in fact, predictors of depression, anxiety, and stress. They postulate that reducing maladaptive coping behaviors may decrease these adverse outcomes in undergraduate students. In a more recent study, Athulya and Sudhir (2016) found that adaptive perfectionism was negatively correlated with procrastination whereas maladaptive perfectionism was associated with greater distress and lower self-esteem. A study by Tomaka, Morales-Monks, and Shamaley (2013) found that maladaptive coping mediates the positive relationship between contingent self-esteem and alcohol-related problems; and that global self-esteem was negatively related to alcohol-related problems. The results reveal how important adaptive coping is in preventing self-esteem and alcohol-related problems. To effectively intervene on maladaptive coping styles, it is important to identify the groups who are most at risk of utilizing maladaptive coping styles.

**Gender differences.** There has been extensive research on how gender differences affect coping style. Folkman and Lazarus (1980) found that men and women differed in the way in which they deal with stressful life situations. According to the study, men are more prone to use problem-focused coping in work-based situations. They found no differences related to gender on the use of

emotion-focused coping strategies. However, a more recent study conducted by Athulya and Sudhir (2016) found that females differed from males in that they reported more avoidant focused coping methods. In another study by Blanchard-Fields and Sulsky (1991), it was indicated that men and women with more feminine qualities reported higher levels of adaptive coping. Hunter (1998) also reported gender difference in the use of coping style. The study found that 38% of females and 32% of males use tobacco to cope with stress. The study also showed that the use of alcohol was positively related to perceived stress for females. Research did, however, find that males had a greater frequency of alcohol consumption and used adaptive coping styles less than females. While Hunter's research was conducted in the 90's, according to King, Whitmill, Babb, and Graffunder (2016) college students engaging in smoking continues to be problematic. They reported that in 2015, 15.1% of adults ages 18 or older continued to smoke cigarettes. It appears that females are more likely to use a mixture of adaptive and maladaptive coping styles while males tend to use problem-solving styles and maladaptive coping. Furthermore, age and life situations, such as college, appear to have significant effects on the types of coping styles that are more likely to be used.

### **Perceived College Stress**

Research has shown an increase in anxiety, poor eating habits, substance use, depression, and suicidal ideation during the college years. Irion, and

Blanchard-Fields (1987) conducted a cross-sectional comparison of coping behaviors in adulthood with 96 participants ranging from adolescents to older adults. Researchers found that younger adults and adolescents tend to utilize more defensive coping strategies while more adaptive coping strategies developed with age. As such, college is a critical time of learning and development of adaptive coping styles. Bayram and Bilgel (2008) assessed 1617 Turkish university students and reported that depression was found in 27.1% of participants, anxiety was noted in 47.1%, and stress levels of moderate severity were reported by 27% of participants. The study also found that anxiety and stress scores were higher among female students as well as first and second-year students. This again demonstrates that that age and gender play a large role in the use of adaptive coping styles. Due to the differences in coping styles utilized by gender type and age, it seems that college programs that are more gender heavy (more male or more female) would display differences in the type of coping styles demonstrated.

**Stress differences in college programs.** It is widely known that college experience and demands differ by the type of program a student chooses. Science, Technology, Engineering, and Mathematics (STEM) programs are often perceived as very academic in nature with many classes focused on memorization and retaining of facts, while Human Service programs are known for their focus on communication styles and human interaction (May & Casazza,

2012). Because of these fundamental differences in expectations and focus between majors, it is reasonable to assume that the students that choose each program would differ in their personality and thus the kind of coping style they utilize. Research suggests that different programs may be more stressful than others and may offer fewer supports for students.

**STEM programs.** STEM programs may be perceived as more stressful and provide less education on self-care and adaptive coping (May & Casazza, 2012). In their research, May and Casazza (2012) assessed 259 third-fifth year undergraduates and found that, "Hard science majors experienced significantly more perceived stress than soft science majors." Researchers identified a "hard" science as any program that demanded at least 6 STEM courses including Math, Nursing, Dental, Pre-med, Exercise Science, Pharmacy, Biology, Chemistry, and Engineering while a "soft" science program required less than 6 STEM courses and include majors found in Human Services programs including; Communication Sciences and Disorders; Counselor Education, Deaf and Hard of Hearing, Orientation and Mobility, Pre-Auditory, Rehabilitation Services, School Psychology, Psychology, Counseling, Education, Special Education, Speech and Language Pathology, Student Affiliations, and Visual Impairment. They also noted that the distinction between hard and soft science majors increased the prediction of variance in stress scores. Rice, Ray, Davis, DeBlaere, and Ashby (2015) studied perfectionism, perceived academic stress and coping styles with

432 first-year STEM students. The study indicated that maladaptive perfectionists experience moderate or high stress while adaptive perfectionists experienced low or moderate stress levels. Women were substantially more likely than males to experience high stress.

***Human Service programs.*** Research has not neglected to explore the perceived stress of Human Service programs. As mentioned previously, Human Service programs are considered “soft-sciences” due to the limited focus on STEM classes (May & Casazza, 2012). Colman, Echon, Lemay, McDonald, Smith, Spencer, and Swift (2016) summarized findings from 17 studies that examined how self-care use and positive outcomes are related to professional psychology graduate students. They found that those who practiced self-care experienced more benefits than those who did not. Cruways, Greenaway, and Haslam (2015) explored the well-being of a sample of students in psychology. They found that participants experienced high levels of psychological distress and a low sense of wellbeing when compared to overall student norms.

Rummel (2015) studied a total of 119 doctoral students with 66% of the participants coming from counseling programs and 35% from clinical psychology programs. The study revealed that rates of negative physical and mental health symptomology are higher in this population than those of the general population and for that of medical students. Of the students surveyed, greater than 49% reported clinically significant anxiety symptoms, and more than 39% reported



clinically significant depressive symptoms. Furthermore, 34.82% reported clinically significant comorbid anxiety and depression, while over 50% of students reported chronic physical health symptoms. El-Ghoroury, Galper, Sawaqdeh, and Bufka (2012) also studied psychology graduate students to examine stressors, coping strategies, and barriers to the use of wellness activities. More than 70% of the 387 participants reported a stressor that interfered with their emotional functioning suggesting a need for more programs to educate students about stress and adaptive coping.

As the use of adaptive coping styles is a predictor of physical and emotional wellbeing; (Athulya & Sudhir, 2016; Giancola, Grawitch, & Borchert, 2009; Mahmoud et al., 2012; Tomaka et al., 2013), it is imperative that current and future research identifies populations that are more susceptible to perceived stress and more likely to utilize maladaptive coping styles. Previous research has identified several groups who are “at-risk” of using less adaptive coping styles. When these groups were divided by gender, males are more likely to utilize more maladaptive coping styles (Athulya & Sudhir, 2016; Blanchard-Fields & Sulsky, 1991; Folkman & Lazarus, 1980; Hunter, 1998).

### **Locus of Control**

Another factor identified in the use of adaptive coping styles is an individual’s locus of control. Rotter (1966) identified two types of individual control: internal and external. External locus of control is assumed when a

person perceives a situation as out of their control, due to luck or others' actions. Alternately, internal locus of control is an individual's skill or effort in controlling situations. Phares (1973) believed that individuals who approach situations from an internal locus of control tend to push their goals further after success and also tend to re-evaluate their target to an easier goal after a failure more than those who exhibit an external locus of control. Research conducted by Anderson (1977) showed that individuals with an internal locus of control reported less perceived stress and had better adaptive coping styles. Furthermore, the more successful they were, the more they internalized their sense of control. Studies examining locus of control generally utilize Rotter's original research and have not documented any changes to the original findings. Thus, Rotter's Locus of Control continues to be utilized by researchers despite its age.

Research has also demonstrated that college students exhibit an increase in perceived stress at a time when coping styles continue to develop (Bayram & Bilgel, 2008; Irion, & Blanchard-Fields, 1987). Research is divided when it comes to determining which programs may be more stressful. Some believe that "hard science" majors may experience more stress than "soft science" programs (May & Casazza, 2012; Rice et al., 2015). However, other researchers have provided evidence that Human Service majors report more perceived stress than the general population (Colman et al., 2016; Cruways, Greenaway, & Haslam, 2015; El-Ghoroury et al., 2012; Rummel, 2015).

## **Purpose**

The current study seeks to clarify the differences between programs referred to as “hard” and “soft” science programs to identify students with the greatest amount of need for support in the development of adaptive coping styles. More specifically, the purpose of the current study is to determine if program type along with gender can predict the type of coping styles used by students. The study also seeks to determine if program type and gender can predict the level of perceived stress reported and the type of locus of control indicated by participants. It is hypothesized that female students in Human Service-oriented programs will exhibit the least amount of perceived stress, the most adaptive coping styles, and an internal locus of control. Males in STEM programs are predicted to report the largest amount of perceived stress, the most maladaptive coping styles and external locus of control. By understanding which groups are more likely to show greater perceived stress, maladaptive coping styles and external locus of control, it will be possible to provide more support to reduce the adverse impacts of stress. This predictive power can also be utilized to offer specialized services to improve understanding of locus of control and prevent maladaptive coping strategies.

## **CHAPTER III**

### **Method**

#### **Participants**

The study was approved by the Stephen F. Austin State University Institutional Review Board (IRB) to ensure that all APA ethical guidelines were followed to protect participant's confidentiality, receipt of informed consent, and wellbeing. Participants were recruited via email, an in-person presentation, and SONA systems. Participants were not compensated by the researcher for participation in the study. Participants were provided with an electronic informed consent that included a statement describing the study, possible risks and benefits, and researcher contact information. A copy of the informed consent can be found in Appendix A.

Participants included undergraduate and graduate students from both STEM and Human Services programs at Stephen F. Austin University. Demographic data for Stephen F. Austin State University indicates that 64% of the school population are females and 36% are males. A total of 122 participants completed the survey in its entirety (26 males and 96 females). 21% of participants were males and 79% were females. Participants were separated

into Human Service majors and STEM majors. Human Service majors included students majoring in the following fields: Communication Sciences and Disorders; Counselor Education, Deaf and Hard of Hearing, Orientation and Mobility, Pre-Auditory, Rehabilitation Services, School Psychology, Psychology, Counseling, Education, Special Education, Speech and Language Pathology, Student Affiliations, and Visual Impairment. Demographic analysis indicated that 78 of the participants were Human Service majors with 11 males and 67 females. STEM majors were defined as majors in Biology, Chemistry, Biochemistry, Computer Science, Geology, Mathematics, Statistics, Nursing, Physics, Astronomy, Engineering, Pre-Health, and Natural Sciences. A total of 44 participants were STEM majors with 15 participants being male and 29 being female.

### **Materials and Procedures**

Participants completed a demographic questionnaire, the Brief COPE, Rotter's Locus of Control Scale, and The Perceived Stress Scale on Qualtrics.com or SONA systems.

**Demographics.** The demographic survey included questions about participant's age, gender, and program type. This information was used to separate participants into categories based on the research hypotheses. A copy of the demographics survey is attached as Appendix B.

**The Brief COPE.** The Brief COPE assesses how people respond to stress. It contains 14 scales with two items each (Carver, 1997). These scales include; active coping, advanced planning, positive reframing, acceptance, humor, turning to religion, use of social support, use of instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame (Carver, 1997). The reliabilities for each scale meet or exceed .60 except Venting, Denial, and Acceptance and are generally considered acceptable. For the present study, the researcher used criteria set forth by Giancola, Grawitch, and Borchert (2009) to split these scales into adaptive and maladaptive coping styles. The adaptive coping style includes the active coping, advanced planning, positive reframing, acceptance, humor, turning to religion, use of social support, and use of instrumental support scales. The maladaptive coping style includes the self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame scales. A copy of the Brief COPE is attached as Appendix C.

**Locus of Control Scale.** Rotter's (1966) Locus of Control Scale contains 23 items that measure generalized expectancies for internal and external control of reinforcement. An additional 6 "filler" items are included in the scale. Scores range from 0 to 23. Lower scores indicate internal control of reinforcement and high scores indicate external control of reinforcement (Rotter, 1966). Internal consistency, or the measure of whether items on the test that propose to measure the same construct receive similar scores, is acceptable and ranges

between 0.65 and 0.79. Test-retest reliability, or the ability of items to receive similar scores across testing sessions, is also acceptable and ranges between 0.49 and 0.83. A copy of Rotter's (1966) Locus of Control Scale is provided in Appendix D.

**The Perceived Stress Scale.** The Perceived Stress Scale is a 10 item self-report that measures the amount of stress an individual sees in their day to day life Cohen, Kamarack, and Mermelstein (1983). Scores are derived by reversing response values to the four positively stated items and then summing across all scale items. Lee (2012) completed a review of 12 studies on the reliability and validity of the Perceived Stress Scale. The results of this study indicated that in all 12 studies the 10-item scale was evaluated at  $>.70$  for internal consistency. The test-retest reliability was  $>.70$  in the four studies in which it was tested. However, criterion validity and known-groups validity of the scale need to be evaluated further due to inconsistent reports. See Appendix E for a copy of the Perceived Stress Scale.

## **CHAPTER IV**

### **Results**

The current study utilized a quasi-experimental Factorial Design. The dependent variables measured were the amount of perceived stress based on the Perceived Stress Scale, the type of coping skill employed based on the Brief Cope, and the locus of control reported using the Rotter's Locus of Control Scale. The independent variables measured were gender and program type (STEM or Human Services). A MANOVA was conducted to determine the relationship between gender and program type on the amount of perceived stress, type of coping style utilized, and locus of control.

#### **Assumptions**

Prior to the main analyses, the statistical assumptions of normality and linearity were checked. Variables Adaptive Coping Styles (Adaptive), Maladaptive Coping Styles (Maladaptive), Total Perceived Stress (PSSSum), and Total Locus of Control (LOCsum) were included. Results suggest normal distributions for all variables. Results also indicated an observed acceptable linearity for all bivariate relationships. Cases were also tested for multivariate outliers. Mahalanobis distances were computed and compared to Chi-squared



distribution. No outliers were found. The assumption of equality of covariance matrices was checked using Box's test and was found to be insignificant ( $p=.321$ ) which indicates that the covariance matrices are equal and meet the assumption of homogeneity of covariance matrices. Based on these criteria, no cases were excluded. The final sample after testing assumptions was 122. Table 1 displays demographics for the sample.

Table 1

*Sample Demographics*

Variable	N	Percentage
Sex		
Male	26	21
Female	96	79
Program		
Human Service	78	64
STEM	44	36

**Analysis**

A MANOVA demonstrated overall differences in adaptive coping, maladaptive coping, perceived stress, and locus of control mean scores by gender ( $Wilks' \lambda = .898$ ,  $F(4, 115) = 3.259$ ,  $p=.014$ ,  $\eta^2 = .102$ ). See table 2 for the results of the MANOVA. Subsequent ANOVA analyses demonstrated significant differences between program type and gender on the Perceived Stress Scale. A small effect size  $.102$  ( $\eta^2 = .102$ ) was observed for the comparison between gender means. See table 3 for ANOVA results. These results do not support the hypotheses that gender along with program type can predict the reported perceived stress, type of coping style, and locus of control.

does, however, indicate that when the two independent variables, gender, and program type are studied separately, they can predict the amount of perceived stress reported.

**Table 2**

*MANOVA of Adaptive Coping, Maladaptive Coping, Perceived Stress, and Locus of Control by Gender and Program*

Effect	$\lambda$	<i>F</i>	<i>df</i> (hypothesis)	<i>df</i> (error)	<i>p</i>	$\Gamma^2$
Gender	.898	3.259	4	115	.014	.102
Program	.923	2.400	4	115	.054	.077
Gender x Program	.964	1.088	4	115	.366	.036

**Table 3**

*ANOVA*

Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Program					
Adaptive	38.33	1	38.33	.548	.416
Maladaptive	80.36	1	80.36	2.514	.115
LOCsum	7.63	1	7.63	.609	.437
PSSSum	244.69	1	244.69	5.412	.022
Gender					
Adaptive	77.48	1	77.48	1.107	.295
Maladaptive	4.13	1	4.13	.129	.720
LOCsum	35.84	1	35.84	2.863	.093
PSSSum	197.54	1	197.54	4.369	.039
Program x Gender					
Adaptive	5.54	1	5.54	.079	.779
Maladaptive	6.48	1	6.48	.203	.953
LOCsum	42.14	1	42.14	3.37	.069
PSSSum	103.51	1	103.51	2.29	.133
Error					
Adaptive	8257.71	118	69.98		
Maladaptive	3771.38	118	31.96		
LOCsum	1477.25	118	12.52		
PSSSum	5335.20	118	45.21		

*Note* :HS=Human Service

## **CHAPTER V**

### **Discussion**

Perceived college stress and the use of adaptive coping styles are important factors in a student's school progress and overall health. The American College Health Association (2014) reported that the use of adaptive coping styles affects social functioning and emotional states (Giancola, Grawitch, & Borchert, 2009). Maladaptive coping styles have been found to increase depression, anxiety, and stress (Mahmoud, Staten, Hall, & Lennie, 2012). Furthermore, locus of control studies indicate that individuals with an internal locus of control reported less perceived stress and had better adaptive coping styles (Anderson, 1977). Research also suggests that degree programs may differ in the amount of perceived stress endorsed by students (Colman et al., 2016; Cruways, Greenaway, & Haslam, 2015; El-Ghoroury et al., 2012; May & Casazza, 2012; Rice et al., 2015; Rummel, 2015).

The current study sought to clarify the differences between programs referred to as "hard" and "soft" science programs in attempts to identify students with the greatest amount of need for support in the development of adaptive coping styles. More specifically, the purpose of this study was to determine if

program type along with gender predicts the type of coping styles used by students. The study also sought to determine if program type and gender would predict the level of perceived stress reported and the type of locus of control indicated by participants. The hypotheses of this study are as follows: (1) female students in Human Service-oriented programs will exhibit the least amount of perceived stress, the most adaptive coping styles, and internal locus of control and (2) males in STEM programs will report the largest amount of perceived stress, the most maladaptive coping styles and an external locus of control.

The results of the conducted MANOVA suggest that program type along with gender is not a good predictor of the level of perceived stress or locus of control reported by participants. However, results do support previous research in that there are in fact differences in how females and males utilize coping styles, their level of perceived stress, and locus of control (Folkman & Lazarus, 1980; Athulya & Sudhir, 2016; Blanchard-Fields & Sulsky, 1991; Hunter, 1998). Additional data gained from the follow-up ANOVA's also suggest that independently, program type and gender may predict the amount of perceived stress reported.

The current study suggests that females reported the more adaptive coping styles along with more perceived stress and a more external locus of control. Previous studies indicated that those with an external locus of control may report more perceived stress and this study supports this assumption.

However, the current study also proposes that despite increased perceived stress and external locus of control females continue to report more adaptive coping styles. The increase in adaptive coping styles may be born of necessity in managing this perceived stress.

### **Limitations**

There are several limitations to this study that may impact the overall interpretation of the study. While study limitations do not negate the results of a research study, it is important to understand how they may impact outcomes. Awareness of limitations should always be considered when interpreting data provided by the study, formulating future studies, or implementing interventions.

One primary limitation of this study includes the small sample size. Future research in this area should be conducted with larger sample size. A larger sample size may result in more significant findings. This study was limited to a sample of convenience as the sample was not completely random. Due to time constraints and difficulty in gaining an appropriate sample, it was imperative that the researcher proposed the study in two different human service classes. This addition to participant selection indicates that members of the population did not have an equal chance to be included in the sample.

Another limitation of the study is that the sample was comprised almost exclusively of participants recruited by faculty and staff of their respective programs. There is a chance that participants may have felt some undue

pressure to complete the study due to their professors distributing the survey link. The sample also had an over-representation of females and Human Resource majors. In the future, further diversifying the sample in terms of gender should be of focus.

The length of time estimated to complete the survey may be considered another limitation of this study. It was estimated to take 20 minutes to complete the survey which may have been a deterrent for highly stressed college students. Indicating that students could leave the survey and come back at a later time may have been more enticing to participants.

A final limitation of the current study is the format in which data was collected. Survey research has many inherent limitations including the way in which participants self-select. Moreover, survey research is subject to error due to the problem of analyzing participants' self-reported data, which may not be entirely accurate due to the inability of humans to correctly self-evaluate, inaccurate recall of events, and the possibility of false or inaccurate reporting by participants.

### **Future directions**

Future studies should identify whether a student's locus of control may moderate the amount of perceived stress and use of adaptive coping styles. Understanding how to reduce perceived stress in college students will impact

their overall health and well-being. Furthermore, this reduction of perceived stress may reduce the attrition rate in university settings.

Replication of this study is also recommended. However, it is still advised that participants be solicited from a larger population. The use of only students from Stephen F. Austin State University limited the number of possible participants. The inclusion of more universities would provide a larger pool from which to gain more diverse participants. An additional future direction for research may be to delineate the population based on feminine and masculine traits instead of by gender so as to be more inclusive for those who may not accept traditional gender norms and roles. Using this approach, findings may provide more insight into populations that are often overlooked by research, rather than separating by gender alone.

## **Conclusion**

The overall purpose of this study was to determine if program type along with gender would predict the amount of perceived stress, coping style, and locus of control reported by college students in order to identify students with the greatest amount of need for support in the development and use of adaptive coping styles. While significant results were not found for the combination of gender and program type, gender specifically was a significant predictor of reported perceived stress, the coping style used, and locus of control. Females are more likely to report the use of more adaptive coping styles, more perceived

stress and a more external locus of control than males. Additionally, the study suggests that when observed separately, gender and program type may be able to predict the amount of perceived stress reported.



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## **Appendix A Informed Consent**

You are invited to participate in a web-based online survey on The Differences in Perceived Stress, Locus of Control, and Coping Styles Used by Male and Female STEM and Human Service Majors. This is a research project being conducted by Dawn Lowe, a graduate student from Stephen F. Austin State University. It should take approximately 20 minutes to complete.

### **PARTICIPATION**

Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. You are free to decline to answer any particular question you do not wish to answer for any reason.

### **BENEFITS**

You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about Coping Styles, Perceived Stress, and Locus of Control. If you would like to have the results of this study, you may email me at [lowed@jacks.sfasu.edu](mailto:lowed@jacks.sfasu.edu).

### **RISKS**

There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life.

### **CONFIDENTIALITY**

Your survey answers will be sent to a link at Qualtrics.com where data will be stored in a password protected electronic format. Qualtrics does not collect identifying information such as your name, email address, or IP address. Therefore, your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study.

### **CONTACT**

If you have questions at any time about the study or the procedures, you may contact my research supervisor, Dr. Nina Ellis-Hervey via email at [ellishernm@sfasu.edu](mailto:ellishernm@sfasu.edu). or the ORSP at 936-468-6606.

ELECTRONIC CONSENT: Please select your choice below. You may print a copy of this consent form for your records. Clicking on the “Agree” button indicates that

- You have read the above information
- You voluntarily agree to participate
- You are 18 years of age or older

Agree

## **Appendix B Demographic Survey**

1. What is your age?
2. What is your gender?
  - a. male
  - b. female
3. What is the highest level of education you have completed?
  - a. Associate degree
  - b. Bachelor's degree
  - c. Master's degree
  - d. Doctorate degree
4. What is your area of study/degree?

## Appendix C Brief COPE

This questionnaire concerns how you cope with your most stressful experiences. Use the following response choices. Try to rate each item separately in your mind from the others. Make your answers as true for you as you can. Use the following choices:

- 1 = I haven't been doing this at all
- 2 = I've been doing this a little bit
- 3 = I've been doing this a medium amount
- 4 = I've been doing this a lot

- |  |   |   |   |   |
|--|---|---|---|---|
| 1. I've been turning to work or other activities to take my mind off things.         | 1 | 2 | 3 | 4 |
| 2. I've been concentrating my efforts on doing something about the situation I'm in. | 1 | 2 | 3 | 4 |
| 3. I've been saying to myself "this isn't real."                                     | 1 | 2 | 3 | 4 |
| 4. I've been using alcohol or other drugs to make myself feel better.                | 1 | 2 | 3 | 4 |
| 5. I've been getting emotional support from others.                                  | 1 | 2 | 3 | 4 |
| 6. I've been giving up trying to deal with it.                                       | 1 | 2 | 3 | 4 |
| 7. I've been taking action to try to make the situation better.                      | 1 | 2 | 3 | 4 |
| 8. I've been refusing to believe that it has happened.                               | 1 | 2 | 3 | 4 |
| 9. I've been saying things to let my unpleasant feelings escape.                     | 1 | 2 | 3 | 4 |
| 10. I've been getting help and advice from other people.                             | 1 | 2 | 3 | 4 |

- |  |   |   |   |   |
|--|---|---|---|---|
| 11. I've been using alcohol or other drugs to help me get through it.  | 1 | 2 | 3 | 4 |
| 12. I've been trying to see it in a different light, to make it seem more positive.  | 1 | 2 | 3 | 4 |
| 13. I've been criticizing myself.  | 1 | 2 | 3 | 4 |
| 14. I've been trying to come up with a strategy about what to do.  | 1 | 2 | 3 | 4 |
| 15. I've been getting comfort and understanding from someone.  | 1 | 2 | 3 | 4 |
| 16. I've been giving up the attempt to cope.   | 1 | 2 | 3 | 4 |
| 17. I've been looking for something good in what is happening.   | 1 | 2 | 3 | 4 |
| 18. I've been making jokes about it.   | 1 | 2 | 3 | 4 |
| 19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping. | 1 | 2 | 3 | 4 |
| 20. I've been accepting the reality of the fact that it has happened.  | 1 | 2 | 3 | 4 |
| 21. I've been expressing my negative feelings.   | 1 | 2 | 3 | 4 |
| 22. I've been trying to find comfort in my religion or spiritual beliefs.  | 1 | 2 | 3 | 4 |
| 23. I've been trying to get advice or help from other people about what to do.   | 1 | 2 | 3 | 4 |
| 24. I've been learning to live with it.  | 1 | 2 | 3 | 4 |
| 25. I've been thinking hard about what steps to take.  | 1 | 2 | 3 | 4 |
| 26. I've been blaming myself for things that happened.   | 1 | 2 | 3 | 4 |
| 27. I've been praying or meditating.   | 1 | 2 | 3 | 4 |
| 28. I've been making fun of the situation.   | 1 | 2 | 3 | 4 |



**Appendix D**  
**Rotter's Locus of Control Scale**

For each pair of statements, choose the one that you believe to be the most accurate, not the one you wish was most true. Remember, there are no right or wrong answers.

<p>1. a. Children get into trouble because their parents punish them too much.</p> <p>1. b. The trouble with most children nowadays is that their parents are too easy with them.</p>	<p>2. a. Many of the unhappy things in people's lives are partly due to bad luck.</p> <p>2. b. People's misfortunes result from the mistakes they make.</p>
<p>3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.</p> <p>3. b. There will always be wars, no matter how hard people try to prevent them.</p>	<p>4. a. In the long run, people get the respect they deserve in this world.</p> <p>4. b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.</p>
<p>5. a. The idea that teachers are unfair to students is nonsense.</p> <p>5. b. Most students don't realize the extent to which their grades are influenced by accidental happenings.</p>	<p>6. a. Without the right breaks, one cannot be an effective leader.</p> <p>6. b. Capable people who fail to become leaders have not taken advantage of their opportunities.</p>
<p>7. a. No matter how hard you try, some people just don't like you.</p> <p>7. b. People who can't get others to like them don't understand how to get along with others.</p>	<p>8. a. Heredity plays the major role in determining one's personality.</p> <p>8. b. It is one's experiences in life which determine what they're like.</p>

<p>9. a. I have often found that what is going to happen will happen.</p> <p>9. b. Trusting fate has never turned out as well for me as making a decision to take a definite course of action.</p>	<p>10. a. In the case of the well-prepared student, there is rarely, if ever, such a thing as an unfair test.</p> <p>10. b. Many times, exam questions tend to be so unrelated to course work that studying is really useless.</p>
<p>11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.</p> <p>11. b. Getting a good job depends mainly on being in the right place at the right time.</p>	<p>12. a. The average citizen can have an influence in government decisions.</p> <p>12. b. This world is run by the few people in power, and there is not much the little guy can do about it.</p>
<p>13. a. When I make plans, I am almost certain that I can make them work.</p> <p>13. b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow</p>	<p>14. a. There are certain people who are just no good.</p> <p>14. b. There is some good in everybody.</p>
<p>15. a. In my case getting what I want has little or nothing to do with luck.</p> <p>15. b. Many times we might just as well decide what to do by flipping a coin.</p>	<p>16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.</p> <p>16. b. Getting people to do the right thing depends upon ability - luck has little or nothing to do with it.</p>
<p>17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.</p> <p>17. b. By taking an active part in political and social affairs, the people can control world events.</p>	<p>18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.</p> <p>18. b. There really is no such thing as "luck."</p>

<p>19. a. One should always be willing to admit mistakes.</p> <p>19. b. It is usually best to cover up one's mistakes.</p>	<p>20. a. It is hard to know whether or not a person really likes you.</p> <p>20. b. How many friends you have depends upon how nice a person you are.</p>
<p>21. a. In the long run, the bad things that happen to us are balanced by the good ones.</p> <p>21. b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.</p>	<p>22. a. With enough effort, we can wipe out political corruption.</p> <p>22. b. It is difficult for people to have much control over the things politicians do in office.</p>
<p>23. a. Sometimes I can't understand how teachers arrive at the grades they give.</p> <p>23. b. There is a direct connection between how hard I study and the grades I get.</p>	<p>24. a. A good leader expects people to decide for themselves what they should do.</p> <p>24. b. A good leader makes it clear to everybody what their jobs are.</p>
<p>25. a. Many times I feel that I have little influence over the things that happen to me.</p> <p>25. b. It is impossible for me to believe that chance or luck plays an important role in my life.</p>	<p>26. a. People are lonely because they don't try to be friendly.</p> <p>26. b. There's not much use in trying too hard to please people, if they like you, they like you.</p>
<p>27. a. There is too much emphasis on athletics in high school.</p> <p>27. b. Team sports are an excellent way to build character.</p>	<p>28. a. What happens to me is my own doing.</p> <p>28. b. Sometimes I feel that I don't have enough control over the direction my life is taking.</p>
<p>29. a. Most of the time I can't understand why politicians behave the way they do.</p> <p>29. b. In the long run, the people are responsible for bad government on a national as well as on a local level.</p>	

## Appendix E The Perceived Stress Scale

**The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.**

0 = Never    1 = Almost Never    2 = Sometimes    3 = Fairly Often    4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?    0   1   2   3   4

2. In the last month, how often have you felt that you were unable to control the important things in your life?    0   1   2   3   4

3. In the last month, how often have you felt nervous and “stressed”?    0   1   2   3   4

4. In the last month, how often have you felt confident about your ability to handle your personal problems?    0   1   2   3   4

5. In the last month, how often have you felt that things were going your way?    0   1   2   3   4

6. In the last month, how often have you found that you could not cope with all the things that you had to do? 0 1 2 3 4
7. In the last month, how often have you been able to control irritations in your life? 0 1 2 3 4
8. In the last month, how often have you felt that you were on top of things? 0 1 2 3 4
9. In the last month, how often have you been angered because of things that were outside of your control? 0 1 2 3 4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? 0 1 2 3 4

## VITA

Dawn Lowe resides in Mabank, Texas. She may be contacted at 999 FM 30808 Mabank, Texas 75147. Dawn graduated from Mabank High School in 1998. In 2005, she received her Bachelor of Science in Interdisciplinary Studies from Texas A&M-Commerce. Dawn went on to obtain her Elementary teaching certificate, ELS certification, and Special Education certification. While teaching, Dawn entered the Counseling Psychology program at The University of Texas at Tyler. She went on to be licensed as a Licensed Psychological Associate in the state of Texas. While working in the community setting, Dawn returned to graduate school at Stephen F. Austin State University in 2015 to pursue her Doctorate in School Psychology. Dawn will receive her Doctor of Philosophy in School Psychology in August 2019.

Style manual designation: American Psychological Association-modified in order to meet graduate school requirements.

This thesis was typed by Dawn Lowe