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PTSD, ACADEMIC ACHIEVEMENT, AND COLLEGE  
PERSISTENCE: THE MODERATING EFFECTS OF  
COPING MECHANISMS AND SOCIAL SUPPORT

by

Rebecca Granda, M. S. Ed.

A Dissertation Presented in Partial Fulfillment  
Of the Requirements for the Degree  
Doctor of Philosophy

COLLEGE OF EDUCATION  
LOUISIANA TECH UNIVERSITY

August 2016

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## ABSTRACT

Prevalence rates of lifetime exposure to trauma for college students range from 50 to 90% indicating that most college students begin the first year of college with a history of trauma. Previous studies suggest a significant negative relationship between posttraumatic stress disorder (PTSD) and college retention; however, these studies have mainly focused on the negative effects of trauma exposure and PTSD on college students' persistence. As a result, it was unknown whether the effects of PTSD on academic achievement and college persistence can be moderated by protective factors, such as coping skills and social support.

The purpose of this study was to examine moderators of the relationship between PTSD with academic achievement and college persistence. Specifically, this study explored: 1) whether PTSD symptomatology in the first term of college predicts first-year grade point average (GPA) and second-year enrollment, after controlling for high school GPA and gender, and b) whether social support and coping mechanisms (i.e., approach coping and avoidance coping) moderate the relationship between PTSD symptomatology and college outcomes (i.e., first-year cumulative GPA and second-year enrollment). A longitudinal study design was utilized with an original sample of 1,058 first-year students followed over the course of two years. The final sample included 483 trauma-exposed first-year students. Data of this study were analyzed using ordinary least squares regression and logistic regression analyses. Follow-up analyses were conducted to further

explore the significant moderating effects. Results indicated that, after controlling for high school GPA and gender, PTSD symptomatology did not significantly predict first year GPA or second year enrollment. Also, the relationship between PTSD symptoms and first-year GPA was not moderated by approach coping, avoidance coping, or social support. Additionally, the relationship between PTSD symptomatology and second-year dropout was not moderated by approach or avoidance coping. On the other hand, results indicated that social support was a significant moderator of the relationship between PTSD symptomatology and second year enrollment; however, the moderating effect was in an unexpected direction, where high levels of social support strengthened the relationship between PTSD and second-year dropout.

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## TABLE OF CONTENTS

SIGNATURE PAGE .....	ii
ABSTRACT .....	iii
LIST OF TABLES.....	viii
ACKNOWLEDGMENTS .....	ix
CHAPTER ONE INTRODUCTION.....	1
Definition of Terms .....	4
CHAPTER TWO REVIEW OF THE LITERATURE.....	7
Predictors of College Persistence .....	8
Trauma Exposure and PTSD in College Students.....	12
The Effects of Trauma Exposure and PTSD .....	18
Trauma, PTSD, Academic Achievement, and College Persistence .....	21
Coping and Social Support as Moderators of the PTSD- College Achievement and Persistence Relationship .....	23
The Present Study.....	29
CHAPTER THREE METHOD.....	32
Participants .....	32
Instruments .....	35
Procedure.....	38
CHAPTER FOUR RESULTS.....	42
Descriptive Statistics and Preliminary Analyses.....	43
Hypotheses 1 through 4 .....	47
Hypotheses 5 through 8 .....	54
CHAPTER FIVE DISCUSSION.....	63
Overview of Results .....	63
Practical Implications .....	71
Limitations.....	75
REFERENCES .....	77
APPENDIX A DEMOGRAPHIC SURVEY .....	85



APPENDIX B MULTIDIMENSIONAL SCALE OF PERCEIVED SUPPORT .....	87
APPENDIX C REVISED STRESSFUL LIFE EVENTS SCREENING QUESTIONNAIRE .....	89
APPENDIX D PTSD CHECKLIST- CIVILIAN VERSION .....	92
APPENDIX E BRIEF COPE .....	94
APPENDIX F CONSENT FORMS .....	95

## LIST OF TABLES

Table 1. Demographic Characteristics of the Sample .....	34
Table 2. Means, Standard Deviations, Range, and Reliabilities for Trauma Sample .....	42
Table 3. Type of Traumatic Events by Gender .....	44
Table 4. Bivariate Correlations for Trauma Sample.....	46
Table 5. PTSD as a Predictor of First Year GPA .....	49
Table 6. Approach Coping as a Moderator of the Relationship between PTSD Symptomatology and First Year GPA.....	50
Table 7. Avoidance Coping as a Moderator of the Relationship between PTSD Symptomatology and First Year GPA.....	52
Table 8. Social Support as a Moderator of the Relationship between PTSD Symptomatology and First Year GPA.....	53
Table 9. PTSD as a Predictor of Second Year Enrollment.....	57
Table 10. Approach Coping as a Moderator of the Relationship between PTSD Symptomatology and Second Year Enrollment .....	58
Table 11. Avoidance Coping as a Moderator of the Relationship between PTSD Symptomatology and Second Year Enrollment .....	59
Table 12. Social Support as a Moderator of the Relationship between PTSD Symptomatology and Second Year Enrollment .....	60

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## CHAPTER ONE

### INTRODUCTION

Starting college is an important transition in young people's lives, which can lead to stress, sleep problems, anxiety, or depression for some students (Buboltz et al., 2009; Kahen Johnson, Gans, Kerr, & LaValle, 2010; Lester, 2013; McCabe et al., 2007). Students who reported better or adequate emotional adjustment in their first year were more likely to continue to enroll in college (Credé & Niehorster, 2012). Therefore, understanding the factors that affect college students' adjustment and persistence in their first year is important and can guide the development of campus-based interventions designed to increase student enrollment.

Prior findings indicate that the experience of traumatic events and PTSD is closely related to students' academic and emotional adjustment to college (Banyard & Cantor, 2004). Greater trauma exposure was associated with decreased academic and personal-emotional adjustment among first-year college students. This finding suggests college freshmen, especially those with a history of multiple traumas, may be at high risk of experiencing adjustment difficulties during college. PTSD has been linked to decreased academic success and college persistence (Bachrach & Read, 2012; Boyraz, Horne, Owens, & Armstrong, 2013; Duncan, 2000). Specifically, students who reported high levels of PTSD in their first year, had lower grade point average (GPA) while in college

(Bachrach & Read, 2012; Boyraz et al., 2013) and were more likely to dropout before graduation (Boyraz et al., 2013; Duncan, 2000). In addition, trauma exposure and PTSD have been linked to other negative outcomes among college students, such as alcohol and drug use (Bachrach & Read, 2012; Read et al., 2012) and re-traumatization during college (Frazier et al., 2009). For example, in Frazier et al.'s study, 21% of the trauma-exposed college students reported a new traumatic event while in college (Frazier et al., 2009). These findings highlight the negative consequences of trauma exposure and PTSD among college students, and emphasize the need for further research in this area.

The prevalence of trauma-exposure among college students is high. Approximately 50 to 90% of college students report being exposed to at least one trauma prior to entering college (Bensimon, 2012; Bernat, Ronfeldt, Calhoun, & Arias, 1998; Fisher et al., 2000; Frazier et al., 2009; Grasso et al., 2012; Green et al., 2000; Read et al., 2012; Smyth et al., 2008; Vrana & Lauterbach, 1994). Many of these students enter college with a history of multiple traumatic events (Banyard & Cantor, 2004; Duncan, 2000; Galatzer-Levy, Burton, & Bonanno, 2012; Green et al., 2000; Read, Ouimette, White, Colder, & Farrow, 2011), which increases PTSD symptomatology (Read et al., 2011) and college adjustment difficulties (Banyard & Cantor, 2004). To date, only a few studies have focused on examining the relationship between PTSD and college persistence (Banyard & Cantor, 2004; Bachrach & Read, 2012; Boyraz et al., 2013; Duncan, 2000; Zamostny, Slyter, & Rios, 1993). Although these studies increase our understanding of the negative effects of PTSD on college achievement and persistence, there is limited information in the literature regarding the mechanisms through which

PTSD affects college persistence, as well as the potential protective factors that may defend trauma-exposed college students against academic difficulties and college dropout.

Not all students with trauma exposure develop PTSD. The prevalence of PTSD among trauma-exposed college students ranges from approximately 4 to 20% (Bernat et al., 1998; Boyraz et al., 2013; Frazier et al., 2009; Grasso et al., 2011; Read et al., 2011; Smyth et al., 2008; Vrana & Lauterbach, 1994). These findings suggest that despite the high prevalence of trauma exposure among college students, many trauma-exposed students report positive adjustment. Although research is limited regarding the variables that may contribute to positive adjustment among trauma-exposed college students, the existing findings indicate that certain factors, such as coping skills and social support, may serve as protective factors and reduce PTSD symptomatology (Galatzer-Levy & Bonanno, 2013). For example, high quality and stable social support has been found to be a protective factor for trauma-exposed college students (Galatzer-Levy et al., 2012). In addition, Chao (2012) found students with high levels of stress and poor coping skills reported decreased well-being. Furthermore, in a sample of trauma-exposed college students, approach coping and higher levels of perceived support were associated with decreased PTSD symptomatology (Grasso et al., 2011).

The above findings suggest that social support and effective coping skills may reduce adjustment difficulties after adverse life events. However, there were no studies found that examined whether coping skills and social support protect trauma-exposed college students against academic difficulties or college dropout. Given that trauma exposure and PTSD are risk factors for college adjustment difficulties and dropout (Banyard & Cantor, 2004; Boyraz et al., 2013; Duncan, 2000), it is important to develop

an understanding of the variables that may moderate the effect of PTSD on college outcomes. Therefore, the purpose of this study was to examine the moderators of the relationship between PTSD symptomatology and both academic achievement and college persistence among college students. More specifically, this study examined whether approach coping, avoidance coping, and perceived social support moderated the effect of PTSD symptomatology in the first year of college on first-year academic achievement and second-year college enrollment.

Understanding the protective factors that influence academic achievement and college persistence among trauma-exposed students can provide valuable information for college administrators, counselors, and educators. Developing an understanding into these protective factors can also provide valuable information for researchers who develop intervention programs for college students with trauma-exposure. For example, determining the protective factors that reduce the effects of PTSD on college outcomes can aid the development of the intervention programs for students who enter college with trauma exposure. In addition, examining these protective factors would fill an important gap in the literature, as previous studies in this area have mainly focused on the negative effects of PTSD on college achievement and persistence.

## **Definition of Terms**

### **Traumatic Event**

*The Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition, text revision (*DSM-IV-TR*) diagnosis was used for the purpose of this study as the *DSM-5* remained in a time of transition during data collection. The *DSM-IV-TR* defines trauma as

“experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others” which resulted in a response of “intense fear, helplessness, or horror” (American Psychiatric Association [APA], 2000, p. 467). Examples of traumatic events include life-threatening illnesses and accidents, physical and sexual violence, and witnessing a death. In the present study, trauma exposure was measured by the Revised Stressful Life Events Screening Questionnaire (R-SLESQ; Goodman, Corcoran, Turner, Yuan, & Green, 1998; Green, Chung, Daroowalla, Kaltman, & DeBenedictis, 2006), which assesses lifetime exposure to 13 different types of traumatic events (e.g., being in a robbery, experiencing physical or emotional abuse, and losing a loved one as a result of violent death).

### **Posttraumatic Stress Disorder**

The *DSM-IV-TR* defines PTSD as involving three symptom clusters: re-experiencing the event, avoidance behaviors, and hyperarousal. Symptoms related to re-experiencing the event are nightmares and flashbacks (APA, 2000). Those associated with avoidance behaviors are not talking about the event or avoiding triggers and certain related situations. Individuals with hyperarousal may be alert, experience difficulty sleeping, or have concentration problems. For the purpose of this study, PTSD was measured using the PTSD Checklist-Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993), which measures the three PTSD symptom clusters defined in the *DSM-IV-TR* (APA, 2000). A cut-off score of 50 is indicative of a PTSD diagnosis (Weathers et al., 1993).



**Approach Coping**

Approach coping involves active, problem-focused strategies for management of stressful events and related emotions. Some examples of approach coping strategies include positive reframing, planning, emotional support, and acceptance (Carver, 1997).

**Avoidance Coping**

Avoidance coping involves individuals' attempts and efforts to escape or avoid distress. Some examples of avoidance coping involves self-distraction, denial, substance use, venting, behavioral disengagement, and self-blame (Carver, 1997).

**Social support**

Zimet, Dahlem, Zimet, and Farley (1988) defined social support using three dimensions: support from family, support from friends, and support from significant others. For the purposes of this study, I assessed participants' perception of social support from these three sources.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

More than ever before, high school students are seeking a college education. For instance, during the last decade there was an increase in college enrollment from 11% between 1990 and 2000 to 37% between 2000 and 2010 (National Center for Educational Statistics, retrieved 9/20/13). As of 2011, it is estimated that approximately 41 to 50% of college-aged individuals were enrolled in college, totaling almost 18 million undergraduate college students in the United States (U.S. Department of Education, 2012; U.S. Department of Commerce, 2011). The start of college provides the opportunity to meet new people, learn new areas of expertise, adjust to a new stage in development, and overcome challenging experiences.

The first year of college is an important time in the life of a young adult with ambition to graduate from college. This first year of college includes a critical adjustment period that presents various challenges (e.g., finding a new place of residence, socialization, forming intimate relationships, choosing a major, time management, and stress management) for students that may affect academic persistence and achievement (Al-Qaisy, 2010; Bowman, 2010; Calaguas, 2011; Credé & Niehorster, 2012; Hunt, Boyd, Gast, Mitchell, & Wilson, 2012; Kahen Johnson et al., 2010; Krumrei-Mancuso, Newton, Kim, & Wilcox, 2013; Secuban, 2012; Sharma, 2012; Smith & Wertlieb, 2005).

Students who enter college that have already faced many obstacles, such as trauma exposure, may find even more obstacles during the first year of college (Bernat et al., 1998; Bensimon, 2012; Grasso et al., 2011; Green et al., 2000; Frazier et al., 2009; Smyth et al., 2008; Vrana & Lauterbach, 1994). In addition, students who enter college with both trauma exposure and PTSD are at greater risk of poor academic performance and college dropout (Boyratz et al., 2013; Duncan, 2000). However, literature available in this area is limited and further research is needed to understand the protective factors that may guard them against poor achievement and college dropout. Therefore, the purpose of the present study was to examine the relationship between PTSD and college outcomes, as well as to determine whether coping mechanisms and social support would moderate this relationship.

### **Predictors of College Persistence**

Pascarella and Terenzini's (1980) model of student persistence emphasized the importance of academic and social integration on students' perseverance in college. More specifically, they found that five factors predict college persistence and dropout: positive peer-group interactions, encouraging interactions with faculty, faculty concern for student development and teaching, academic and intellectual development, and institutional and goal commitments (i.e., students' commitment to the institution and goal of graduation). In addition to this, the decision to dropout of college has been evaluated in college persistence research. Specifically, Hunt et al. (2012) investigated the reasons seniors about to graduate chose to dropout of college. They found that students typically withdraw from college after the completion of a semester rather than in the middle of the

grading period. Sixty-one percent indicated dropout was due to family expectations and pressure. Other stressors that influenced college retention included: employment off-campus, family and financial obligations, and poor academic achievement (Hunt et al., 2012). Supporting Pascarella and Terenzini's (1980) model of student persistence, Hunt et al. (2012) found that half of the withdrawn seniors in their study reported a lack of social involvement on campus as a barrier for their college persistence. Another major issue found with these students was that they perceived faculty did not care about their problems (Hunt et al., 2012). The authors (Hunt et al., 2012) also found that 48% of the students who dropped-out in their study did not re-enroll in the following 6 years. Hunt et al. (2012) suggest four areas of implication that are related to college retention: family issues, social involvement/sense of belonging, off-campus employment, and upper-level advising. In particular, it is important to note how campus activity, belonging, and social involvement in the school environment are related to dropout and persistence.

In order for college students to graduate, some degree of focus needs to be dedicated towards academic achievement and persistence of coursework. Some students unfortunately do not surpass the first year of college due to social difficulties, personal risk factors, or low academic performance (Credé & Niehorster, 2012; Kahen Johnson et al., 2010; Secuban, 2012; Sharma, 2012). Smith and Wertlieb (2005) studied freshmen expectations regarding academic achievement in relation to grade point average (GPA) and social experiences. They found no relationship between grades and academic expectations. Therefore, expectations alone did not predict or relate to GPA for the 31 students studied over the course of their first year of college. Instead, they discovered higher expectations about college achievement gradually declined over the first year. Both

social and academic expectations decreased throughout freshmen year, most likely because college students enter college emotionally unprepared with unrealistic and idealistic expectations. Throughout the course of the first year of college, expectations gradually became more realistic (Smith & Wertlieb, 2005). Those first-year students with exceptionally high expectations (socially and academically) indeed had lower overall GPAs in their freshmen year of college (Smith & Wertlieb, 2005). Thus, entering college with realistic expectations supports academic achievement in the first year of college which may then influence whether these students remain enrolled beyond the first year of college.

A study conducted by Krumrei-Mancuso et al. (2013) examined whether psychosocial factors are more predictive of college success than intelligence factors alone. They found that in addition to previous GPA, several psychosocial factors such as academic self-efficacy, organization and attention to study, stress and time management, involvement with college activity, and emotional satisfaction with academics significantly predicted college GPA. These findings suggest that in addition to academic and cognitive factors, psychological and psychosocial factors may have important influences in college students' academic achievement and persistence.

In addition to psychosocial factors, college retention studies have found gender to be a factor related to persistence where women have been found to have higher graduation rates than men, with women approximately 17% more likely to graduate than men (Ewert, 2012). Ewert (2012) studied the factors that may lead women to be more persistent than men in college such as attendance patterns, choice of college major, social integration, and academic performance. She collected data from 1988 to 2000 using the National

Education Longitudinal Study and followed over 12,000 students with four follow-up interviews until eight years after graduation (Ewert, 2012). She found a significant gender gap in graduation rates and that males had more disruptions in attendance, required time off from school, and attended school part-time rather than full-time. Additionally, women participated in more social and academic organizations while men were more active in intramural sports. Finally, Ewert (2012) found that women had higher GPAs while in college than men. Of these gender differences, increased attendance, social integration, and higher academic achievement were the factors that related to and increased persistence and graduation rates of female college students.

Another important variable that affects college persistence is prior academic achievement. For example, Calaguas (2011) examined the relationship between high school general weighted averages (GWA) and academic difficulties among 329 college freshmen. He found a significant relationship where increased academic achievement in college was based on higher senior high school GWA and thus lower college academic difficulties. In other words, college freshmen with higher grades in high school reported less academic difficulties freshmen year, and those with lower high school grades had more difficulty with academics in college.

These findings suggest that several academic and non-academic factors influence college students' academic achievement and persistence. Most of these studies, as well as other empirical research (Al-Qaisy, 2010; Bowman, 2010; Credé & Niehorster, 2012; Kahen Johnson et al., 2010; Secuban, 2012; Sharma, 2012) have mainly focused on students' college experiences (e.g., academic integration, social integration), prior academic achievement, and demographic factors (e.g., socio-economic status) as

predictors of college persistence. However, previous findings indicate that trauma exposure and PTSD also play an important role in students' academic achievement and college persistence (e.g., Boyraz et al., 2013; Duncan, 2000; Read et al., 2012; Zamostny et al., 1993). Therefore, more research is needed to develop a better understanding of the needs of the students who are at risk due to trauma exposure and PTSD.

### **Trauma Exposure and PTSD in College Students**

In the previous literature, some researchers' defined traumatic events based on *DSM-IV-TR* (APA, 2000) and others defined trauma more broadly to examine a wide range of potentially traumatic events. Therefore, prevalence rates of trauma exposure among college students show variations in the previous literature. According to the Criterion A of the *DSM-IV TR*, two criteria should be met for an event to be considered a traumatic event; individual must have 1) individual must have "experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" and they must experience 2) a response of intense fear, helplessness, or horror (APA, 2000, pg. 467 - 468). Bernat et al. (1998) examined Criterion A trauma exposure and PTSD symptomatology among 937 college students and found that 67% of these students experienced a traumatic event in their lifetime. Traumatic events were most stressful when they occurred before 18 years old, with a mean age of onset beginning during adolescence. In reference to the most traumatic event, 51% reported a life-threatening incident that placed their life in serious danger. They found that 4% of this sample met criteria for PTSD. An increased risk of development for PTSD symptomatology after trauma exposure was a general

vulnerability (i.e., being of the female gender with a history of exposure to traumatic events) and severity of the trauma (i.e., threat to life, injury, witnessed serious injury, or death of another person). Bernat et al. (1998) found that type of trauma differed based on gender, where women were more likely to have been sexually assaulted, and men were more likely to have been in automobile accidents, physically assaulted, or involved in violence or combat. These findings highlight the high prevalence of trauma exposure among college students and indicate gender differences exist in the type of trauma experienced.

Vrana and Lauterbach (1994) defined trauma more broadly and conducted a study that surveyed prevalence of trauma exposure and its psychological impact among 440 undergraduate students. They compared both students with and without trauma in regards to PTSD, anxiety, depression, and substance abuse. They examined whether type of event, number of traumas, and gender influenced the outcomes. They found that 84% of the participants reported at least one traumatic experience. In addition to this, one-third of these trauma-exposed participants stated they had experienced four or more traumatic events in their lifetime. College students with trauma, when compared to those without trauma, were significantly more likely to have anxiety, depression, and PTSD.

Gender differences were found in Vrana and Lauterbach's (1994) study. For instance, females who witnessed a death had more severe PTSD symptoms than males who experienced the same event. Also, males reported they had more anxiety and depression after trauma exposure that they had difficulty openly expressing feelings to others, such as childhood abuse. Overall, males had a greater mean number of traumatic events than females. Type of trauma again differed where males were more likely to



experience combat, accidents, fires, life-threatening deaths; and females were more likely to have been raped or in an abusive relationship. These gender differences are consistent with Bernat et al.'s (1998) findings and suggest that females are at greater risk of experiencing sexual traumas. Women, when compared to men that witnessed a violent death, had a greater amount of PTSD symptomatology. Additionally, males with childhood sexual abuse (CSA) had greater anxiety than females and were less likely to discuss the trauma with others, both of which were high indicators of PTSD for males. Females with sexual assault viewed it as their most distressing trauma more so than males, 53% of the time compared to 11% for males. Overall, differences in gender for this study were found based on amount of trauma, type of trauma, and expressed PTSD symptomatology.

A study completed by Green et al. (2000) examined the effects of single versus multiple exposures to trauma, the diverse mental health outcomes due to one or more traumatic events, and the impact of interpersonal trauma. They recruited by mail a sample of 1,909 college sophomore women over the course of two years from six various colleges in the Washington, D.C. area. The SLESQ was developed at this time for their study and was given to participants to complete among other self-report surveys to measure the history of Criterion A1 events (Goodman et al., 1998). They found that 65% reported at least one traumatic event in their lifetime and 38% of the total sample had experienced more than one type of trauma. The researchers also decided to screen out self-reported trauma that did not fit with Criterion A1 of *DSM-IV TR* (APA, 2000). They found that non-interpersonal trauma (such as having an illness, traumatic loss, or witnessing a death) alone was not associated with current PTSD symptoms; however,

multiple interpersonal traumas (e.g., sexual or physical assault) had the highest risk of current PTSD symptomatology.

Frazier et al. (2009) also defined trauma broadly and explored the prevalence of trauma within 1,528 undergraduate students. They asked participants to indicate whether they had experienced any of 22 events (e.g., unexpected death, motor vehicle accident, natural disaster, abortion, uninvited/unwanted sexual attention) using the Traumatic Life Events Questionnaire (TLEQ; Kubany, 2004). They then had the sample identify which event caused the most intense fear, helplessness, or horror as measured using the *DSM-IV TR* Criterion A2 descriptor (APA, 2000). Over the course of two data collection periods and at multiple sites, they found 85% reported a traumatic event in their lifetime and 21% experienced a trauma within the 2-month time period between data collection during college. The prevalence of PTSD among the total sample was 6.2%. The six most traumatic events that occurred in this college sample were: unexpected deaths, accidents, survival of a loved one's life-threatening experience, family violence, unwanted sexual attention, and sexual assault. In particular, it was found that a history of traumas with family violence, unwanted sexual attention, and sexual assault are associated with the most stress, depressive, and anxious symptoms. Of the individuals who experienced an unexpected death, 63% of them rated this as their worst overall event. However, among those that experienced unwanted sexual attention only 9% rated it as their worst event. Losing a loved one was designated as the most severe event rather than sexual assault, despite the fact that sexual assault had the highest number of distress symptoms. This study recognizes that most college students have experienced trauma prior to college and

they may experience re-traumatization while in college, which can potentially result in more distressing and severe symptomatology.

Read et al. (2011) investigated the prevalence and risk factors for PTSD in freshmen college students. They measured students' lifetime exposure to Criterion A traumas. In their large sample ( $N = 1,999$ ), they found a prevalence of 66% for students who reported previous traumatic events and 9% of the total sample met the criteria for PTSD. They found that characteristics of trauma and severity of trauma were more likely to predict PTSD, more so than socio-demographic factors (Read et al., 2011). Also, female college students experienced sexual assault five times more than males (Read et al., 2011). Of the total 66% of participants who reported a history of trauma, 23% reported exposure to one traumatic event, 20% had experienced two traumatic events, and 25% stated they had three or more events. The two most common traumas experienced in this sample were life-threatening illness and death of a loved one. Similar to prevalence studies of the overall population, female college students were more likely to experience trauma and they experienced a larger number of traumatic events than men. In a similar study that Read and colleagues (2012) completed the following year, they found that within the total sample, 74% of college students had a prior traumatic incident where 15% had developed partial PTSD and 15% met the criteria for a PTSD diagnosis. However, Vrana and Lauterbach (1994) previously reported a larger mean number of traumas for males rather than females. Ethnicity was not found to be associated with trauma exposure; however, participants with lower socioeconomic status (SES) were more likely to have experienced trauma. They found, similar to the other studies discussed thus far, that increased number of exposure to trauma increased PTSD symptomatology.

In another study that examined trauma within college students, Smyth et al. (2008) sought to measure the prevalence and disclosure of adverse life events, in addition to the severity, nature, and development of PTSD after trauma exposure. Approximately 9% of this college sample met the criteria for PTSD and 11% reported subclinical PTSD symptoms. In particular, women were found to rate events as more severe and were therefore more likely to disclose the nature of events to others. The degree of disclosure was found to be 7.2% for those who did not disclose a traumatic event to another person, 12.4% reported minimal disclosure, 40.3% reported speaking to others somewhat, 27.7% reported a moderate amount of disclosure with others, and 12.4% talked extensively with others about the event. They evaluated duration of trauma length and the mean amount of years since college enrollment. Thirty-three percent of the participants reported a trauma experience that lasted less than three months in length, where 20% had a trauma that ranged between three and six months in length, 20% were between six months and a year, and 27% indicated their traumatic event had a time period more than one year. On average, the mean length of time since traumatic exposure and beginning college was 4.61 years. They concluded that as the level of trauma severity increases, the level of disclosure about the event increases (Smyth et al., 2008).

Grasso et al.'s (2011) study examined trauma exposure and PTSD as they relate to perceived social support, personal resources, and coping strategies. They compared over the course of six years three groups of college students ( $n = 3,119$ ): those with trauma exposure but no PTSD, both trauma exposure and PTSD, and no exposure to trauma. The Posttraumatic Diagnostic Scale (PDS; Foa, 1995) includes a list of 12 potentially traumatic events (PTEs) for the participant to rank the most bothersome event. They also

used the Brief COPE (Carver, 1997) to measure the coping styles of these students. In this sample of college students, it was found that about half (49.92%) of the students experienced a PTE and 16.69% of the students exposed to PTEs met the criteria for PTSD. They found that the students with PTSD reported fewer personal resources (e.g., perceived social support, self-esteem, and optimism), in comparison to those trauma-exposed students without PTSD and the non-exposed students. Low self-esteem and low perceived support were found to relate to increased PTSD symptom severity for students exposed to a PTE. Therefore, it is possible that certain factors such as personal resources and social support may protect trauma exposed students from developing PTSD.

### **The Effects of Trauma Exposure and PTSD**

The literature reviewed above highlights the vast prevalence of lifetime exposure to traumatic events among college students. Trauma exposure and PTSD affect college students' mental and physical health negatively. For example, in Read et al.'s (2012) study, PTSD symptomatology was found to be a risk factor for other possible negative consequences, such as drug and alcohol abuse among college students. In their longitudinal study, students with higher PTSD symptomatology were more likely to have negative drug and alcohol consequences. It was determined that those individuals who started college with PTSD had twice as many negative consequences than freshmen without reported PTSD (Read et al., 2012). Therefore, students with trauma and PTSD are more likely to have negative college experiences.

The time period in an individual's life that they experience trauma, such as childhood or adolescence, may then play a role in the negative consequences expressed

during college adjustment. For instance, childhood abuse has been consistently found to have negative, long-term psychological effects for individuals (Asberg & Renk, 2013; Duncan, 2000). College students with CSA have been found to have increased risks for incarceration when abuse was more severe, there was a lack of social support, and substance abuse was involved (Asberg & Renk, 2013). Other factors linked to traumatic exposure and PTSD were negative physical health consequences. Students with both PTSD and depression are at risk for poor health outcomes and are less likely to engage in exercise according to Rutter, Weatherill, Krill, Orazem, and Taft (2013). Thus, college students with both PTSD and depressive symptoms also have increased symptoms of poor health. A possible explanation is that the hyperarousal cluster of PTSD is strongly related to both exercise and health which is perhaps due to hypervigilance and avoidance of students' engagement of social exercise. Engaging in exercise for students with PTSD and depressive symptoms, however, was found to increase the health of these college students. Although research is limited that has examined the effects of trauma exposure and PTSD among college students, studies that examined the general population indicated PTSD has negative effects on cognitive functioning, with elevated comorbidity of other disorders, self-blame, and interpersonal consequences (Jayawickreme, Yasinski, Williams, & Foa, 2012; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Tolin & Foa, 2006). Additionally, students who enter college with PTSD and trauma exposure are at a higher risk of poor mental and physical health, higher levels of substance and alcohol abuse, incarceration, a lack of social support, and increased college dropout (Asberg & Renk, 2013; Duncan, 2000; Read et al., 2012; Rutter et al., 2013).

Findings also indicate that trauma exposure and PTSD affect students' adjustment to college. For example, Banyard and Cantor (2004) completed a study that explored trauma and students' adjustment to college in a sample of freshman students. Trauma was defined according to the SLESQ (Goodman et al., 1998), which measures Criterion A traumas. Approximately 54% of the participants reported a history of at least one trauma. They found that greater amounts of trauma exposure related to decreased academic and personal-emotional adjustment. This finding emphasizes that college freshmen with trauma are an at-risk population that experience challenges when adjusting to the first year of college.

In another study, Zamostny et al. (1993) examined how early trauma and resources influence later college adjustment. The participants for their study consisted of mostly White female introductory psychology students ( $N = 250$ ). Structural equation modeling was used to examine a proposed theoretical model where early trauma and resources may predict psychological damage and thus adjustment to college. They determined that trauma affects college adjustment in three ways: there is a direct positive path between trauma and adjustment which suggests trauma can influence adjustment; there was a strong indirect path from trauma to college adjustment through psychological damages; and the weakest path was between early resources on trauma. The researchers suggest the connection between resources and trauma is a complex one. They suggest that the ability to use resources after or during trauma should be further assessed using coping responses based on the context of trauma experienced.

### **Trauma, PTSD, Academic Achievement, and College Persistence**

There have only been a few studies identified that measure the effect of trauma and PTSD on college students' achievement and persistence (Bachrach & Read, 2012; Boyraz et al., 2013; Duncan, 2000). Boyraz et al. (2013) studied how trauma exposure and PTSD symptomatology affected academic achievement and persistence among first-year African American college students. Data were collected at three time points between 2010 and 2012 (first semester of college, end of first year, and end of second-year). With 569 participants enrolled in two different universities, 74% of the total sample reported a history of trauma exposure and 20.6% of these trauma-exposed students met the criteria for PTSD. Of the college students that reported previous trauma ( $N = 423$ ), 33% were not enrolled by the spring of their second year. More specifically, 47.1% of those who met the criteria for PTSD at Time 1 were not enrolled by the end of their second year (Time 3) compared to 28.7% of those with trauma exposure but not PTSD. Boyraz et al.'s (2013) findings also indicated that the relationship between PTSD symptomatology and college dropout was mediated by first-year cumulative GPA for female students. More specifically, female students with higher levels of PTSD symptoms in the first semester of college (Time 1) had lower first-year GPA (Time 2), which in turn, resulted in an increased likelihood of college dropout by Time 3. On the other hand, increased PTSD symptomatology did not significantly predict academic achievement or college dropout for males.

Other researchers also reported a significant relationship between PTSD symptomatology and college persistence. For example, Duncan (2000) followed 210 freshmen during their four years of college. It was found that students who reported high



levels of PTSD symptomatology in the first year of college were less likely to continue to enroll in college. Specifically, 35% of those students with multiple trauma and 50% of those sexually abused did not dropout by the end of senior year, compared to 60% of non-victims. Higher levels of PTSD symptomatology in the first semester of college were found to relate to decreased senior year attendance. Even more concerning, students who had experienced multiple traumas and sexual abuse were significantly less likely to be enrolled by the second semester of freshmen year. The largest drop in enrollment occurred at the end of the first semester of freshmen year. In particular, victims of child abuse, CSA, or multiple abuses during childhood and with higher rates of PTSD symptomatology were even more at-risk for dropout with each attended semester in college. Duncan (2000) therefore encourages future research of college students to focus on the first semester of freshmen year in order to capture all students exposed to trauma, not just those that have remained due to healthier coping.

Bachrach and Read (2012) examined the relationship between PTSD, alcohol, and academic performance among first-year college students. Their sample of 1,002 university students was invited to complete surveys at five time points over the course of their freshmen year. They found 73.4% of the participants had experienced at least one Criterion A trauma in their lifetime. They placed students in one of four groups: new trauma, no trauma, remitted trauma (did not meet PTSD diagnosis in final two time points), and unremitted trauma (met PTSD diagnosis when assessed at least four out of five time points). In their study, better high school GPA was associated with higher end-of-first-year GPA. They found that students with unremitted PTSD had lower GPAs and alcohol concerns by the end of the first year. Additionally, students with both PTSD and

alcohol consequences were more likely to dropout by the end of the freshmen year. Therefore, college students with PTSD are more likely to experience negative consequences such as lower GPA, alcohol concerns, or dropout.

Overall, only a few studies have been identified that relate to trauma, PTSD, and college retention (Bachrach & Read, 2012; Boyraz et al., 2013; Duncan, 2000). The results of these studies suggest that PTSD is an important risk factor for low academic achievement and college dropout. These results also highlight the need for conducting more studies on trauma, PTSD, academic achievement, and persistence in college students. Although these findings provide a preliminary understanding of the role of PTSD in college adjustment and persistence, more research is needed to develop an in depth understanding of the experiences of college students who enter college with a history of traumatic events, as well as the protective factors that may help despite the distress they have experienced.

### **Coping and Social Support as Moderators of the PTSD— College Achievement and Persistence Relationship**

Although PTSD symptomatology is related to negative outcomes, research suggests that several protective factors, such as effective coping skills and social support foster recovery from distress (Bensimon, 2012; Chao, 2012; Galatzer-Levy et al., 2012; Galatzer-Levy & Bonanno, 2013; Gan, Hu, & Zhang, 2010; Grasso et al., 2011; Zimet et al., 1988). Effective coping skills and support from others may play a significant role in academic success of trauma-exposed college students which may help persistence despite college stressors.

Coping processes have been defined with a range of terminology; however, for the purposes of this study I used two of the major types of coping that individuals characteristically use during times of stress, either approach or avoidance coping (Dempsey, Overstreet, & Moely, 2000; Grasso et al., 2011; Rutherford & Endler, 1999). Approach coping is a way of actively seeking out information about a stressor to integrate and process traumatic events (Dempsey et al., 2000; Grasso et al., 2011; Rutherford & Endler, 1999). Examples of approach coping mechanisms are acceptance, emotional support, positive reframing, and planning (Carver, 1997). Avoidance coping is defined as cognitive dissonance, distraction, or diversion of attention away from stressors, cues, or triggers of a previous traumatic event (Foa & Kozak, 1986; Grasso et al., 2011; Rutherford & Endler, 1999). Examples of these are denial, disengagement, self-distraction, self-blame, substance use, and venting (Carver, 1997). In addition to this, theoretical bases (Parker & Endler, 1992; Rutherford & Endler, 1999; Schwarzer & Schwarzer, 2006) suggest coping is dispositional in nature as individuals are more likely to have typical coping styles they reference when faced with stressful experiences. For instance, a meta-analysis by Rutherford and Endler (1999) found that dispositional coping substantially influences an individual's choice of situation-specific coping style in response to stress. Individuals are therefore inherently inclined to exclusively practice either approach or avoidance coping mechanisms in which they then select the specific coping strategy within the approach-avoidance group according to the specific stressor.

Foa and Kozak's emotional processing theory (1986) provides a framework for understanding the development of PTSD symptomatology, as well as the mechanisms that may foster recovery from PTSD. According to emotional processing theory, PTSD results

from the pathological fear structures that may develop due to trauma exposure. Fear structure includes unconscious mechanisms that lead an individual to avoid or escape as a response of processing emotional information after a perceived dangerous threat.

According to this theory, after an individual is exposed to trauma, his or her fear structure has been activated because of a truly frightening, horrifying, or life-threatening event.

This activation of the fear structure during an emergency influences the sympathetic nervous system resulting in physical changes within the body (e.g., increased blood pressure, shortness of breath, perspiration). These bodily changes are designed as an alert to dangerous situations, and prepare the individual for handling such an emergency. Once the traumatic situation alleviates and the individual returns to a safe environment, their parasympathetic nervous system should decrease such symptomatology (Center for Integrated Healthcare, 2009). However, some individuals that are exposed to trauma do not return to baseline and instead they develop pathological fear structures, which lead to the development and maintenance of PTSD.

Fear structure becomes pathological when it is intense and hinders individuals' functioning. In addition, while normal fear occurs in response to a real threat or a dangerous situation, individuals with pathological fear structures may experience intense fear responses even when there are no indications of danger (Foa & Kozak, 1986). The pathological fear structures are very closely linked to escape and avoidance behaviors. When individuals' pathological fear network is activated, they engage in avoidance and escape behaviors to manage intense fear responses. According to this theory, the escape or avoidance behaviors associated with these learned fear responses contribute to the development and maintenance of PTSD. On the other hand, emotional processing of

trauma and exposure to fear stimulus provide an opportunity for new learning and modification to occur, which then promotes recovery from PTSD (Foa, Hembree, & Rothbaum, 2007). In other words, emotional processing of trauma increases fear memory in such a way that it is incompatible with current functioning and requires emotional modification, and most likely an eventual reduction in fear and decrease in symptomatology over time. When trauma-exposed individuals use strategies to resist modification of meaning and emotional processing (e.g., avoidance and escape behaviors), it may temporarily relieve distress; yet long-term avoidance of trauma triggers and reminders will then maintain PTSD symptomatology (Foa et al., 2007).

At the time of this present study, there have been no identifiable empirical studies that investigated whether avoidance or approach coping mechanisms moderate the effects of PTSD symptoms on college outcomes; however, in light of the literature reviewed above, it is plausible to suggest that trauma-exposed college students require modification of meaning and emotional processing so as to reduce PTSD symptomatology and prevent academic difficulties. Therefore, approach based coping mechanisms (e.g., positive reframing, use of emotional and instrumental support, and acceptance) may foster academic outcomes by helping trauma-exposed individuals process their traumatic experience in a way that promotes recovery. On the other hand, students who rely on avoidance coping mechanisms (e.g., denial, substance abuse, behavioral disengagement, self-distraction) to escape from emotional processing and modification of such fear structures may experience increased academic difficulties due to increased distress.

There is considerable evidence that avoidance coping is related to negative outcomes and approach coping is related to positive outcomes. For example, Grasso et al.

(2011) studied the differences among college students that did and did not develop PTSD after trauma. They found that those students that did not develop PTSD after trauma had more approach coping factors. These researchers also discovered that students in this sample that had more severe PTSD utilized more avoidance coping than approach coping. In Galatzer-Levy et al.'s study (2012), they investigated college students exposed to trauma over the course of four years and how coping behaviors influenced development of stress-related pathology. They found that students' coping strategies remained consistent over four years of college, whether exposed to trauma or not, and most students exposed to trauma experienced little to no distress. However, they discovered a specific group of trauma-exposed students categorized as "distressed-recovered" that had a trajectory during their four years of college that displayed more trauma-focused coping and furthermore, eventual improvement of nonclinical levels of distress. In a study conducted at a Chinese university, proactive and preventive coping were assessed in relation to college adjustment and stress (Gan et al., 2010). Gan et al. (2010) recruited 423 college freshmen four weeks after orientation from two universities to participate in this study. Students that had proactive coping mechanisms (e.g., who seek new challenges and opportunities despite potential challenges) had less stress and in turn, reduced maladjustment. Preventive coping (e.g., building up resources and resistance for future stressors) was also related to decreased levels of maladjustment but did not have as strong a relationship as proactive coping. Furthermore, this study emphasizes the importance of coping with stressful experiences as it relates to college maladjustment. College students without effective coping strategies and protective factors are more likely to experience stress and maladjustment which could then hinder college adjustment.

In addition to coping, social support has been found to be an important protective factor. Zimet et al. (1988) explain that social support is not only helpful to individuals in all situations, but it may also be credited as a buffer during times of stress. Galatzer-Levy et al.'s study (2012) also confirmed the positive influence social support has during times of distress for college students. They found that social support is most critical for students with presenting symptoms of distress (Galatzer-Levy et al., 2012).

Additionally, Chao (2012) examined social support and coping within 459 college students in relation to perceived stress and well-being. They had a sample limited to mostly White students that volunteered to complete an online survey. Students who perceived they had less stress and more social support had healthier psychological well-being. Additionally, they determined that students with negative coping had higher stress and lower well-being, despite the amount of social support. This suggests that type of coping trumps the buffer that social support provides students (Chao, 2012).

Grasso et al. (2011) examined positive aspects that may cultivate after exposure to trauma, rather than the risk factors. This study had a large sample ( $N = 3,119$ ) of undergraduate students given course credit to complete self-report surveys or online questionnaires. They found that students who developed PTSD had significantly lower personal resources (identified as perceived support, optimism, and self-esteem) than those who did not develop PTSD after trauma. Also, trauma-exposed students who perceived that they had more social support and higher self-esteem had less severe PTSD symptomatology. The factors that protect students from PTSD development after trauma are thus multifaceted yet most likely related to social support.

As of now, there has been limited to no empirical research that has examined the effects of coping mechanisms and social support on the relationship between PTSD and college outcomes. However, it is suggested from the literature reviewed above that PTSD symptomatology is ameliorated by social support and coping mechanisms (Bensimon, 2012; Dempsey et al., 2000; Galatzer-Levy et al., 2012; Grasso et al., 2011). Based on these findings, it was expected that first-year students exposed to trauma with more approach coping factors and social support were less likely to face challenges related to academic achievement and persistence. In other words, approach coping and social support may reduce the negative effects of PTSD symptomatology on college outcomes. On the other hand, higher levels of avoidance coping may strengthen the negative relationship between PTSD symptomatology and college outcomes.

### **The Present Study**

The literature reviewed highlights the high prevalence of trauma exposure among college students suggesting that trauma exposure and PTSD symptomatology negatively affect college students' academic achievement and college persistence (Banyard & Cantor, 2004; Boyraz et al., 2013; Duncan, 2000; Zamostny et al., 1993). The findings also emphasize the need for further research in this area. Although previous studies indicate students with PTSD symptoms have more negative college outcomes, it appears that there is no study in the literature that examined the influence of negative effects of trauma and PTSD symptoms on college achievement and persistence as moderated by protective factors, such as coping skills and social support. Therefore, this study examined the relationship between PTSD symptomatology and college outcomes, as well



as the moderators of this relationship. More specifically, this study examined whether (1) PTSD symptomatology in the first term (first ten weeks) of college predicted first-year cumulative GPA and second-year college enrollment among college students who enter college with a history of traumatic events, whether (2) coping mechanisms (e.g., approach and avoidance coping) and social support moderated the relationship between PTSD symptomatology in the first term of college and first-year cumulative GPA, and whether (3) coping mechanisms (e.g., approach and avoidance coping) moderated the relationship between PTSD symptomatology in the first term of college and second-year enrollment. Because previous findings suggested that gender and high school GPA affect academic achievement and college persistence (Al-Qaisy, 2010; Bowman, 2010; Calaguas, 2011; Credé & Niehorster, 2012; Ewert, 2012; Kahen Johnson et al., 2010; Laskey & Hetzel, 2011; Secuban, 2012), I used these two variables as control variables in the analyses.

It was hypothesized that:

After controlling for the control variables gender and high school GPA,

1. PTSD symptomatology in the first term of college will significantly and negatively predict first-year cumulative GPA.

2. Approach coping will moderate the relationship between PTSD symptomatology and first-year GPA, such that the negative relationship between PTSD symptomatology and first-year GPA will be stronger for participants who report low levels of approach coping.

3. Avoidance coping will moderate the relationship between PTSD symptomatology and first-year GPA. Specifically, the negative relationship between

PTSD symptomatology and first-year GPA will be stronger for participants who report high levels of avoidance coping.

4. Social support will moderate the relationship between PTSD symptomatology and first-year GPA. Specifically, the negative relationship between PTSD symptomatology and first-year GPA will be stronger for participants who report low levels of social support.

5. Higher PTSD symptomatology in the first term of college will be associated with increased likelihood of dropping out of college by the beginning of second year.

6. Approach coping will moderate the relationship between PTSD symptomatology and dropout. More specifically, the relationship between PTSD symptomatology and second-year dropout will be stronger for participants who report low levels of approach coping.

7. Avoidance coping will moderate the relationship between PTSD symptomatology and dropout. More specifically, the relationship between PTSD symptomatology and second-year dropout will be stronger for participants who report high levels of avoidance coping.

8. Social support will moderate the relationship between PTSD symptomatology and dropout. More specifically, the relationship between PTSD symptomatology and second-year dropout will be stronger for participants who report low levels of social support.

## CHAPTER THREE

### METHOD

A longitudinal study design was utilized to examine the research questions of this study. This dissertation study was part of a larger study, where only the measures used specifically for the dissertation are presented in the appendices. Time 1 (T1) data was collected at the start of freshmen year during Fall 2013. Using a quantitative survey, I collected information about students' demographic characteristics, trauma exposure, distress, coping mechanisms, and social support. Students' first-year cumulative GPA (Spring 2014; Time 2) and second-year enrollment (Fall 2014; Time 3) information was obtained from the university.

#### **Participants**

The participants of this study included first-year students attending a public, mid-sized university in the southern United States. Participants were selected based on their enrollment in the required University Seminar course designated for all first-year freshmen students. After obtaining permission from instructors, freshmen students were given survey packets to complete during October 2013 of Fall term in their University Seminar course. The inclusion criteria were a) 18 years of age or older, and b) enrollment as a freshman student at the university. Students with dual enrollment status during high

school that were fully enrolled in a college setting during their first term were included as participants.

The number of students who participated in the study was 1,058 (total number of students enrolled in University Seminar classes was 1,552). Of the original sample ( $N = 1,058$ ), 35 did not provide participation consent, 45 did not provide consent to access academic records, 11 were not 18 years of age, and 36 were not classified as first-year freshmen students. Therefore, these participants' data was not included in the study. Data from participants who gave less than 80% complete data ( $N = 46$ ) or withdrew prematurely from college in the first year of the study ( $N = 1$ ) were not included in the data analysis. After data entry and cleaning, students ( $n = 927$ ) who had complete data and who gave permission to access their academic records were included in the preliminary analyses. The final sample included 483 students who reported exposure to lifetime traumatic events (52% of the total sample). Because this study focused on trauma-exposed participants, students who did not report lifetime exposure to traumas were not included in the main analyses.

The demographic characteristics of the sample are provided in Table 1. The mean age of the 483 trauma-exposed participants was 18.23 ( $SD = .61$ ) with 57% male ( $n = 276$ ) and 43% female ( $n = 207$ ). Ethnicity of the sample was 75.78% Caucasian ( $n = 366$ ), 16.77% African American ( $n = 81$ ), 1.66% Hispanic/Latino ( $n = 8$ ), 1.66% Biracial/Multiracial ( $n = 8$ ), 1.24% American Indian/Alaskan Native ( $n = 6$ ), .41% Asian/Asian American ( $n = 2$ ), .21% Native Hawaiian/Pacific Islander ( $n = 1$ ), and 2.28% other ( $n = 11$ ). Seven (1.45%) students identified themselves as international students. Students who reported they had residency within-state from another town was 74.33% ( $n$

= 359), those with residency out-of-state was 10.77% ( $n = 52$ ), those in-state from the local community was 9.32% ( $n = 45$ ), and those from a neighboring state was 4.14% ( $n = 20$ ).

Table 1  
Demographic Characteristics of the Sample (N = 483)

Variable	Frequencies	Percent
Gender		
Male	276	57.14
Female	207	42.86
Ethnicity		
Caucasian	366	75.78
African American	81	16.77
Hispanic/Latino	8	1.66
Biracial/Multiracial	8	1.66
American Indian/Alaskan Native	6	1.24
Asian/Asian American	2	.41
Native Hawaiian/Pacific Islander	1	.21
Other	11	2.28
Residency		
International Students	7	1.45
Residency In-State	359	74.33
Residency Out-of-State	52	10.77
Residency In-State Local	45	9.32
Neighboring State	20	4.14

Students enrolled in their first term of college in this sample were 97.3% ( $n = 470$ ) and those who had already been previously (dually) enrolled were 2.3% ( $n = 11$ ). Of these students, 89.2% ( $n = 431$ ) said this was their first university, 3.9% ( $n = 19$ ) said it was not, 3.7% ( $n = 18$ ) had been dually enrolled, and 2.3% ( $n = 11$ ) transferred from a junior college. Students in the trauma sample who were living away from family for the first time was 71.4% ( $n = 345$ ), students currently living with family was 14.7% ( $n = 71$ ), and

students who had lived away from family previously was 13.5% ( $n = 65$ ). Approximately 70% ( $n = 337$ ) of the sample resided on-campus in a dorm or other campus apartments. The majors of the students in this trauma sample varied from engineering and science (38.7%,  $n = 187$ ), applied and natural sciences (19.7%,  $n = 95$ ), education (11.2%,  $n = 54$ ), liberal arts (10.6%,  $n = 51$ ), business (10.4%,  $n = 50$ ), college of arts (.8%,  $n = 4$ ), nursing (.4%,  $n = 2$ ), and other (2.3%,  $n = 11$ ).

### **Instruments**

Information collected during Time 1 was amount of exposure to trauma and PTSD symptomatology, as well as information about coping style and social support.

#### **Demographics**

Prior to completing the instruments of the study, participants completed a demographic questionnaire (Appendix A) that included questions about their demographic characteristics (e.g., age, ethnicity) and prior academic achievement (e.g., high school GPA).

#### **Multidimensional Scale of Perceived Social Support.**

The Multidimensional Scale of Perceived Social Support (MSPSS) questionnaire includes 12 questions that measure three dimensions of social support: support from family, support from friends, and support from significant others (Zimet et al., 1988). This survey uses a Likert scale of 1 to 7 ranging from *very strongly disagree* to *very strongly agree* (Appendix B). Cronbach's coefficient alpha for the total scale was .88 and test-retest reliability was .85 for the whole scale. The MSPSS was negatively correlated with

anxiety and depression (Zimet et al., 1988). For the present study, a cronbach's alpha of .93 was found for this scale.

### **Revised Stressful Life Events Screening Questionnaire**

The Revised Stressful Life Events Screening Questionnaire (R-SLESQ; Goodman et al., 1998; Green et al., 2006) assesses 13 types of Criterion A1 traumatic events, such as experiencing a life threatening illness or being involved in a robbery (Appendix C; see Table 3 for a list of these events). Examples of questions in this instrument are “Have you ever had a life threatening illness? If yes, at what age?” and “Were you ever in a life-threatening accident? If yes, at what age?” This measure has participants circle *yes* or *no*, as to whether they experienced the event. If they circled *yes*, it specified what age the traumatic event occurred. Convergent and concurrent validity of the SLESQ have been measured and supported using college students, with a correlation of  $r = .77$  for convergent validity between number of traumatic events reported using the screening measure and then two-weeks later during an interview (Goodman et al., 1998). It was found to have good discrimination validity between *DSM-IV TR* Criterion A and non-Criterion A traumatic event stressors. Test-retest reliability was a median kappa of .73, and a .89 when measured over a two-week time period (Goodman et al., 1998).

### **The PTSD Checklist Civilian Version**

PTSD symptomatology was assessed by using the PTSD Checklist Civilian Version (PCL-C), which is a self-report checklist format (Weathers et al., 1993). There are 17 questions that describe various symptoms of PTSD as described in the *DSM-IV-TR* (APA, 2000), such as difficulty concentrating or having repeated disturbing dreams (Appendix D). Answers are provided by selecting a choice from 1 to 5 ranging from *not*

*at all* to *extremely*. Instructions suggest marking an appropriate answer based on bothersome symptoms experienced in the last month. Total scores range from 17 to 85, and higher scores signify more PTSD symptomatology and severity. Cutoff scores of 50 suggest that a diagnosis of PTSD may be likely. The authors report mean scores for individuals with PTSD were 63.6 (with a  $SD = 14.1$ ) and for those without PTSD were 34.4 (and a  $SD = 14.1$ ). Internal consistency has been found to be .97 and test-retest reliability was .96 (Weathers et al., 1993). The cronbach's alpha for the current study was .92.

### **Brief COPE Dispositional Version**

The Brief COPE dispositional type has 28 questions with 14 coping strategies: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame (Carver, 1997). Each question is a listed style of coping, such as "I get help and advice from other people" or "I criticize myself." Individuals are to mark down from 1 to 4 how much or how frequently they use these coping styles. A rating of 1 is "*I haven't been doing this at all*" and a rating of 4 is "*I've been doing this a lot.*" The Brief COPE can be used to assess dispositional coping or situation specific coping. For the purpose of this study, we assessed dispositional coping (Appendix E). This version of the Brief COPE measures coping styles across the lifespan and is not based on one event or experience or the coping style at the moment of survey completion. This assessment has good test-retest reliability and validity, with subscale coefficient alphas ranging from .50 to .90 (.65 or higher for 9 of the subscales) and an internal consistency coefficient of .90 for the entire scale (Carver, 1997). Although Carver



(2013) intended for the Brief COPE subscales to be used individually (e.g., self-distraction, denial, positive reframing, acceptance, etc.), other researchers suggest that the scales can be combined to develop overarching coping styles (Grasso et al., 2011; Oxman, Hegel, Hull, & Dietrich, 2008; Schnider, Elhai, & Gray, 2007). For instance, when Schnider et al. (2007) combined the subscales, they found coefficient alphas of .80 or higher. Avoidance and approach coping have been combined using self-distraction, denial, behavioral disengagement, self-blame, and substance use subscales to encapsulate avoidance coping and active coping, planning, instrumental support, religion, venting, humor, positive reframing, acceptance, and emotional support subscales to describe approach coping (Grasso et al., 2011). When subscales were combined into avoidance and approach coping, internal consistency reliability of the subscales ranged from .64 to .91 (Grasso et al., 2011). For this study, a cronbach's alpha of .87 was found for approach coping and a cronbach's alpha of .72 was found for avoidance coping.

### **Enrollment Status and GPA**

The information about students' first-year GPA (cumulative Spring GPA for freshmen year) and second-year enrollment (enrolled or not enrolled for classes in Fall of sophomore year) was obtained through the university in Fall term of 2014.

## **Procedure**

### **Time 1**

After approval was received from the university's Institutional Review Board (IRB), the first round of data was collected from first-year students attending the university. Because this study focused on first-year students, participants were recruited

from the required first term course called University Seminar. There were 53 University Seminar classes in the academic year of 2013-2014. Permission was sought from the Dean of Enrollment, who emailed all University Seminar instructors with encouragement to participate in this study. Then, follow-up emails were sent by the researchers to schedule an appointment to visit classes. Forty-seven of the 53 professors agreed to participate in this study. One professor declined via email and five did not respond at all. Instructors were contacted four times and the final time, they were given a Survey Monkey link to give their students to complete the questionnaires online. However, no data were collected online and all surveys were paper-based as the instructors who received the survey link did not respond. A member of the research team visited courses to distribute approximately 1,000 surveys to 47 courses in the duration of 14 days, approximately five weeks after the start of the term beginning on October 10, 2013.

Researchers were all provided a standard script to read prior to survey distribution, which included a summary of the informed consent, a description of the study, and study participation. Time 1 data collection occurred in the freshmen group's usual course environment. The surveys were distributed during their course time for University Seminar at the time and date selected by the professor. Instructions and/or the script were read explaining the study to the students. The researcher remained in the classroom until the last student completed all questions in the packet. Some surveys were distributed at the beginning of class and some at the end of class. Two informed consent documents were completed; one was for study participation and one was for enrollment and GPA access through the Family Educational Rights and Privacy Act (FERPA). Both the informed consent documents had to be signed for participant information to be used in

this study. As a part of course requirements and permission granted by the professor, extra credit or alternative assignments were not provided but students' participation was voluntary. Per the consent form, students were informed that their refusal to participate would not impact their grade in the course or their relationship with the university. Those students who did not qualify for the study or volunteered not to participate were either dismissed from class or waited patiently for class to resume after the study ended. The researcher left the classroom after all surveys were finished ranging from approximately 15 to 75 minutes after arrival. Surveys were collected or turned in immediately after completed.

Surveys contained confidential identifying information and were not anonymous. All surveys were locked in the dissertation chair's office for privacy purposes. Nobody other than the research team, including two primary investigators, two doctoral student research assistants, and one undergraduate research assistant, had access to participants' private information. At the end of T1 data collection and entry, the informed consent documents that included identifying information were removed from the paper surveys and participants were assigned a unique identification code. A request for enrollment data and GPA was given to the registrar Fall 2014 using secured electronic copies of FERPA consent forms.

### **Time 2 and Time 3**

FERPA policies and procedures were discussed in a meeting with the director of the Registrar's Office at the university. After the research team entered the first round of surveys into the Statistical Package for Social Sciences (SPSS 20), the research team identified the students who consented to access their academic records. I then obtained

these students first-year cumulative GPA (Spring 2014; T2) and second-year enrollment (Fall 2014; T3) through the university.

## CHAPTER FOUR

### RESULTS

The final sample of this study included 483 first-year college students with a history of trauma exposure. Of these participants, 13.9% of the sample had missing values (they did not complete at least 80% of the questions on study questionnaires), which were imputed using the person-mean substitution method. The person-mean substitution method has been identified as an effective way of handling missing data. For example, Downey and King (2008) compared two types of methods for handling missing data (i.e., person-mean substitution and item-mean substitution) and found that both methods are an effective way to resolve missing data when there is a large enough sample size and when there is less than 20% of the data missing. Huisman (2000) also compared several methods of handling missing data and found that person-mean substitution was more effective than item-mean substitution. Finally, Hawthorne and Elliott (2005) studied several missing data techniques and found that person-mean substitution was the most effective method for missing data. These authors recommended person-mean substitution as the easiest method when less than half the items in each scale are missing.

### Descriptive Statistics and Preliminary Analyses

Table 2 presents the means, standard deviations, ranges, and alpha ( $\alpha$ ) coefficients for PTSD symptomatology as reported on the PCL-C (Weathers et al., 1993), social support as reported on the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), approach and avoidance coping (Brief COPE Dispositional Version; Carver, 1997), and T2 cumulative Spring 2014 GPA.

Table 2  
Means, Standard Deviations, Range, and Reliabilities for Trauma Sample

Variable	M	SD	Range	Possible Range	Alpha	Skew	Kurt
PTSD	1.88	.80	0.59 - 4.65	1.00 - 5.00	.92	1.06	.44
Social support	5.75	1.17	1.25 - 7.00	1.00 - 7.00	.93	-1.09	.96
Approach coping	2.53	.58	1.00 - 3.94	1.00 - 4.00	.87	-.12	-.36
Avoidance coping	1.80	.47	1.00 - 3.60	1.00 - 4.00	.72	.76	.51
T2 GPA	2.85	.76	0.00 - 4.00	0.00 - 4.00	**	-.78	.47

*Note.*  $N = 483$ . \*\*single scale score with no reliability calculated.  $M$  = mean.  $SD$  = standard deviation. Min = minimum value. Max = maximum value. Skew = skewness. Kurt = kurtosis. PTSD = PTSD symptomatology. T2 GPA = Time 2 Spring 2014 cumulative grade point average.

Independent sample  $t$ -tests were conducted to assess potential gender differences in study variables. Results indicated significant gender differences for PTSD symptoms,  $t(481) = -3.94, p < .001$ , with more PTSD symptomatology reported by females ( $M = 2.04, SD = .88$ ) than males ( $M = 1.76, SD = .71$ ). There were also gender differences in approach coping,  $t(481) = -4.28, p < .001$ , where females ( $M = 2.65, SD = .56$ ) reported higher levels of approach coping than males ( $M = 2.43, SD = .57$ ). Significant gender differences were found for avoidance coping style,  $t(481) = -3.21, p < .001$ , again with

females ( $M = 1.88$ ,  $SD = .51$ ) scoring higher than males ( $M = 1.74$ ,  $SD = .44$ ). Significant gender differences were also found for social support,  $t(481) = -4.33$ ,  $p < .001$ , with females ( $M = 6.01$ ,  $SD = 1.07$ ) indicating higher social support than males ( $M = 5.56$ ,  $SD = 1.21$ ). Additionally, there were significant gender differences in first year cumulative GPA,  $t(481) = -5.74$ ,  $p < .001$ , with higher mean GPAs reported by females ( $M = 3.07$ ,  $SD = .70$ ) than males ( $M = 2.68$ ,  $SD = .77$ ). Therefore, gender was used as a control variable in all analyses.

### **Prevalence of Trauma Exposure and PTSD**

The amount of trauma-exposed students ( $N = 483$ ) in the overall first-year sample ( $n = 927$ ) of this study indicates a prevalence of 52.10% trauma-exposure for first-year college students. Only trauma exposed participants were used in all statistical analyses. Approximately half of the participants (54.24%,  $n = 262$ ) reported exposure to one traumatic event, 20.70% ( $n = 100$ ) reported exposure to two traumatic events, 14.29% ( $n = 69$ ) reported exposure to three traumatic events, and 10.77% ( $n = 52$ ) reported exposure to four or more traumatic events. There were no significant gender differences in the number of traumas reported by the participants,  $t(481) = -.19$ ,  $p = .85$ .

Table 3 presents the frequencies of experiencing specific traumatic events reported by male and female participants. The most frequently reported trauma by all participants in the sample was violent death of a loved one due to an accident, homicide, or suicide. When gender differences were examined, a significantly higher percentage of men experienced these traumatic incidents: life-threatening illness, life-threatening accident, force or weapon in a crime, childhood physical abuse, threats with weapons, witness of another person's death or assault, and a serious threat or injury to life. A significantly

higher amount of women than men experienced these traumatic events: violent death of a loved one, unwanted forced intercourse, unwanted and inappropriate sexual touch, adult physical abuse, emotional abuse from a loved one, and other horrifying/frightening/helpless experience.

Table 3  
Type of Traumatic Events by Gender

Type of trauma	Sample ( <i>N</i> = 483) <i>n</i> (% total)	M ( <i>n</i> = 276) <i>n</i> (% gender)	F ( <i>n</i> = 207) <i>n</i> (% gender)	Chi-square ( <i>df</i> = 1)
1. Life threatening illness	91 (18.9)	57 (20.7)	34 (16.4)	1.43
2. Life threatening accident	117 (24.3)	74 (27.0)	43 (20.8)	2.49
3. Force or weapon in a crime	23 (4.8)	20 (7.3)	3 (1.4)	8.91**
4. Violent death of a loved one	216 (44.9)	107 (39.1)	109 (52.7)	8.82**
5. Unwanted forced intercourse	23 (4.8)	5 (1.8)	18 (8.7)	12.32***
6. Unwanted sexual touch	45 (9.4)	11 (4.0)	34 (16.5)	21.72***
7. Childhood physical abuse	33 (6.8)	22 (8.0)	11 (5.3)	1.34
8. Adult physical abuse	33 (6.8)	15 (5.5)	18 (8.7)	1.95
9. Emotional abuse by loved one	106 (22.0)	48 (17.5)	58 (28.0)	7.57**
10. Other threat by weapon	61 (12.7)	55 (20.0)	6 (2.9)	31.25***
11. Witness of another's death, injury, or assault	88 (18.3)	64 (23.4)	24 (11.6)	10.92**
12. Other serious injury or life danger (military, combat, or war)	15 (3.1)	13 (4.7)	2 (1.0)	5.54*
13. Other frightening, horrifying, or helpless experience	67 (14.0)	31 (11.3)	36 (17.5)	3.72*

Note. M = male, F = female. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



Sixty of the students (12.4%) screened positive for PTSD with a cutoff score of above 50 on the PTSD Checklist Civilian Version (PCL-C; Weathers et al., 1993). Twenty-three of these students were males (8.33% of the male sample) and 37 were females (17.87% of the female sample). As a preliminary analysis, the potential gender differences in PTSD were examined. Results indicated that the prevalence of PTSD was significantly higher for females than males,  $\chi^2(1) = 9.90, p = .002$ .

### **PTSD and Enrollment**

Preliminary analyses were conducted to examine dropout rates of the participants. Of the 483 participants, 94 (19.5%; 63 male and 31 female) were not enrolled by the beginning of the second year of college. There was a significant gender difference in second-year enrollment, with more males not enrolled than females,  $\chi^2(1) = 4.65, p < .05$ . On the other hand, the dropout rate was not significantly higher for those that screened positive for PTSD at T1 ( $n = 16, 3.31\%$ ) than those that dropped-out but did not meet criteria for PTSD diagnosis ( $n = 78, 16.15\%$ ),  $\chi^2(1) = 2.27, p = ns$ .

### **PTSD and GPA**

The average mean GPA of the sample was 2.85 by the end of freshmen year. There was a significant gender difference in first-year GPA, where females had higher GPA than males,  $t(482) = -66.49, p < .001$ . In addition, GPA was significantly lower for those that screened positive for PTSD at T1 when compared to trauma-exposed participants without PTSD  $t(482) = -69.20, p = <.001$ . Specifically trauma-exposed students with PTSD had an average mean first-year GPA of 2.64 whereas trauma-exposed students without PTSD had an average mean first-year GPA of 2.88.

## Hypotheses 1 through 4

### Data Analysis Overview and Preliminary

**Exploratory data analyses.** Bivariate correlations among the study variables are presented in Table 4.

Table 4  
Bivariate Correlations for Trauma Sample

	1	2	3	4	5	6	7	8
1 Gender	--	.293**	.166**	.206**	.187**	.127**	.274**	.098*
2 HS GPA		--	-.137**	.136**	.095*	-.083	.594**	.263**
3 PTSD			--	-.290**	.066	.629**	-.097*	-.050
4 Soc Sup				--	.384**	-.194**	.094*	.096*
5 Ap Coping					--	.213**	.105*	.120**
6 Av Coping						--	-.087	.030
7 T2 GPA							--	.450**
8 T3 Reg								--

*Note.*  $N = 483$ . HS GPA = high school GPA. PTSD = PTSD symptomatology. Soc Sup = social support. Ap Coping = approach coping. Av Coping = avoidance coping. T2 GPA = Spring first-year cumulative GPA. T3 Reg = Fall second-year enrollment.  
<sup>a</sup> \* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . <sup>b</sup> Correlations between continuous variables indicate pearson correlations, correlations between a continuous and dichotomous variable indicate point-biserial correlations, and correlations between two dichotomous variables indicate a spearman's rho correlation.

Hypotheses 1 through 4 were tested using a series of hierarchical multiple linear regression analyses with SPSS. Prior to testing these hypotheses, I conducted preliminary exploratory data analyses to determine if the linear regression assumptions of residual normality, homoscedasticity, independence of errors, absence of multicollinearity, and linearity (Tabachnick & Fidell, 2013) were met. In addition, I examined the multivariate and univariate outliers in the data. The assumption of linearity and homoscedasticity were

examined using the standardized predicted values and standardized residuals plot. Linearity was determined by the overall shape of the scatterplot as rectangular rather than curvilinear, and homoscedasticity was examined by the approximately equal spread in standard deviation on the scatterplot (Tabachnick & Fidell, 2013). Residual normality was examined by normality tests and plots, as well as the skewness and kurtosis values of the residuals. Multicollinearity was examined using the variance inflation factor (VIF) values, with a cut-off value of 10 (Field, 2009).

Univariate outliers were found by examining the standardized residuals (z-scores), as according to Tabachnick and Fidell (2013), if less than 3.29, there are most likely not univariate outliers. Multivariate outliers and influential data points were examined using the Mahalanobis distance value, centered leverage value, and Cook's distance statistics. For instance, cases with significant Mahalanobis distance values ( $p < .001$ , Tabachnick & Fidell, 2013) and those with centered leverage values greater than  $3p/n$  (Stevens, 2002) were further examined as potential multivariate outliers. In addition, Cook's distance values greater than 1.00 were examined as potential influential data points (Tabachnick & Fidell, 2013).

The results of the preliminary analyses indicated the data met the assumptions of linearity, homoscedasticity, and absence of multicollinearity (with the highest VIF 2.09) for all four hierarchical regression analyses (Hypotheses 1 through 4). However, there were two univariate outliers and several multivariate outliers in each analysis. Therefore, each regression analysis was run with and without these outliers to determine whether these outliers had significant influences on the results. Because the results of the regression analyses without outliers were not significantly different from the regression

analyses with the outliers, these cases were included in the final analyses. In terms of the residual normality assumption, there were slight deviations from normality in each analysis, however, all other assumptions were met and the skewness and kurtosis values of the standardized residuals were not extremely large (the highest skew value was -1.07 and the highest kurtosis value was 2.15). Skewness and kurtosis values between -2 and +2 are considered acceptable for normal distribution, with  $\pm 1$  considered excellent, and  $\pm 5$  considered extreme (George & Mallory, 2013, p. 116). Therefore, the data were not transformed.

After testing the assumptions, Hypothesis 1 was examined using a hierarchical regression analysis. Gender and high school GPA were entered in the first step of the regression analysis as control variables; PTSD symptomatology was entered in the second step. Hypotheses 2 through 4 were examined using the steps of moderation recommended by Frazier et al. (2009). First, all continuous predictors and the moderators were standardized using the SPSS. Then, three interaction terms were created using the standardized variables (approach coping X PTSD, avoidance coping X PTSD, and social support X PTSD). Three separate multiple hierarchical linear regression analyses (one for each moderator) were conducted using a block entry design. In Step 1, the control variables were entered (gender and high school GPA). In Step 2, the independent variable (PTSD symptoms) and the moderator variable (approach coping, avoidance coping, or social support) were entered. In Step 3, the associated interaction term was entered (approach coping X PTSD, avoidance coping X PTSD, or social support X PTSD). The sections below present the results of each moderation analysis.

## Hypothesis 1

After controlling for gender and high school GPA, PTSD symptomatology in the first term of college will significantly and negatively predict first-year GPA. The results of the hierarchical regression analysis are presented in Table 5.

Table 5  
PTSD as a Predictor of First Year GPA

Variable	R <sup>2</sup>	ΔR <sup>2</sup>	B <sup>a</sup>	SE B	β <sup>b</sup>	t	95% CI
Step 1	.284	.284***					
Gender			.188	.062	.122**	3.030	.066, .310
HS GPA			.237	.019	.487***	12.154	.199, .275
Step 2	.289	.005					
Gender			.214	.064	.139*	3.370	.089, .339
HS GPA			.229	.020	.472***	11.519	.190, .268
PTSD			-.055	.031	-.072	-1.801	-.116, .005

*Note.* Gender was coded 0 = male 1 = female. HS GPA = high school GPA. PTSD = PTSD symptomatology. <sup>a</sup> Unstandardized regression weight. <sup>b</sup> Standardized beta weight. <sup>c</sup> \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Results indicated that the control variables (gender and high school GPA) accounted for 28.4% of the variance in first-year cumulative GPA,  $R^2 = .284$ ,  $R^2_{adj} = .281$ ,  $F(2, 480) = 95.32$ ,  $p < .001$ . In the first step, both gender ( $\beta = .12$ ,  $p = .003$ ) and high school GPA ( $\beta = .49$ ,  $p < .001$ ) had positive relationships with T2 cumulative GPA. This indicates that females had higher GPA than males at T2 (gender was coded 0 for males and 1 for females), and those students with higher high school GPAs had higher T2 college cumulative GPAs. In the second step, T1 PTSD symptomatology did not significantly contribute to the amount of variance explained in T2 GPA,  $\Delta R^2 = .005$ ,  $F(1, 479) = 3.24$ ,  $p = .072$ . Although these results suggest that Hypothesis 1 was not

supported, I proceeded with the moderation analysis as moderation does not require a significant relationship between the independent and dependent variable (Frazier et al., 2009). Therefore, Hypothesis 1 was not supported.

## Hypothesis 2

After controlling for gender and high school GPA, approach coping will moderate the relationship between PTSD symptomatology and first-year GPA.

The results of the hierarchical regression analysis are presented in Table 6.

Table 6  
Approach Coping as a Moderator of the Relationship between PTSD Symptomatology and First Year GPA

Variable	R <sup>2</sup>	ΔR <sup>2</sup>	B <sup>a</sup>	SE B	β <sup>b</sup>	T	95% CI
Step 1	.284	.284***					
Gender			.188	.062	.122**	3.030	.066, .310
HS GPA			.237	.019	.487***	12.154	.199, .275
Step 2	.291	.007					
Gender			.203	.064	.131**	3.144	.076, .329
HS GPA			.228	.020	.469***	11.447	.189, .267
PTSD			-.056	.031	-.073	-1.826	-.116, .004
ApCop			.034	.030	.044	1.115	-.026, .093
Step 3	.291	.000					
Gender			.203	.065	.131**	3.139	.076, .330
HS GPA			.228	.020	.469***	11.431	.189, .267
PTSD			-.056	.031	-.073	-1.823	-.116, .004
ApCop			.034	.030	.044	1.109	-.026, .093
ApCopXPTSD			.001	.031	.001	.037	-.059, .062

*Note.* Gender was coded 0 = male 1 = female, HS GPA = high school GPA, PTSD = PTSD symptoms. ApCop = approach coping. ApCopXPTSD = interaction between approach coping and PTSD symptomatology. <sup>a</sup> Unstandardized regression weight. <sup>b</sup> Standardized beta weight. <sup>c</sup> \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

In the first step, the results were the same as reported in the previous analysis in Hypothesis 1. In the second step, T1 PTSD symptomatology and approach coping did not significantly contribute to the amount of variance explained in the T2 GPA,  $\Delta R^2 = .007$ ,  $F(2, 478) = 2.24$ ,  $p = .107$ . In the third step, the interaction between approach coping and PTSD symptomatology also did not significantly contribute to the amount of variance explained in the T2 GPA,  $\Delta R^2 = .000$ ,  $F(1, 477) = .001$ ,  $p = .970$ . Therefore, Hypothesis 2 was not supported.

### **Hypothesis 3**

After controlling for gender and high school GPA, avoidance coping will moderate the relationship between PTSD symptomatology and first-year GPA. The results of the hierarchical regression analysis are presented in Table 7. In the first step, the results were the same as those reported in Hypothesis 1. In the second step, T1 PTSD symptomatology and avoidance coping did not significantly contribute to the amount of variance explained in T2 GPA,  $\Delta R^2 = .005$ ,  $F(2, 478) = 1.73$ ,  $p = .178$ . In the third step, the interaction between avoidance coping and PTSD symptomatology also did not significantly contribute to the amount of variance explained in the T2 GPA,  $\Delta R^2 = .001$ ,  $F(1, 477) = .565$ ,  $p = .453$ . Hypothesis 3 was not supported.

Table 7  
Avoidance Coping as a Moderator of the Relationship between PTSD Symptomatology  
and First Year GPA

Variable	R <sup>2</sup>	ΔR <sup>2</sup>	B <sup>a</sup>	SE B	β <sup>b</sup>	T	95% CI
Step 1	.284	.284***					
Gender			.188	.062	.122**	3.030	.066, .310
HS GPA			.237	.019	.487***	12.154	.199, .275
Step 2	.289	.005					
Gender			.215	.064	.139**	3.380	.090, .340
HS GPA			.229	.020	.472***	11.513	.190, .268
PTSD			-.043	.040	-.056	-1.063	-.122, .036
AvCop			-.019	.040	-.024	-.471	-.096, .059
Step 3	.290	.001					
Gender			.215	.064	.139**	3.382	.090, .341
HS GPA			.229	.020	.471***	11.494	.190, .268
PTSD			-.032	.043	-.042	-.761	-.116, .051
AvCop			-.014	.040	-.018	-.346	-.093, .065
AvCopXPTSD			-.021	.027	-.034	-.752	-.074, .033

*Note.* Gender was coded 0 = male 1 = female. HS GPA = high school GPA. PTSD = PTSD symptoms. AvCop = avoidance coping. AvCopXPTSD = interaction between avoidance coping and PTSD symptomatology. <sup>a</sup> Unstandardized regression weight. <sup>b</sup> Standardized beta weight. <sup>c</sup> \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

#### Hypothesis 4

After controlling for gender and high school GPA, social support will moderate the relationship between PTSD symptomatology and first-year GPA. The results of the hierarchical regression analysis are presented in Table 8. In the first step, the results were the same as reported in the analysis from Hypothesis 1. In the second step, T1 PTSD symptomatology and social support did not significantly contribute to the amount of variance explained in the T2 GPA,  $\Delta R^2 = .005$ ,  $F(2, 478) = 1.76$ ,  $p = .174$ . In the third step, the interaction between social support and PTSD symptoms also did not



significantly contribute to the amount of variance explained at T2 GPA,  $\Delta R^2 = .003$ ,  $F(1, 477) = 2.243$ ,  $p = .135$ . Hypothesis 4 was not supported.

Table 8  
Social Support as a Moderator of the Relationship between PTSD Symptomatology and First Year GPA

Variable	R <sup>2</sup>	$\Delta R^2$	B <sup>a</sup>	SE B	$\beta^b$	T	95% CI
Step 1	.284	.284***					
Gender			.188	.062	.122**	3.030	.066, .310
HS GPA			.237	.019	.487***	12.154	.199, .275
Step 2	.289	.005					
Gender			.222	.066	.144**	3.395	.094, .351
HS GPA			.230	.020	.473***	11.522	.191, .269
PTSD			-.061	.033	-.079	-1.871	-.125, .003
SocSup			-.017	.032	-.022	-.522	-.080, .046
Step 3	.293	.003					
Gender			.215	.066	.139**	3.272	.086, .344
HS GPA			.230	.020	.473***	11.545	.191, .269
PTSD			-.066	.033	-.086*	-2.027	-.131, -.002
SocSup			-.004	.033	-.005	-.114	-.069, .062
SocSupXPTSD			-.043	.029	-.061	-1.498	-.099, .013

*Note.* Gender was coded 0 = male 1 = female. HS GPA = high school GPA. PTSD = PTSD symptoms. SocSup = Social Support. SocSupXPTSD = interaction between social support and PTSD symptoms. <sup>a</sup> Unstandardized regression weight. <sup>b</sup> Standardized beta weight. <sup>c</sup> \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## Hypotheses 5 through 8

### Data Analysis Overview and Preliminary

**Exploratory Data Analyses.** Hypotheses 5 through 8 were tested using a series of binary logistic regression analyses with SPSS. The decision to use binary logistic regression in these analyses was based on the dichotomous nature of the criterion variable (i.e., enrollment). Prior to testing these hypotheses, I conducted preliminary exploratory

data analyses to determine if the logistic regression assumptions of linearity of the logit, independence of errors, and absence of multicollinearity (Field, 2009) were met. Linearity of logit was examined by finding whether the predictor variables (PTSD symptoms, approach coping, avoidance coping, and social support) had a linear relationship with the log of the outcome variable, enrollment (Field, 2009). This was done by creating log variables for each variable. Then the control variables, variables, and interaction terms between the log variables and predictor variables were entered in the logistic regression model. There was not any significance for any of the log interactions, with  $p = .325$  for PTSD X logPTSD,  $p = .592$  for approach coping X log approach coping,  $p = .427$  for avoidance coping X log avoidance coping, and  $p = .178$  for social support X log social support. Therefore, the linearity of the logit assumption was met.

Multicollinearity was examined for each hypotheses using the variance inflation factor (VIF) values, with a cut-off value of 10 (Field, 2009) by conducting linear regression analyses for the purpose of examining the collinearity diagnostics. Also, eigenvalues were examined because if fairly similar the model is likely not to be influenced by small changes in the variables (Field, 2009). Variance proportions were examined as small eigenvalues and large associated variance proportions (close to 1) suggest dependency and biases in the data due to collinearity (Field, 2009). The highest VIF for Hypotheses 5 through 8 was 2.089; therefore, the assumption for absence of multicollinearity was met.

The results of the preliminary analyses indicated the data met the assumptions of linearity of the logit, independence of errors, and the absence of multicollinearity (with the highest VIF 2.09) for all four logistic regression analyses (Hypotheses 5 through 8).

Centered leverage values, DFBeta, and Cook's distance statistics were examined and results of the exploratory analyses suggested the possibility of several multivariate outliers and influential cases (ranging between 4 and 22 possible outlier cases). Similar to Hypotheses 1 through 4, regression analyses were conducted with and without the univariate and multivariate outliers to determine whether these outliers had significant influences on the results. For Hypotheses 5, 6, and 8, the differences with and without the outliers for the regression analyses were not significantly different, and therefore, all outliers were included in these final analyses. For Hypothesis 7, there were 21 cases that had centered leverage values over  $3p/n$ . Removal of the outliers resulted in slightly less than a 2% increase in the classification accuracy rate (i.e., 80.5% vs. 81.8%), and the results of the logistic without outliers were different than the analysis with outliers; therefore, these outliers were removed from the final analysis of Hypothesis 7.

After testing the assumptions, hypothesis 5 was examined using a logistic regression analysis. Hypotheses 6 through 8 were examined using logistic regression, and the steps of moderation recommended by Frazier et al. (2009). All previously standardized continuous predictors, moderators, and three interaction terms were used again for these analyses. Gender was coded a 0 for males and a 1 for females. Enrollment status (dropout) was coded 0 for not registered or 1 for registered. The analyses steps remained similar as detailed above in Hypotheses 2 through 4 for linear regression analyses; however, they were instead conducted using logistic regression for the three separate multiple logistic regression analyses (one for each moderator) using a block entry design. The sections below present the results of each logistic moderation analysis.

**Hypothesis 5**

After controlling for gender and high school GPA, higher PTSD symptomatology in the first term of college will be associated with increased likelihood of college dropout by the beginning of second year. The results of the logistic regression analysis for Hypothesis 5 are presented in Table 9. Results indicated that in the first step, the omnibus test of the model coefficients was statistically significant,  $\chi^2(2, N = 483) = 35.370, p < .001$ , which suggests that control variables were significantly related to second-year dropout. The odds ratios from this step indicated that higher high school GPAs were associated with increased likelihood of continued enrollment in college (OR = 1.486,  $p < .001$ , 95% CI [1.288, 1.713]); however, gender was not a significant predictor of college enrollment. In the second step, the addition of PTSD symptomatology to the model did not result in a significant increase in prediction of second-year college enrollment,  $\chi^2(1, N = 483) = .838, p = .360$ . PTSD symptomatology in the first semester of college was not significantly associated with decreased likelihood of second-year enrollment (OR = .896,  $p = .357$ , 95% CI [.710, 1.131]). Therefore, Hypothesis 5 was not supported.

Table 9  
PTSD Symptomatology as a Predictor of Second Year Enrollment

Variable	B	SE	Wald	Exp ( <i>B</i> )	95% CI
Dependent Variable: Second-year enrollment (0 = not enrolled, 1 = enrolled)					
Step 1					
Gender	.176	.258	.464	1.192	.719, 1.975
HS GPA	.396	.073	29.651***	1.486	1.288, 1.713
Step 2					
Gender	.231	.265	.755	1.259	.749, 2.118
HS GPA	.382	.074	26.497***	1.466	1.267, 1.695
PTSD	-.109	.119	.848	.896	.710, 1.131

*Note.* HS GPA = high school GPA. PTSD = PTSD symptoms. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### Hypothesis 6

After controlling for gender and high school GPA, approach coping will moderate the relationship between PTSD symptomatology and dropout. Binary logistic regression analysis for this hypothesis is presented in Table 10. In the first step, the results were the same as reported in the previous analysis in Hypothesis 5. In the second step, results indicated that the addition of approach coping and PTSD symptomatology to the model did not result in a significant increase in prediction of second-year college enrollment,  $\chi^2(2, N = 483) = 5.453, p = .065$ . In the third step, the interaction between approach coping and PTSD symptomatology did not result in a significant increase in prediction of second-year college enrollment,  $\chi^2(1, N = 483) = .269, p = .604$ . Therefore, Hypothesis 6 was not supported.

Table 10  
 Approach Coping as a Moderator of the Relationship between PTSD Symptomatology  
 and Second Year Enrollment

Variable	B	SE	Wald	Exp (B)	95% CI
Dependent Variable: Second-year enrollment (0 = not enrolled, 1 = enrolled)					
Step 1					
Gender	.176	.258	.464	1.192	.719, 1.975
HS GPA	.396	.073	29.651***	1.486	1.288, 1.713
Step 2					
Gender	.146	.270	.291	1.157	.682, 1.963
HS GPA	.378	.075	25.479***	1.459	1.260, 1.689
PTSD	-.119	.119	.994	.888	.703, 1.121
ApCop	.263	.123	4.566*	1.301	1.022, 1.657
Step 3					
Gender	.141	.270	.271	1.151	.678, 1.955
HS GPA	.378	.075	25.475***	1.460	1.260, 1.690
PTSD	-.127	.120	1.120	.881	.696, 1.114
ApCop	.261	.124	4.444*	1.298	1.018, 1.653
ApCopXPTSD	-.062	.120	.268	.940	.742, 1.190

*Note.* HS GPA = high school GPA. PTSD = PTSD symptoms. ApCop = approach coping. ApCopXPTSD = interaction between approach coping and PTSD symptoms. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### Hypothesis 7

After controlling for gender and HS GPA, avoidance coping will moderate the relationship between PTSD symptomatology and dropout. Binary logistic regression analysis for this hypothesis is presented in Table 11.

Table 11  
 Avoidance Coping as a Moderator of the Relationship between PTSD Symptomatology  
 and Second Year Enrollment

Variable	B	SE	Wald	Exp (B)	95% CI
Dependent Variable: Second-year enrollment (0 = not enrolled, 1 = enrolled)					
Step 1					
Gender	.212	.276	.588	1.236	.719, 2.125
HS GPA	.404	.081	24.649***	1.499	1.277, 1.758
Step 2					
Gender	.226	.283	.638	1.253	.720, 2.181
HS GPA	.401	.083	23.385***	1.494	1.269, 1.757
PTSD	-.288	.187	2.368	.750	.519, 1.082
Av Coping	.322	.183	3.073	1.379	.963, 1.976
Step 3					
Gender	.227	.283	.645	1.255	.721, 2.185
HS GPA	.402	.083	23.419***	1.495	1.270, 1.759
PTSD	-.280	.193	2.097	.756	.518, 1.104
AvCop	.325	.185	3.096	1.384	.964, 1.986
AvCopXPTSD	-.028	.155	.032	.973	.718, 1.318

*Note.* HS GPA = high school GPA. PTSD = PTSD symptoms. AvCop = avoidance coping. AvCopXPTSD = interaction between avoidance coping and PTSD symptoms. \* $p < .05$ , \*\* $p < .01$ , \*\*\*  $p < .001$ .

During preliminary exploratory analysis, multivariate outliers were identified and removed. In the first step, results indicated that in the first step, the omnibus test of the model coefficients was statistically significant,  $\chi^2 (2, n = 483) = 31.645, p < .001$ , which suggests that together the control variables gender and high school GPA were significantly related to second-year dropout.. In the second step, results indicated that the addition of avoidance coping and PTSD symptomatology to the model did not result in a significant increase in prediction of second-year college enrollment,  $\chi^2 (2, n = 461) = 3.431, p = .180$ . In the third step, the interaction between avoidance coping and PTSD

symptomatology did not result in a significant increase in prediction of second-year college enrollment,  $\chi^2(1, 483) = .032, p = .859$ . Hypothesis 7 was not supported.

### Hypothesis 8

After controlling for gender and HS GPA, social support will moderate the relationship between PTSD symptomatology and dropout. Binary logistic regression analysis for this hypothesis is presented in Table 12.

Table 12  
Social Support as a Moderator of the Relationship between PTSD Symptomatology and Second Year Enrollment

Variable	B	SE	Wald	Exp (B)	95% CI
Dependent Variable: Second-year enrollment $\square$ 0 = not enrolled, 1 = enrolled)					
Step 1					
Gender	.176	.258	.464	1.192	.719, 1.975
HS GPA	.396	.073	29.651***	1.486	1.288, 1.713
Step 2					
Gender	.204	.272	.563	1.227	.719, 2.091
HS GPA	.380	.074	26.167***	1.463	1.264, 1.692
PTSD	-.093	.125	.549	.911	.713, 1.165
SocSup	.053	.123	.188	1.055	.829, 1.341
Step 3					
Gender	.171	.277	.379	1.186	.689, 2.042
HS GPA	.388	.075	26.476***	1.475	1.272, 1.710
PTSD	-.135	.125	1.162	.874	.683, 1.117
SocSup	.130	.129	1.024	1.139	.885, 1.465
SocSupXPTSD	-.239	.113	4.491*	.787	.631, .982

Note. HS GPA = high school GPA. PTSD = PTSD symptoms.

SocSupXPTSD = interaction between social support and PTSD symptoms. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

In the first step, the results are the same as those reported in Hypothesis 5. In the second step, results indicated that the addition of social support and PTSD



symptomatology to the model did not result in a significant increase in prediction of second-year college enrollment,  $\chi^2 (2, N = 483) = 1.025, p = .599$ . In the third step, the interaction between social support and PTSD symptomatology indicated a significant increase in prediction of second-year college enrollment,  $\chi^2 (1, N = 483) = 4.696, p < .05$ . The social support and PTSD symptoms interaction was negatively related to enrollment (OR = .787,  $p < .05$ , 95% CI [.631, .982]).

Follow-up analyses were conducted using PROCESS Macro (Hayes, 2012) for SPSS. The effect of PTSD symptomatology on enrollment at low levels of social support was non-significant,  $B = .104, SE = .157, z = .664, p = .507, 95\% CI [-.203, .412]$ ; likewise, the effect of PTSD symptomatology on enrollment at mean levels of social support also had no significance,  $B = -.135, SE = .125, z = -1.078, p = .281, 95\% CI [-.381, .111]$ . However, the effect of PTSD symptomatology on enrollment with high levels of social support were significant and negative,  $B = -.374, SE = .180, z = -2.083, p = .037, 95\% CI [-.727, -.022]$ . Therefore, higher PTSD symptomatology predicted increased likelihood of dropping out of college, when social support was high. This finding suggests that Hypothesis 8 was supported, but the results were in the unexpected direction, suggesting that increased social support strengthened the negative relationship between PTSD symptoms and college enrollment.

## CHAPTER FIVE

### DISCUSSION

#### **Overview of Results**

The purpose of this study was to examine the moderating effects of approach coping, avoidance coping, and social support on the relationship between PTSD symptomatology in first-year of college outcomes (e.g., first year cumulative GPA and second year enrollment), after controlling for high school GPA and gender. The participants of this study were 483 trauma-exposed college freshmen out of a total sampled 927 first-year students. The prevalence of trauma exposure among the participants was 52.10%. Past literature that indicated first-year college students' lifetime exposure to trauma ranges between 50 to 90% (Bensimon, 2012; Bernat et al., 1998; Fisher et al., 2000; Frazier et al., 2009; Grasso et al., 2011; Green et al., 2000; Read et al., 2012; Smyth et al., 2008; Vrana & Lauterbach, 1994).

The prevalence of PTSD in this trauma-exposed sample was 12.42% (6.47% for the total sample) which was significantly higher for females (17.87%) than male students (8.33%). Previous studies also found similar rates of PTSD in trauma-exposed college students, ranging between 4 to 20% (Bernat et al., 1998; Boyraz et al., 2013; Frazier et al., 2009; Grasso et al., 2011; Read et al., 2011; Smyth et al., 2008; Vrana & Lauterbach, 1994). For example, in a study by Frazier et al. (2009), they found a similar total

prevalence rate of 6.2% among college students. These findings suggest that while most students enter college with a history of trauma, a smaller percentage of these students experience significant amount of distress that may impair their functioning.

Preliminary analyses confirmed that college students in this study had significantly lower cumulative first-year GPA when they had PTSD than those that did not have PTSD. Also, males had a significantly lower first year GPA than females. In addition, the percent of dropout by beginning of second-year of college in this trauma-exposed sample was 19.5%, with significantly more males (13.04%) that dropped-out than females (6.42%). The dropout rates for those with PTSD and without PTSD were not significantly different.

Preliminary analyses also indicated significant gender differences in study variables. For instance, trauma-exposed males had significantly lower cumulative freshmen GPA than females. Additionally, females overall reported higher amounts of PTSD symptomatology than males. These findings compare favorably to Ewert's (2012) previous findings that women in college tend to have higher GPAs than men, and that women have significantly more college persistence and retention than men. In addition, consistent with my findings, previous research suggests that women are at greater risk of developing PTSD (e.g., Bernat et al., 1998; Vrana & Lauterbach, 1994).

As expected, the results of this study indicated that control variables (i.e., gender and high school GPA) were significantly related to first-year college GPA. Specifically, being female and having higher high school GPA were associated with increased cumulative GPA in the first year of college. However, after controlling for these variables, PTSD symptoms did not significantly predict first year cumulative GPA.

Consequently, Hypothesis 1 of the study was not supported. This finding contradicts previous findings, which indicated a significant negative relationship between PTSD and college GPA (Bachrach & Read, 2012; Boyraz et al., 2013). There may be several explanations of these contradictory findings. First, the relationship between PTSD symptoms and college GPA may be moderated by other factors. For instance, Boyraz et al. (2013) found PTSD symptomatology was significantly associated with lower first year GPA and second year dropout only among female students. Likewise, our recent findings (Boyraz, Granda, Baker, Tidwell, & Waits, 2015) indicate that PTSD symptomatology had significant direct relationships with college GPA and second-year enrollment for women, but not for men. Therefore, the relationship between PTSD and college outcomes may vary as a function of gender, as well as other variables, such as access to mental health services. Second, it is possible that some of the students who entered college with PTSD experienced a reduction in their symptoms during the first year college, which in turn, enhanced their academic achievement. Indeed, Bachrach and Read (2012) found that students with unremitted PTSD during the first year of college were at risk of poor academic performance and college dropout. Since I did not measure PTSD symptoms longitudinally in this study, I do not know whether students who enter college with high PTSD symptomatology continued to experience high distress during the remainder of college. Thus, examining PTSD symptomatology longitudinally over the first two years of college may provide a more comprehensive understanding these conflicting findings.

The results of this study did not provide support for Hypothesis 2 and Hypothesis 3. Specifically, neither approach coping, nor avoidance coping significantly moderated the relationship between PTSD symptoms and first year GPA, after controlling for gender

and high school GPA. Likewise, I did not find social support to be a significant moderator of the relationship between PTSD symptomatology and cumulative first-year GPA. Therefore, hypothesis 4 was not supported. These findings suggest that regardless of the coping mechanisms used, or the level of social support, PTSD symptomatology did not have a significant effect on college GPA among the participants of this study. These findings appear to suggest that some students are resilient to trauma, and they do not experience a decrease in their academic performance due to distress or trauma-exposure. Alternatively, as discussed earlier, other variables (e.g, gender, personal resources, environmental factors, access to services) may explain why PTSD symptomatology affect some students' academic performance negatively but do not have a significant effect on other students' academic performance.

Regarding the relationship between PTSD and college enrollment (Hypothesis 5), first-year PTSD symptomatology did not predict second-year college dropout, after controlling for gender and high school GPA. This finding suggests that Hypothesis 5 was not supported. Despite limited prior research that focused on PTSD symptoms and enrollment status, it was reported by a few studies that PTSD has negative effects on college persistence (Bachrach & Read, 2012; Boyraz et al., 2013; Duncan, 2000). Duncan (2000) found a significant relationship between PTSD symptomatology and college dropout; however, his study focused on dropout either by the end of the first semester and again by the end of four years of college. This perhaps explains why the present study did not find any relationship between first-year PTSD symptoms and second-year dropout, as Duncan (2000) suggests a dropout timeframe that occurs either immediately after starting

college or by the end of the senior year. Had the present study examined the first-year students longitudinally over four years, the findings may have been different.

Alternatively, as discussed earlier, the relationship between PTSD and college dropout may vary as a function of gender or other variables (e.g., seeking treatment). The results of this study also did not provide support for hypotheses 6 and 7. Specifically, the relationship between PTSD symptomatology and enrollment was not moderated by approach or avoidance coping, after controlling for the control variables (high school GPA and gender). These non-significant findings may be due to type of coping measured in this study. I measured dispositional coping style of the participants; however, it is possible that situational coping plays a more significant role in the relationship between PTSD and college enrollment. Many studies suggest that individuals cope with trauma differently than the way they cope with other stressors (Galatzer-Levy et al., 2012; Mattlin, Wethington, & Kessler, 1990; Roth & Cohen, 1986). Roth and Cohen (1986) suggest that “clearly important differences” exist between stress coping and trauma coping, where stress coping focuses on anticipation and recovery and trauma coping focuses on coming to terms with the events and threat of recurrence (Roth & Cohen, 1986). Additionally, Mattlin et al. (1990) concluded that “certain stressful situations are more likely than others to elicit certain types of coping” (p.110). Therefore, individuals most likely cope with trauma situationally rather than dispositionally.

Another explanation is that coping flexibility is more important than specific types of coping when coping with trauma (Galatzer-Levy et al., 2012). For instance, Galatzer-Levy et al. (2012) adopted a framework that measures PTSD symptomatology based on coping trajectories. They found different individual patterns, such as those with chronic

distress, those that return to baseline a few years afterwards, and those that have failure to improve with worsened symptoms over time. These patterns were found in both college students with and without a history of traumatic events. The results of this study indicated that students who were able to flexibly cope with trauma and shift focus towards the future were more resilient (reported improvement in symptoms) and managed their stress more effectively than those who reported lower levels of coping flexibility and forward focused coping (Galatzer-Levy et al., 2012). Therefore, amount and type of coping (approach and avoidance coping) may not be as critical as the ability to shift as needed using coping flexibility.

Regarding the final hypothesis of this study (Hypothesis 8), social support had a significant moderating effect on the relationship between first-year PTSD symptomatology and second-year college enrollment, after controlling for high school GPA and gender. However, the findings were in the unexpected direction, suggesting that social support may actually be detrimental for students with higher PTSD symptoms towards their enrollment. Specifically, the findings of this study indicated that, for higher levels of social support, increased PTSD symptomatology was associated with greater likelihood of college dropout. On the other hand, PTSD symptoms did not have a significant effect on college enrollment for students who reported low or mean levels of social support. These findings suggest that social support may increase the risk of college dropout among students who enter college with high PTSD symptomatology. There may be several explanations for these unexpected findings. It is possible that students suffering with emotional and psychological difficulties were encouraged by supportive family and friends to take time off from school and focus on their personal well-being. Another

possible explanation is that this is a temporary setback that the student who dropouts from school may be experiencing, with plans to re-enroll in the future when PTSD symptomatology decreases and they've sought treatment.

Previous studies also have found unexpected results regarding social support (Appleyard, Yang, & Runyan, 2010; Bernstein, 2014). In a study completed by Appleyard et al. (2010), the effects of self-perception (e.g., self-esteem and loneliness) and social support after childhood maltreatment were examined. Their study had a large sample ( $N = 657$ ) across multiple cities ( $n = 5$ ). Social support was examined as a moderator using the Inventory of Supportive Figures by Whitcomb et al. (1994). They found that early childhood maltreatment significantly influenced later internalizing and externalizing behaviors, where social support moderated self-esteem for both genders. Additionally, boys with increased maltreatment and higher social support were more likely to have lower self-esteem and increased behavioral problems. Similar to the present study, they found social support to be a moderator in an unexpected direction. The authors of this study concluded that social support is not a protective factor if it is not provided in a truly supportive and challenging manner based on the individual's needs. Interesting to note, as pointed out by these authors, is that the participants of both their study and my study have been exposed to trauma and therefore may misidentify, misuse, or misunderstand roles of social support due to their prior traumatic experiences. These authors propose, as well, that the participants in the study may remain in contact with their trauma perpetrators and in some cases may report them as a form of social support despite prior harm. In addition, individuals with multiple traumas or severe trauma may not have been able to rely on their social support previously in times of stress and therefore, social support may not be



enough to outweigh the risk factors from trauma. Theoretically, individuals exposed to trauma may also have “shattered assumptions” (Janoff-Bulman & Hanson Frieze, 1983) making it difficult to trust and rely on social support despite it being available. It is thus suggested that social support is a complex dynamic that is not a singular protective factor but instead part of a combination of protective and risk factors.

Another study by Bernstein (2014) echoed these prior unexpected findings, suggesting that the role of social support in adjustment may be complex. Her study examined work roles, stress, and social support on well-being and self-esteem among South African female managers ( $N = 1,477$ ). Sources of social support were measured as colleague, supervisor, partner, family, and friend. They found work-sources of social support to moderate the relationship between work stress and psychological well-being. However, non-work sources of social support were not found to moderate this relationship. Interestingly and similar to the present study, they found that friend support moderated the relationship between work stress and self-esteem, in the unexpected direction. In other words, support from friends made these female managers with higher work stress more likely to have lower self-esteem. Additionally, a study conducted by Mattlin et al. (1990) found that participants with higher amounts of social support reported increased amounts of anxiety. These studies, in addition to the current study, emphasize the complexity of social support received by trauma-exposed college students.

In the present study, I measured the support received from friends, family, or significant other. However, I did not measure how frequently participants use their social support resources. This is important in regards to trauma-exposed individuals as they may have copious amounts of social support but may not be ready to reach out for the support

available. They also may not have social support available for their specific needs (ie. psychological, financial, academic, etc.), and may also select unhealthy individuals from their support network. Also, limited social support that is more accessible and better quality may actually be more beneficial.

### **Recommendations for Future Research**

Because there is limited research examining the relationship between PTSD and college achievement and persistence (e.g., Bachrach & Read, 2012; Boyraz et al., 2015; Boyraz et al., 2013; Duncan, 2000), more research is needed to develop a better understanding of how trauma exposure and PTSD symptoms affect college students' achievement and persistence. Since my findings contradict some of the earlier findings, further research with diverse samples is needed to determine the role of PTSD symptoms on college outcomes. In addition, more comprehensive studies using the *DSM-5*, as well as focused on trauma type, amount, and age-of-onset are encouraged for future research as it relates to college persistence.

It is also recommended that further studies examine other potential moderators between PTSD symptoms and college persistence. For instance, future research can examine whether gender moderates the relationship between PTSD symptoms and college outcomes. Also, since my findings seem to indicate that some individuals may be resilient to trauma and PTSD symptomatology, it is important to explore the protective factors that help some students persist despite trauma exposure and PTSD symptomatology. For example, access to on-campus resources or seeking professional help may serve as protective factors for college students with PTSD symptomatology. In addition, previous

research suggests that academic integration (Boyraz et al., 2013) and participation in extracurricular activities (Boyraz et al., 2015; Boyraz et al., 2013) may increase trauma-exposed students' academic achievement and college persistence; therefore, future research can explore whether social and academic integration to campus may moderate the effects of PTSD symptoms on college outcomes.

In the present study, I focused on dispositional coping. Future research can focus on different aspects of coping, such as coping flexibility, coping trajectories, and situational coping to develop a better understanding of the role of coping in college persistence. Further, more longitudinal studies over the course of two to four years are encouraged that gather further dropout information, such as follow-up about reasons for dropout (i.e., to receive treatment, to take a break, academic failure) and whether re-enrollment is expected.

Furthermore, it is recommended that further research be developed that examines the quality of social support, using a qualitative research design. This may help explain the complexity of social support in more detail, and the unexpected direction for social support as it moderated the relationship between PTSD symptomatology and enrollment. Future research may better define social support, by assessing in more depth the specific individuals in the trauma-exposed social support network and their specific contribution (i.e., academic support, financial support, emotional support). Additionally, a better understanding of the trauma-exposed individuals' perception of community support is encouraged, such as amount of social integration, the local and expanded community's societal approach towards trauma, and engagement in community events.

### **Practical Implications**

The findings of this study contribute to literature by furthering our understanding of the relationship between PTSD symptomatology and college outcomes. Only a few studies were found that examined trauma-exposure and academic persistence (e.g., Bachrach & Read, 2012; Boyraz et al., 2013; Duncan, 2000). Although these studies suggest a negative relationship between PTSD symptoms and college outcomes, my findings indicated that PTSD symptomatology was not a significant predictor of college outcomes after controlling for gender and high school GPA. This implies to college counselors and practitioners that prior trauma-exposure and higher PTSD symptomatology do not always lead to poor academic performance or college dropout.

However, providing partial support for the previous findings, students with enough PTSD symptoms to warrant a diagnosis of PTSD were more likely to have lower first-year GPA, in comparison to students who were exposed to trauma but did not meet the criteria for PTSD. Therefore, students with PTSD may benefit from support services. For example, early screening to identify students who enter college with significant distress can help provide additional assistance to those who need counseling or treatment, as well as referral information about community resources and academic tutoring available. In addition, instructors can use advising as a time to monitor students' academic achievement and intervene with suggestions for students that have low GPAs. It is also suggested that faculty be trained to be supportive, sensitive, and understanding of the wide prevalence of trauma-exposure in college students, and be given information about the associated symptoms for PTSD (i.e., hypervigilance, avoidance, negative cognition or mood, and re-experiencing symptoms). Crisis intervention training is

recommended for faculty and university staff, with referral sources available and procedures for assisting a student that requests to dropout of college. Implementation of comprehensive, integrated assistance and communication at this time by faculty, counselors, and administrators is recommended.

My findings regarding the relationship between PTSD and college dropout also has implications for college counseling centers and mental health practitioners. Unlike some of the previous findings (e.g., Boyraz et al., 2013; Duncan, 2000), I did not find a significant relationship between PTSD and college dropout. Further, this relationship was not moderated by coping mechanisms, suggesting that regardless of the coping mechanisms used, PTSD symptomatology was not associated with college dropout. This suggests that some students may be more resilient to posttraumatic stress than others. Therefore, mental health practitioners who work with trauma-exposed college students might benefit from conducting a comprehensive assessment of risk and protective factors in clients' lives to develop a better understanding of the risk of academic difficulties and college dropout among these students. Such an assessment can help understand individual differences in responses to traumatic events and use appropriate interventions based on clients' needs.

Another important implication of this study is that social support needs to be better understood before it is encouraged, as increased amounts of social support may actually influence college retention unfavorably among trauma-exposed college students. Therefore, mental health practitioners working with trauma-exposed students may explore social support needs of these students and help them connect with appropriate sources of support. Also, keeping in mind that quality of support may be more important than the

quantity, mental health practitioners could provide social skills training and support group workshops focused on building better social support quality.

This study also has implications for parents and family of trauma-exposed students, as quality of support may be more important than the quantity. For instance, enmeshed and overbearing relationships may be likely to increase stress in the student (Sturge-Apple, Davies, & Cummings, 2010). In a study completed by Sturge-Apple et al. (2010), 234 children were studied longitudinally over the course of three years. These researchers found that students with disengaged parents fared the worst academic adjustment, whereas those with enmeshed families were on par with the cohesive family students' academic adjustment. However, over time, those with enmeshed families had higher anxiety and internalizing symptoms as well as poorer emotional adjustment to school. Therefore, it is pertinent that administrators, faculty, and counselors attempt to integrate family members for students with PTSD symptomatology, and provide education about the role and type of support that may help improve the quality of social support given to trauma-exposed students.

### **Limitations**

Although this study has several strengths (e.g., a large number of first year students from various departments participated in the study; a longitudinal study design was used) it also has several limitations that need to be understood before generalizing and interpreting the results. First of all, the location of the participants was from a southern rural university, which may not be representative of the general college student population.

Another limitation of the study is that T1 data were collected through self-report instruments; therefore, it is possible that participants responded to the study questionnaires in a socially desirable way. In addition, the survey was not anonymous as T1 information needed to match registrar information at T2 and T3. Therefore, the participants of this study may have felt uncomfortable disclosing personal information about trauma histories. Moreover, these students were only followed for the first two years of college. Therefore, it is uncertain whether the second-year students who dropped out of college ever re-enrolled in college at a later time point. It is likely that some of these students dropped out of college temporarily with plans to re-enroll. Furthermore, I measured three types of social support (e.g., significant other, family, friend) using a self-report instrument; however, I did not measure the other dimensions of support (e.g., quality of support) that may have provided a better understanding of the role of social support in the relationship between PTSD and college outcomes.

Despite these limitations, this study contributes to literature by suggesting that not all trauma-exposed college students are at risk of poor academic performance and college dropout and there may be individual variables in how people respond to trauma. The results of this study also suggested that social support plays an important yet complex part in the relationship among PTSD symptoms and enrollment.

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APPENDIX A

DEMOGRAPHIC SURVEY





APPENDIX B

MULTIDIMENSIONAL SCALE OF PERCEIVED SUPPORT

<b><u>INSTRUCTIONS:</u></b> We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.	<i>Very strongly disagree</i>	<i>Strongly disagree</i>	<i>Mildly disagree</i>	<i>Neutral</i>	<i>Mildly agree</i>	<i>Strongly agree</i>	<i>Very Strongly agree</i>
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6. My friends really try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. I can talk about my problems with my family.	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7

APPENDIX C

REVISED STRESSFUL LIFE EVENTS SCREENING QUESTIONNAIRE

<b>INSTRUCTIONS:</b> The items listed below refer to events that may have taken place at <b>any point in your entire life</b> , including early childhood. Please read each question and indicate whether or not you experienced that particular event by selecting the appropriate option.		
1. Have you ever had a life threatening illness? If yes, at what age? _____	NO	YES
2. Were you ever in a life-threatening accident? If yes, at what age? _____	NO	YES
3. Was physical force or a weapon ever used against you in a robbery or mugging? If yes, at what age? _____	NO	YES
4. Has an immediate family member, romantic partner, or very close friend died because of accident, homicide, or suicide? If yes, how old were you? _____	NO	YES
5. At any time, has anyone (parent, other family member, romantic partner, stranger, or someone else) ever <u>physically forced</u> you to have intercourse, or to have oral or anal sex against your wishes, or when you were helpless, such as being asleep or intoxicated? If yes, at what age? _____	NO	YES
6. Other than experiences mentioned in earlier questions, has anyone ever touched private parts of your body, made you touch their body, or tried to make you to have sex against your wishes? If yes, at what age? _____ If yes, how many times? 1 ____, 2-4 ____, 5-10 ____, more than 10 ____	NO	YES
7. When you were a child, did a parent, caregiver or other person ever slap you repeatedly, beat you, or otherwise attack or harm you? If yes, at what age? _____	NO	YES
8. As an adult, have you ever been kicked, beaten, slapped around or otherwise physically harmed by a romantic partner, date, family member, stranger, or someone else? If yes, at what age? _____	NO	YES
9. Has a parent, romantic partner, or family member repeatedly ridiculed you, put you down, ignored you, or told you were no good? If yes, at what age? _____	NO	YES

10. Other than the experiences already covered, has anyone ever threatened you with a weapon like a knife or gun? If yes, at what age? _____	NO	YES
11. Have you ever been present when another person was killed? Seriously injured? Sexually or physically assaulted? If yes, at what age? _____	NO	YES
12. Have you ever been in any other situation where you were seriously injured or your life was in danger (e.g., involved in military combat or living in a war zone)? If yes, at what age? _____	NO	YES
13. Have you ever been in any other situation that was extremely frightening or horrifying, or one in which you felt extremely helpless, that you haven't reported? If yes, at what age? _____ Please briefly describe _____	NO	YES
14. How much do the events you reported above have an impact on your adjustment to college?  <div style="display: flex; justify-content: space-around; width: 100%;"> <span>1 Not at all</span> <span>2</span> <span>3</span> <span>4 Somewhat</span> <span>5</span> <span>6</span> <span>7 A great deal</span> </div>		
15. Did you ever receive psychological help from a professional (e.g., psychologist, counselor, pastor, and psychiatrist) for any of the above? <input type="checkbox"/> No <input type="checkbox"/> Yes (what kind of help?) _____		

APPENDIX D

PTSD CHECKLIST- CIVILIAN VERSION

<b>INSTRUCTIONS:</b> Below is a list of problems and complaints that people sometimes have in response to stressful experiences. Please read each one carefully and indicate (by circling the appropriate number) how much you have been bothered by that problem <b>IN THE PAST MONTH.</b>	<i>Not at all</i>	<i>A little Bit</i>	<i>Moderately</i>	<i>Quite a bit</i>	<i>Extremely</i>
1. Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?	1	2	3	4	5
2. Repeated, disturbing <i>dreams</i> of a stressful experience from the past?	1	2	3	4	5
3. Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening again</i> (as if you were reliving it)?	1	2	3	4	5
4. Feeling <i>very upset</i> when <i>something reminded you</i> of a stressful experience from the past?	1	2	3	4	5
5. Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, sweating) when <i>something reminded you</i> of a stressful experience from the past?	1	2	3	4	5
6. Avoiding <i>thinking about or talking about</i> a stressful experience from the past or avoiding <i>having feelings</i> related to it?	1	2	3	4	5
7. Avoiding <i>activities or situations</i> because <i>they reminded you</i> of a stressful experience from the past?	1	2	3	4	5
8. Trouble <i>remembering important parts</i> of a stressful experience from the past?	1	2	3	4	5
9. <i>Loss of interest</i> in activities that you used to enjoy?	1	2	3	4	5
10. Feeling <i>distant or cut off</i> from other people?	1	2	3	4	5
11. Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
12. Feeling as if your <i>future</i> somehow will be <i>cut short</i> ?	1	2	3	4	5
13. Trouble <i>falling or staying asleep</i> ?	1	2	3	4	5
14. Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5
15. Having <i>difficulty concentrating</i> ?	1	2	3	4	5
16. Being “ <i>super alert</i> ” or watchful or on guard?	1	2	3	4	5
17. Feeling <i>jumpy</i> or easily startled?	1	2	3	4	5



APPENDIX E

BRIEF COPE

<b>INSTRUCTIONS:</b> These items deal with ways you deal with the stress in your life. There are many ways to try to deal with problems. We want to know to what extent you do what the item says. How much or how frequently. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.	I haven't been doing this at all	I've been doing this a little bit	I've been doing this a medium amount	I've been doing this a lot
1. I turn to work or other activities to take my mind off things.	1	2	3	4
2. I concentrate my efforts on doing something about the situation I'm in.	1	2	3	4
3. I say to myself "this isn't real."	1	2	3	4
4. I use alcohol or other drugs to make myself feel better.	1	2	3	4
5. I get emotional support from others.	1	2	3	4
6. I give up trying to deal with it.	1	2	3	4
7. I take action to try to make the situation better.	1	2	3	4
8. I refuse to believe that it has happened.	1	2	3	4
9. I say things to let my unpleasant feelings escape	1	2	3	4
10. I get help and advice from other people.	1	2	3	4
11. I use alcohol or other drugs to help me get through	1	2	3	4
12. I try to see it in a different light, to make it seem more positive.	1	2	3	4
13. I criticize myself.	1	2	3	4
14. I try to come up with a strategy about what to do.	1	2	3	4
15. I get comfort and understanding from someone.	1	2	3	4
16. I give up the attempt to cope.	1	2	3	4
17. I look for something good in what is happening.	1	2	3	4
18. I make jokes about it.	1	2	3	4
19. I do something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20. I accept the reality of the fact that it has happened.	1	2	3	4
21. I express my negative feelings.	1	2	3	4
22. I try to find comfort in my religion or spiritual beliefs.	1	2	3	4
23. I try to get advice or help from other people about	1	2	3	4

24. I learn to live with it.	1	2	3	4
25. I think hard about what steps to take.	1	2	3	4
26. I blame myself for things that happened.	1	2	3	4
27. I pray or mediate	1	2	3	4
28. I make fun of the situation.	1	2	3	4

APPENDIX F

CONSENT FORMS

DEPARTMENT HEAD APPROVAL FORM

TO: Barbara Talbot, Office of University Research  
[btalbot@latech.edu](mailto:btalbot@latech.edu)  
257-5075 phone  
257-5079 fax  
<http://research.latech.edu/>

FROM: Guler Boyraz, Ph.D.  
Rebecca Granda  
Psychology & Behavioral Sciences  
Office phone: (318) 257-3001  
Cell phone: (615) 545-9986  
[gboyraz@latech.edu](mailto:gboyraz@latech.edu)  
[rec015@latech.edu](mailto:rec015@latech.edu)

SUBJECT: HUMAN USE COMMITTEE REVIEW

DATE: 09/09/2013

Department Psychology and Behavioral Sciences

Department Head Name Dr. Donna Thomas

Do you plan to publish this study?	X YES	<input type="checkbox"/> NO
Will this study be published by a national organization?	X YES	<input type="checkbox"/> NO
Are copyrighted materials involved?	<input type="checkbox"/> YES	X NO
Do you have written permission to use copyrighted materials?	X YES	<input type="checkbox"/> NO
COMMENTS:		

#### STUDY/PROJECT INFORMATION FOR HUMAN SUBJECTS COMMITTEE

Describe your study/project in detail for the Human Subjects Committee. Please include the following information.

TITLE: College Persistence and Adjustment of First Year Students

PROJECT DIRECTOR(S): Dr. Guler Boyraz  
Louisiana Tech University  
University  
EMAIL: [gboyraz@latech.edu](mailto:gboyraz@latech.edu)  
PHONE: Office: (318) 257-3001  
Cell: (615) 545-9986

Rebecca Granda  
Louisiana Tech  
rec015@latech.edu  
(318) 257-5066

DEPARTMENT(S): Psychological and Behavioral Sciences

PURPOSE OF STUDY/PROJECT: The purpose of this longitudinal study is to examine the role of several academic (e.g., high school GPA, SAT scores) and non-academic (e.g., socio-economic status, lifetime exposure to potentially traumatic events, distress) variables on the academic achievement and college persistence of first year students. Our goal is to collect data from first year students attending Louisiana Tech University in Fall 2013 (i.e., students who will be enrolled at Louisiana Tech in Fall 2013) and follow them until they graduate.

Doctoral student, Rebecca Granda will use a portion of this study for her dissertation. She applied to a doctoral dissertation grant using a portion of this study. Dr. Guler Boyraz is planning to apply for other grants using the broader project.

SUBJECTS: Data of this study will be collected from Louisiana Tech University students who are in their first year of college. We will collect longitudinal data from these students (see procedures section for details).

PROCEDURE: We will use several methods to access the participants (e.g., recruitment through in-class announcements, email announcements, campus events, etc.). First round of data collection will occur in Fall 2013. Data will be collected through both paper-based surveys and an online survey. We will indicate in the informed consent that participation is completely voluntary and decision to discontinue will not involve any consequences. Participants will be asked to complete two informed consents: one for study participation and one for accessing students' records (FERPA informed consent; see appendix). Then,

participants will complete a demographic questionnaire and the other questionnaires of the study (see appendix, for instruments). In the first round of data collection (Fall 2013), participants will be asked if they volunteer to participate in the future rounds of data collection (Spring 2014 and the following data collections). If they volunteer, they will be asked to provide identifying information (e.g., name and email address) to send a follow-up questionnaire. In addition, if participants give consent to access their academic records, we will obtain their identifying information (name, email address, and ID numbers) in order to access their academic records. Below is the proposed data collection schedule for this project:

FALL 2013: A quantitative survey

SPRING 2014: A quantitative survey

Students' registration and GPA information will be obtained through university.

FALL 2014 : A quantitative survey.

Students' registration and GPA information will be obtained through university.

SPRING 2015: A quantitative survey.

FALL 2015: A quantitative survey.

Students' registration and GPA information will be obtained through university.

SPRING 2016: A quantitative survey.

FALL 2016: A quantitative survey.

Students' registration and GPA information will be obtained through university.

SPRING 2017: A quantitative survey.

FALL 2017: Students' registration and GPA information will be obtained through university.

Students may receive extra credit for participation in this study. If they choose not to participate, an equivalent alternative extra credit activity assignment pertinent to their course of study will be offered by their instructor.

Note. Rebecca Granda applied for a dissertation grant using a portion of this project. Guler Boyraz will apply for funding using this project. If we receive funding, we will provide gift cards for participation. However, we do not offer any monetary incentives/gift cards at this time. We will inform the Louisiana Tech IRB if we obtain funding and/or make any changes in the procedures.

**INSTRUMENTS AND MEASURES TO INSURE PROTECTION OF CONFIDENTIALITY, ANONYMITY:** After data collection is completed, participants will be assigned a unique code number and all identifying information will be saved separately and destroyed after completion of the study. Only the research team members will have access to data and no identifying information will be revealed on publications or the dissertation of the co-PI. Only principal investigators will have access to the dataset that includes identifying information. No identifying information will ever be released or published.

**RISKS/ALTERNATIVE TREATMENTS:** There are no foreseeable risks in this study. Participants may feel mild emotional discomfort due to the questions that ask about stressful experiences in their lives. Participants will be informed in the informed consent that they can stop participation or skip any question that they don't feel comfortable answering. They will also be provided with the phone number of the Louisiana Tech University Counseling in case they feel emotional discomfort and would like to speak to a mental health professional.

**BENEFITS/COMPENSATION:** No benefits or compensation will be offered. However, some participants may be offered extra credit for participation; it is at the instructor's discretion whether to award extra credit for participation. If extra credit is provided, the instructor will offer an alternative assignment for extra credit for those students who do not choose to participate in the study.

In addition, as previously noted, we may offer gift cards for participation depending on future funding/grant awards.

**SAFEGUARDS OF PHYSICAL AND EMOTIONAL WELL-BEING:** As previously indicated, all participants will be provided with the contact number in the informed consent for the Louisiana Tech Counseling Center.

**Note:** Use the Human Subjects Consent form to briefly summarize information about the study/project to participants and obtain their permission to participate.



## HUMAN SUBJECTS CONSENT FORM

**TITLE OF PROJECT:** College Persistence and Adjustment

**PURPOSE OF STUDY/PROJECT:** This study is exploring freshmen student adjustment to college.

**WHO CAN PARTICIPATE:** In order to participate in this study, you must be: a) 18 years old or older, b) a student at Louisiana Tech University.

**PROCEDURE:** Participation in this study will involve completing a survey about your life experiences leading up to college and your current experiences in college that will require approximately 20-30 minutes. At the end of the demographic questionnaire, you will be asked if you would like to volunteer for follow-up surveys. If you choose to participate, you will be asked to provide an email address which will be securely stored separately from the data file and connected only through a code number that only the lead researchers will have access to. The email file will be destroyed upon completion of the study and access will only be given to investigators of the study. We will send you the follow-up study at the designated email and provide you with a code number to complete the study. All data will be kept confidential and you may exit the survey at any time.

**CONFIDENTIALITY:** Volunteers who elect to participate in the follow-up study will be asked to provide an email address. This email will be linked to the dataset only through a code number. Your emails will be securely stored in a separate file and destroyed following completion of the study. The email address will be used exclusively for the purpose of this research study. No identifying information will be released or published.

**INSTRUMENTS:** The instruments you will be asked to complete contain questions about your experiences prior to college, as well as your thoughts, feelings, and experiences since you started college. Keep in mind all information will be kept confidential. There are some questions about past events that may have caused you distress. The study is completely voluntary and you may conclude the study at any time. Beginning the survey in no way obligates participants to complete the survey. Participants may quit the study at any time with no consequences.

**RISKS/ALTERNATIVE TREATMENTS:** There are no foreseeable risks to individuals for participating in this study. Individuals may feel mildly uncomfortable being asked some questions about their past experiences. If you feel any emotional discomfort, you may call Louisiana Tech University, Counseling Center at (318) 257-2488 in order to schedule an appointment or talk with a professional.

The participant understands that neither Louisiana Tech University nor the researchers are able to offer financial compensation or reparative medical treatment for participation in this study.

**BENEFITS/COMPENSATION:** Although this study does not have direct benefits to the research participant, the knowledge developed may help other freshmen students. In addition, some instructors may offer extra credit for participation. If extra credit is offered, an alternative extra

credit that requires a similar investment of time and energy will also be offered to those students who do not choose to volunteer as research subjects.

CONTACT INFORMATION: The principal experimenters listed below may be reached to answer questions about the research, subjects' rights, or related matters.

Guler Boyraz, Ph.D., Louisiana Tech University. Email: [gboyraz@latech.edu](mailto:gboyraz@latech.edu). Telephone: (318) 257-3001

Rebecca Granda, Louisiana Tech University. Email: [rec015@latech.edu](mailto:rec015@latech.edu). Telephone: (318) 257-2488

Members of the Human Use Committee of Louisiana Tech University may also be contacted if a problem cannot be discussed with the experimenters: Dr. Stan Napper (257-3056) and Dr. Mary M. Livingston (257-2292 or 257-5066).

By signing this form, I attest that I have read and understood the description of the study, purposes and methods of the following study: "College Persistence and Adjustment." I understand that my participation in this research is strictly voluntary and my participation or refusal to participate in this study will not affect my relationship with Louisiana Tech University in any way. Further, I understand that I may withdraw at any time or refuse to answer any questions without penalty. Upon completion of the study, I understand that the results will be freely available to me upon request. I understand that the results of my survey will be confidential, accessible only to the principal investigators, myself, or a legally appointed representative. I have not been requested to waive nor do I waive any of my rights related to participating in this study.

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Signature

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Date

**College Persistence and Adjustment in First Year Students  
Consent to Verify Academic GPA and Registration Records**

The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. In accordance with this Act, written consent must be obtained for release of any student records, including GPA and registration records. By providing your information below, you are giving consent to the researchers, Dr. Guler Boyraz and doctoral student Rebecca Granda, to verify your registration information (whether you registered at Louisiana Tech University in the following semesters) and cumulative grade point average at Louisiana Tech University, via the registrar's office. This information is to be used only for the purposes of this study and will be destroyed upon completion of said study. Participation is optional in this part of the study. If you chose not to give consent, we will not access your academic records (registration information and GPA) through Louisiana Tech University.

Thank you for your participation in this research.

**First and last name (Please print):** \_\_\_\_\_

**Student ID Number:** \_\_\_\_\_

**Date of Birth:** \_\_\_\_\_

**Name of your high school:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_