Coping Mechanisms Moderate the Association between Stressful Life Experiences and Sub-threshold PTSD Symptoms in College Students

by

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Abstract

The purpose of this study is to determine whether or not stressful life events cause sub-threshold or full Post-Traumatic Stress Disorder (PTSD) in college populations, and whether or not that relationship is moderated by approach or avoidance-based coping mechanisms. Research indicates that stressful life events, that are not considered traumatic in the *DSM V*, can cause sub-threshold and even full PTSD symptomology (Mol et al., 2005, Gold et al., 2004; Robinson & Larson, 2010; Smyth et al., 2008; Mulder, Ferguson & Horwood, 2013; Liu et al., 2014). Furthermore, approach-based coping mechanisms have been found to reduce PTSD symptomology (Brailey et al., 2007; Lukaschek et al., 2013; Sharansky et al., 2000). The participants for this study consisted of 124 undergraduate students in a large Southeastern university system. The data indicated that stressful life events do impact sub-threshold symptomology in college populations. Approach and avoidance based coping mechanisms were not found to moderate the relationship between stressful life events and sub-threshold symptomology. However, both coping mechanisms and stressful life events were predictors of sub-threshold symptomology. Furthermore, trends suggested there is an interaction occurring with approach versus avoidance suggesting an increase in symptomology with avoidance based coping and a decrease in symptoms with approach based coping. Therefore, research needs to be continued in order to study the impact of various coping mechanisms on sub-threshold PTSD symptomology.

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CHAPTER 1. INTRODUCTION

Posttraumatic Stress Disorder (PTSD) is a relatively new diagnosis that was first defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM; APA, 1980) in 1980. However, there are several historical indicators which suggest that the symptoms of this disorder have been around since the beginning of time. For example, Birbaum (2007) examined PTSD's history recognizing that early accounts have been documented in the Bible through the story of Jacob and Joseph and have been described by Homer when referencing Achilles in the *Iliad* (Nash, Silva, & Litz, 2009). Subsequently, during the Second World War, nearly a million American soldiers were diagnosed with psychiatric breakdowns (Wakefield & Horowitz, 2010) which mimic the same symptomology of PTSD today. Dr. Elliot Slater, who researched these phenomena from both World Wars found evidence that the "terrifying stresses of war tended to provoke anxiety states to a significantly preferential extent, but did so far from regularly" (Koenen, 2010, p. 413). Later research demonstrated that PTSD is more prevalent than previously recorded. The National Institute of Health (NIH, 2009) reports that 7.7 million American adults are affected by PTSD. Existing literature has also shown women are twice as likely to develop PTSD, even though men are exposed to more traumatic events than women (Tolin & Foa, 2006).

Since Posttraumatic Stress Disorder (PTSD) was first defined in *the Diagnostic and Statistical Manual of Mental Disorders*, third edition (*DSM-III*; American Psychiatric Association, 1980) there has been a great deal of controversy about how to diagnose and categorize this disorder in the *DSM-III* and subsequent versions (Gold, Marx, Soler-

Baillo, Sloan, 2005). Since the introduction of the PTSD diagnosis, the American Psychiatric Association (APA) has revised the diagnostic criteria in successive editions of its manual, first in 1987 and then in 1994 (Schnurr, 2009), with the most recent revision to the diagnostic criteria in the new *DSM 5* (2013). The diagnostic criteria have remained controversial from the initial inclusion of PTSD into the *DSM-III* in 1980 up through the current release of the *DSM-5* today. The controversy mainly stems from the stressor criterion which determines the type and magnitude of the stressor that could potentially cause symptoms of PTSD (Calhoun et al., 2012; McNally, 2009; Verlinden et al., 2012). In the *DSM-III*, the event criterion that an individual had to experience was an "event that is outside the range of usual human experience and that would be markedly distressing to anyone" (as cited in Robinson & Larson, 2010, p. 71). This brought much criticism because the criterion was not empirically tested, nor did any other disorders in the DSM have etiology as a factor (Robinson & Larson, 2010). In the revised version of the *DSM-IV*, the authors took some of this into consideration by broadening the defining characteristics of Criterion A to include direct exposure, vicarious exposure, and indirect, informational exposure (APA, 2000). Also, in the second part of the criterion (Criterion A2) a person's response must have involved intense fear, helplessness, or horror (APA, 2000). The A2 Criterion became widely researched due to the varying degrees of responses to trauma that individuals experience. Thus, the A2 criterion was subsequently dropped from the *DSM 5* because multiple studies demonstrated that not all individuals who have PTSD experience the symptoms of intense fear, helplessness, or horror (Kubany, Ralston, & Hill, 2010;

Peredo & Forero, 2012). These studies found that the stressor Criterion A2 had little relevance for establishing a probable PTSD diagnosis.

The *DSM 5* broadened the traumatic stressors in Criterion A2 to include that a person must be exposed to one or more of the following event (s): experience death or threatened death, actual or threatened serious injury, actual or threatened sexual violation in one or more of the following ways: by experiencing the event him/herself, witnessing, it in person, or experiencing the event (s) as they occurred to others, learning that the event (s) occurred to a close relative or friend; in such cases, the actual or threatened death must have been violent or accidental, also includes experiencing repeated or extreme exposure to aversive details of the event (s) (e.g. first responders collecting body parts; police officers repeatedly exposed to details of child abuse) (APA, 2013, p. 271).

With the *DSM-5* (APA, 2013), a new criterion was introduced to include more affective states like guilt and shame rather than the person's subjective experience based on fear (Galatzer-Levy & Bryant, 2013). These symptoms were added due to the research that was conducted on populations that have high levels of posttraumatic stress such emergency responders and the military (Galatzer-Levy & Bryant, 2013).

Several researchers critiqued the broadening of the definition of PTSD in the DSM revision (McNally, 2009; McNally & Robinaugh, 2011). For example, McNally (2009) calls this a “conceptual bracket creep” in which everyone can begin to classify themselves as a trauma survivor and thereby minimize the significance of trauma. McNally worries that with this “conceptual bracket creep” will become a risk by minimizing client’s etiological factors of PTSD therefore, he recommended that Criterion

A1 should only be allowed if the person is physically present when the trauma occurs (McNally, 2009). Conversely, other researchers believe the diagnostic criteria in the DSM do not fully take into account the individuals who are experiencing symptoms of PTSD that do not meet the full diagnostic criteria (Gold, Marx, Soler-Baillo & Sloan, 2005; Mulder, Ferguson & Horwood, 2013; Robinson & Larson, 2010). This is the opposite of McNally's criticism of the diagnostic criteria being too encompassing. These researchers believe that clinicians are missing sub-threshold symptoms of PTSD that could possibly be treated with evidence-based treatments for PTSD (Dickstein, Walter, Schumm,& Chard, 2013). Many researchers believe that rejecting some criterion for sub-threshold PTSD may result in limiting practitioners' ability to understand the pervasive effects and comorbidity of sub-threshold symptomology (Dickstein et al., 2013; Jakupcak et al., 2007; Muller et al., 2014). In one survey Jakupcak et al., (2007) found that Iraq and Afghanistan war veterans with sub-threshold PTSD had much greater anger and hostility than the non-PTSD group which supports the theory that individuals with sub-threshold symptomology are impaired. The sub-threshold symptomology the Iraq and Afghanistan war veterans exhibited has also been found in a study on Vietnam veterans that examined various levels of PTSD. One study found that the sub-threshold group compared to the non-PTSD group were more likely to have an additional diagnosis of major depression, panic disorder, agoraphobia, generalized anxiety disorder, and suicidality (Grubaugh, 2005, p. 661). Other findings suggest that PTSD related comorbidity subtypes are not limited to full PTSD, but may also apply to traumatized individuals who do not meet the full diagnostic criteria for PTSD (Muller et al., 2014). Muller et al.(2014, p. 848) stated that screening, prevention and intervention

programs should target those with less severe PTSD symptomology to pre-estimate and reduce subsequent morbidity, mortality and the risk of suicidal behaviors. Not only have researchers been studying the pervasive effects of sub-threshold PTSD, but they have also discovered that stressful life events such as the loss of a job, or a divorce can cause as many or more symptoms of PTSD than traumatic events.

Recent research has demonstrated that stressful life events that would not normally be considered traumatic can cause as many or more symptoms of PTSD than major trauma (Gold et al., 2005, Robinson et al., 2010). A groundbreaking study was published in 2005 by Mol and colleagues that began to question the impact of stressful life events on PTSD symptomology. This study used a general population sample to examine whether stressful life events could generate as many symptoms of PTSD and found that those who identified a stressful event as their worst subjective experience endorsed higher levels of PTSD symptoms than did those whose worst experience was a traumatic event. This study generated a great deal of discussion as (Mol et al., 2005) demonstrated that people experience symptoms of PTSD that stem from stressful life events rather than just major trauma.

This study paved the way for researchers to begin looking at the effect of stressful life events, as it relates to PTSD symptoms, and for efficacious treatment modalities to treat sub-threshold PTSD. The Mol study (2005) has been cited 111 times in the literature to date with several replications across various populations and with various disorders. Multiple studies on the impact of stressful life events have supported the findings outlined by these researchers (Gold, et al., 2004; Liu et al., 2014; Mol et al., 2005 ; Mulder, Ferguson & Horwood, 2013; Robinson & Larson, 2010; Smyth et al.,

2008). These studies show how the impact of stressful life events can influence full or sub-threshold PTSD symptomology often without a clear diagnostic framework for how to treat the disorder. For example, (Alessi, Weathers, McDevitt-Murphy & Daniels, 2008) studied PTSD and sexual orientation and found that participants reporting an event who did not meet the stressor Criterion (A1) were more likely than those reporting a Criterion A1 event to have symptoms diagnosable as PTSD. Additionally, researchers have found that people who are subjected to bullying often have symptoms of PTSD. In one study, girls specifically had higher rates of PTSD, and bullies who are also victims of bullying, appear to have the highest rates of PTSD (Idsoe, Dyregrov & Idsoe, 2012). Implications from studies like these demonstrate how important it is for teachers, clinicians, and other professionals to be aware of the impact of these types of events on individuals, so appropriate programs, support and therapeutic services can be offered.

How various stressful life events or traumatic events affect individuals may differ depending on factors such as resiliency, self-care and support services (Galtazer-Levy, Burton & Bonnano, 2012; Gibbons et al., 2014; Sharansky et al., 2000; Tran, Gluck Lueger-Schuester, 2013). However, there is currently no framework for clinicians to adhere to in order to assess and properly treat sub-threshold PTSD, or identify coping mechanisms that may help alleviate symptoms. Therefore, understanding what type of coping mechanisms help individuals to recover from sub-threshold symptoms as well as full PTSD is an important question that will be addressed in the present study.

At this point, several researchers have found that developmental factors may contribute to one becoming more susceptible to PTSD (Cloitre et al., 2009; Koenen, Moffitt, Poulton, Martin, & Caspi, 2007; Koenen, 2010; Lima et al., 2014). Koenen et al.,

(2007) found that both within-individual childhood characteristics like IQ, and environmental conditions, such as lower socioeconomic status, can increase the risk of developing PTSD. Additionally, Lima et al. (2014) concluded that healthy parenting such as low parental control paired with high affection were found to lower the risk of PTSD in adulthood. Not only are early environmental influences a factor in the development of PTSD, but researchers now have evidence of PTSD being heritable (Amstadter, Nugent, & Koenen, 2009). Genetic and environmental factors contribute to the susceptibility one will have to the disorder of PTSD, but coping mechanisms that individuals employ have often been found to ameliorate symptoms of PTSD, or circumvent the disorder from manifesting in the first place (Galatzer-Levy et al., 2012). Coping is defined as a conscious attempt to manage internal or external stressors that the individual perceives to be stressful (Folkman & Lazarus, 1981). Approach-based or problem-focused coping both especially appear to help alleviate posttraumatic stress. Sharansky et al. (2000, p. 194) found that individuals who used more approach-based coping strategies to deal with combat-related stress reported lower levels of psychological symptoms both immediately on return from the Gulf region and 18-24 months later. Conversely, emotion-focused or avoidance-based coping contributes to the development of posttraumatic stress (Sharansky et al., 2000). Approach-based techniques are very similar to the concept of resilience which has been widely studied without conclusively determining an agreed upon definition in the literature. Researchers recently sampled a group of World War II veterans in Austria to examine their ability to adapt despite their traumatic experience, and although no clear picture of factors affecting resilience emerged in this study, two coping mechanisms did surface

as factors that should be included in the definition of resilience: being challenge-oriented and having a humorous attitude (Tran, Gluck & Lueger-Shuster, 2013). Being challenge oriented and having a humorous attitude are coping mechanisms that are part of an approach-based coping style (Sharansky et al., 2000). The results of these and other studies demonstrate the importance of approach-based coping mechanisms in resilience to PTSD.

Purpose of the Study

The purpose of this study was to determine whether or not stressful life events were related to sub-threshold PTSD in college populations. This project also demonstrated how approach-based coping mechanisms may help circumvent the development of sub-threshold PTSD. This information may help clinicians be able to better identify and treat sub-threshold symptomology in the future by working on approach-based coping mechanisms.

Significance of the Study

Several studies have identified pervasive effects of sub-threshold PTSD in the general population as well as in specific groups. However, the *DSM-5* still fails to recognize sub-threshold symptomology as a diagnosable PTSD disorder; therefore, patients are not getting access to services that may otherwise be available if they had a diagnosis of PTSD. Sub-threshold posttraumatic stress disorder is made up of a subset of symptoms from the PTSD disorder that does not meet the full criteria for PTSD in the *DSM-5.* These symptoms often cause the same amount of distress (or more stress) for the individual than a diagnosis of PTSD. For example, in a general population study of over 3000 participants, Muller et al. (2014) found that disorders that are often comorbid

with the diagnosis of PTSD such as generalized anxiety disorder, depression and suicidality are also found to be comorbid factors for individuals who do not meet the *DSM-5* criteria for PTSD. Similarly, Grubaugh's et al. (2005) findings suggest that individuals who have sub-threshold PTSD are more likely to have the same types of comorbid disorders that Muller et al. (2014) found. Furthermore, cognitive processing therapy (CPT) has been found to effectively treat individuals who suffer from sub-threshold PTSD symptomology (Dickstein et al., 2013).This demonstrates how effective evidence-based treatments for PTSD can help sub-threshold symptomology as well. This issue continues to be that individuals who do not meet the full diagnostic criteria may not be eligible for these evidence-based treatments for PTSD.

Currently, there is not a specific diagnostic criteria for sub-threshold PTSD. However, in the newest revision of the *DSM-5* the PTSD diagnostic category does indicate that it can be diagnosed as "other specified trauma & stressor related disorders." (APA, 2013, p. 271). Even though this is an improvement for those individuals affected with sub-threshold PTSD symptomology it does not necessarily mean those same individuals can gain access to appropriate services. Therefore, individuals who are demonstrating symptoms of PTSD, but who do not meet the full diagnostic criteria are not able to gain access to appropriate treatment. Furthermore, current research also demonstrates that life stressors are now being determined to cause as many or more symptoms of PTSD than what has been defined in the stressor criterion for the *DSM-5* (Mol, et al., 2005). Therefore, the stressor criterion for sub-threshold and full PTSD symptomology can often be linked to events that are not thought of as traumatic or life threatening such as job loss, financial stressors or marital

difficulties. Several studies have also found that stressful life events are related to sub-threshold PTSD or full PTSD (Gold, Marx, Soler-Baillo & Sloan, 2005, Mol et al., 2005; Robinson & Larson, 2010; Smyth et al., 2008). What these and other studies show is the impact of stressful life events on individuals. These types of stressful life events may be minimized by clinicians because the individual does not meet the criteria for post-traumatic stress disorder (PTSD). Lastly, various coping responses have been indicated in the amelioration of symptoms of PTSD after suffering from a trauma. Various coping response mechanisms were examined in this study to determine whether or not these attributes helped to alleviate sub-threshold PTSD symptomology.

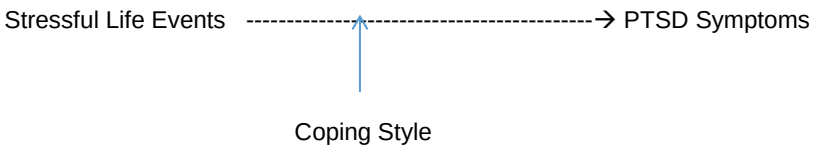
The implications from these and other studies make this study a contribution to the research literature because it relates to prior theories as well as extends the idea that various coping response styles possibly ameliorate PTSD symptomology. Furthermore, the current definition in the *DSM 5* failed to recognize the importance of sub-threshold symptomology; thereby, limiting practitioners' ability to understand the adverse impact these type of events have on individuals. This research also contributes to previous literature by demonstrating how the severe impact of stressful life events contribute to sub-threshold PTSD symptomology despite these types of events not being categorized as stressors in the criterion area of the *DSM 5.* Furthermore, this research determines what types of coping mechanisms may improve sub-threshold PTSD symptomology in college populations.

Research Questions

Q1: Do college students experiencing stressful life events report symptoms of PTSD?

Q2: What is the relationship between stressful life events among college students and the number of PTSD symptoms they are experiencing?

Q3: Is the relationship between stressful life events and the number of PTSD symptoms moderated by coping style?



Definition of Terms

Life events- This term is used interchangeably with other terms that indicate certain types of life stressors like divorce, job loss and bullying that are often not considered to be traumatic indicators in the Diagnostic and Statistical Manual of Mental Disorders (*DSM-5*) This term is most often used in reference to the *Life Events Survey* (Sarason, Johnson & Siegel, 1978).

Stressful negative life events- This term is used interchangeably with other terms that indicate certain types of life stressors like divorce, job loss and bullying that are often not considered traumatic in the literature (Robinson & Larson, 2010).

Adverse life events- negative or stressful life events that may not be considered traumatic by research or clinical standards, but may still be associated with widespread deleterious effects across the lifespan (Smyth, Hockemeyer, Heron, Wonderlich, &

Pennebaker, 2008). This term is used synonymously with stressful life events in the literature. Adverse life events is often used when discussing early experiences in childhood (Felitti et al., 1998).

Trauma stressors- This term is used to indicate the stressors that are included in the DSM-III, IV-TR, V's stressor criterion area. (APA, 2013).

Trauma-congruent- A term used to describe participants in a study who met the criteria for a traumatic stressor in the *DSM*. Those who reported a traumatic event that was consistent with the *DSM* criterion A1 definition in the *DSM-IV* (Gold et al., 2005).

Trauma-incongruent- A term used to describe participants in a study who did not meet the criteria for traumatic stressors in the *DSM* but did have all the symptoms of PTSD. Those who reported an event that was inconsistent with the *DSM-IV* A1 criterion definition (Gold et al., 2005).

Criterion Events- Does meet the criteria in all versions of the *DSM* for PTSD (APA, 2013).

Non-criterion (events?)- Did not meet the criteria in all versions of the *DSM* for PTSD (APA, 2013).

Posttraumatic Stress Disorder (PTSD) - The American Psychiatric Association (APA) defines PTSD as an anxiety problem that develops in some people after extremely traumatic events, such as combat, crime, an accident or natural disaster. People with PTSD may relive the event via intrusive memories, flashbacks and nightmares; avoid anything that reminds them of the trauma; and have anxious feelings they didn't have before that are so intense their lives are disrupted. (APA, 2013).

Sub-threshold PTSD- Generally defined as meaningful PTSD symptoms that do not meet the full DSM diagnostic criteria for the disorder (American Psychiatric Association, 1994). Sub-threshold PTSD, also referred to as subsyndromal PTSD and partial PTSD, refers to the presence of some symptoms of posttraumatic stress disorder, but with too few to meet the criteria for PTSD (Cukor, Wyka, Jayasinghe, & Difede, 2010).

Full PTSD- another term to demonstrate the individual has met the criteria for a diagnosis of PTSD (see definition above).

Subsyndromal PTSD- This term is used synonymously with sub-threshold and partial PTSD in the literature. Sub-threshold PTSD, also referred to as subsyndromal PTSD and partial PTSD, refers to the presence of some symptoms of posttraumatic stress disorder, but with too few to meet the criteria for PTSD (Cukor et al., 2010).

Partial PTSD-This term is used synonymously with sub-threshold and subsyndromal PTSD in the literature. The diagnostic concept of partial PTSD was developed to account for subjects who have symptoms of PTSD but do not fulfill all diagnostic criteria (Muller et al., 2014).

Resilience- resilience has received considerable attention in recent years, however no strict consensus exists on how to define and operationalize it (Tran et al., 2013). Resiliency can be defined as an individual's ability to maintain stable equilibrium in the long term in spite of facing continuing adversity (Newton-John, Mason & Hunt, 2014).

Approach-based coping response- approach-based coping involves logical analysis, positive reappraisal, seeking guidance and support, and problem solving

being. It is similar to definitions of resiliency proposed by various researchers (Tran et al., 2013).

Avoidance-based coping response- attempting to either avoid thinking about the stressor or control the associated affect, and includes cognitive avoidance, acceptance or resignation, seeking alternative rewards & emotional discharge (Moos, 1990).

Chapter II. Literature Review

In a recent national epidemiologic survey, the lifetime prevalence rate of full and sub-threshold PTSD were found to be approximately 6.4%. (Pietrzak, Goldstein, Southwick, Grant, 2011). In the study, women endorsed higher rates of PTSD symptomology than men with women who were unmarried due to (divorce, death of spouse etc.) citing even higher rates (Pietrzak et al., 2011). These findings were similar to an earlier survey on National Comorbidity where researchers found that approximately 7.8% of adults have a lifetime prevalence rate of PTSD with rates also being higher among women than men (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995). Interestingly, researchers also found that 1/3 of the PTSD sample still suffered from PTSD symptomology even years after the traumatic event when they did not receive treatment for the disorder (Kessler et al., 1995). Furthermore, 70% of adults in the United States have experienced some type of traumatic event which equates to 223.4 million people with up to 20% eventually developing full PTSD which equates to 44.7 million people (PTSD Statistics. (2014). Retrieved from http://www.ptsdunited.org/ptsd-statistics-2/). The pervasive effects of PTSD are rampant in our society today with millions of people being affected by the ramifications of this disorder. Posttraumatic stress disorder (PTSD) is an anxiety disorder which is based on the development of a pattern of characteristic symptoms following exposure to a traumatic event (e.g. combat, sexual assault, natural disaster, and urban violence) (Ouimette & Brown, 2003). PTSD differs from other disorders due to the etiological factors being in direct connection with a distinct traumatic event (Breslau, 2004). Due to the type of traumatic event being the etiological factor in this diagnostic category makes

this disorder highly controversial in the literature as researchers continue to debate not only the etiology but the efficacy of this disorder. In fact, no other diagnostic category has undergone so many revisions than PTSD. This traumatic syndrome began its development as a “gross stress reaction in the original *DSM I* which defined this as trauma severe enough to reach a breaking point" (Rosenbaum, 2004, p. 344). Subsequently, the more current definition of PTSD began with the revision of the diagnostic category in the *DSM III* in 1980 (Rosenbaum, 1980). However, the idea that there is a traumatic syndrome that afflicts individuals, especially those who were involved in war, has been around for thousands of years prior to the development of any diagnostic manuals.

History of PTSD

A century before PTSD began to be recognized in the diagnostic manuals, physical and behavioral symptoms of the disorder had been widely cited (Rosenbaum, 2003). For instance, many of the classical plays and even the Bible describe similar characteristics of what we now know of as PTSD. For example, classical plays like the Illiad & Odyssey described PTSD-like symptomology that is akin to the modern definition of the disorder (Nash et al., 2009). In Biblical times the story Jacob after the death of his son Joseph chronicles symptoms that mirror the modern day construct of PTSD (Birbaum, 2007). Throughout history scientists, doctors and philosophical thinkers have been trying to understand the phenomenon of PTSD. Even Hippocrates, who is considered the father of modern medicine, declared that “madness, like epilepsy, could be caused by a diseased brain” (as cited in Nash et al., 2009, p.790). It is apparent that the father of modern medicine was close to discovering the truth about

PTSD. His description appears to be so simple, yet it fully encompasses what researchers are finding out in their discovery of the brain in PTSD through neuroimaging. At some points in history PTSD was thought of as a supernatural phenomenon until the "Age of Enlightenment" when the scientific method was beginning to be utilized in an effort to understand supernatural behavior (Nash et al., 2009). By the time of the American Civil War diagnostic labels were starting to be used such as "soldier's heart," "irritable heart," and "sunstroke" which began the more medical conceptualization of the disorder (Nash et al., 2009, p. 790; Andreason, 2010). A more recent study looked at archival medical record data of Civil War veterans to analyze possible symptoms that resulted from wartime exposure. This study found the veterans who had a greater exposure to death of comrades, or younger exposure to war trauma also experienced an increase in cardiac, gastrointestinal and nervous disease (Pizarro, Silver, & Prause, 2006). Although, medical professionals did not understand it at the time, they were more than likely looking at cases of PTSD. By World War I the term "shell shock" was being used to describe the effects of trauma on soldiers returning from the war (Rosenbaum, 2004). This was believed to be caused by damage to the brain from effects of wartime artillery (Nash et al., 2009). However, because no brain damage was ever discovered in veterans from various countries skepticism grew that this was a physical condition caused by a brain injury. By 1916, leading psychiatrists and neurologists from Austria and Germany gathered to settle the debate over the physical versus psychological origin of the "nervenshock", or "shell shock" crisis (Nash et al., 2009). The scientists settled the debate by voting that persistent distress or functional impairment following

exposure to a traumatic stressor could only occur in an individual with “hysteria,” a pre-existing personality weakness (Nash et al., 2009, p. 791) which indicates how the disorder has always and remains to be so stigmatizing.

Finally, a book called, *The Traumatic Neuroses of War* was published in 1941 that appeared to influence the current diagnosis of what we now know of as PTSD. Adam Kardiner wrote this book about his observations of World War I veterans. Kardiner describes his observations of soldiers in his book by giving multiple case examples. In one case, Kardiner describes a soldier as suffering from depression, irritability, tremors, sensitivity to noise, inability to return to work, periods of aggressiveness, vertigo, social phobias, nightmares, and intense recollections of war (Kardiner, 1941, p. 10-11). At this point, people began to view this as a trauma resulting from wartime experiences. As a result, World War II psychiatrists from around the world were brought together and reached an agreement to develop a unified manual of mental disorders known as the *Diagnostic and Statistical Manual of Mental Disorders* (Andreason, 2010; Nash et al., 2009). Consequently, the diagnosis of “gross stress reaction” was introduced as a stress syndrome that was defined as a "response to an exceptional physical or mental stress, such as a natural catastrophe or battle; that it occurred in people who are otherwise normal; and it must subside in days to weeks, and it if persists, another diagnosis should be made" (Andreason, 2010, p. 3). Throughout multiple DSM manuals over the years the diagnosis of what is now known as PTSD has been revised in every manual since the original *DSM* manual was published. This disorder remains controversial due to varying views regarding the diagnostic criterion. It is staggering that so many people have been afflicted with this

disorder over the centuries, yet research is still lagging behind on how to effectively diagnose and treat this disorder.

Diagnosis of PTSD in the DSM

The evolution of this disorder, and the symptomology associated with PTSD, has changed dramatically over time, and even now is the subject of much controversy. The diagnosis first appeared in the *DSM I* under the name "Gross Stress Reaction," however, it was omitted in the next edition of the *DSM II* in 1968, after a long period of relative military peace (Andreason, 2010, p. 67). However, upon the return of war veterans from the Vietnam War psychologists and neurologists began to see a return of wartime pathology. This new focus was addressed in the third revision of the manual, the DSM-III (APA, 1980). The inclusion of the PTSD diagnosis in the *DSM-III* was a result of a great deal of controversy, and was opposed by the Veteran's Administration who did not want to admit that veterans' pathology had a wartime link. (Van der Kolk & Najavits, 2013). The new diagnostic category was given the name of Posttraumatic Stress Disorder, which was based on the recognition that individuals vary in resilience and vulnerability (Andreason, 2010, p. 5). Specifically, the authors of the *DSM-III* (APA, 1980), stipulated that a circumscribed set of stressors uniquely possessed the capacity to produce the symptomatic profile of PTSD, and this included the critical distinction that stressors were associated with events that fell outside the boundary of ordinary human experience and produced distress to almost anyone (McNally, 2009, p.597). This link to specific traumatic events established the foundation of PTSD that certain types of traumatic events or stressors such as rape, sexual abuse and surviving a natural disaster must be present in for the actual diagnosis of PTSD. This also reflected a

significant shift in the *DSM-III* a shift toward a normalization model. This shift was an attempt to reduce the stigma associated with having the disorder (Nash et. al., 2009).

Subsequently, in the *DSM-IV-TR* (APA, 2000) a revision of the Criterion A was broadened to include vicarious exposure, and indirect exposure to trauma. For example, one may see a traumatic event on television; this was considered an indirect exposure. In addition, a new category was added to the PTSD stressor criterion. This category was based more on the subjective experience of the individual not just the event that had occurred (McNally, 2009). The new Criterion A2 stated that individuals must have experienced helplessness, extreme fear, or horror as a result of the event occurring (APA, 2000). In order to meet the diagnostic criteria in the *DSM-IV-TR* (APA, 2000) the person must have experienced both parts of Criterion A in order to have met the diagnostic criteria for PTSD. The subjective nature of the A2 criterion category has been highly controversial since its introduction to the *DSM* nomenclature (Peredo & Forero, 2012; Verlinden et al., 2013). This criticism is linked to research that suggests that the individuals may experience PTSD without experiencing the full A2 and A1 criterion outlined in the *DSM-IV-TR*. Specifically, several studies demonstrated that individuals did not have to experience the phenomenon of fear, helplessness, or horror in response to an A1 Criterion traumatic life event in order to have a diagnosis of full PTSD (Kubany et al., 2010; McNally, 2009; Pereda & Forero, 2012)This research proved to be highly effective in the controversy stemming around the A2 Criterion because is subsequently led to its removal from the most recent revision of the manual, the *DSM-5* (APA, 2013).

In the most current revision of the *DSM-5* (APA, 2013) manual, the APA workgroup for the *DSM-5*, determined that exposure to a traumatic incident would be included as the stressor criterion, but the various types of traumatic events were to be changed (Calhoun et al., 2012). This modification focused on including more than one event and excluding some of the stressor events that were used in the *DSM-IV* such as an unexpected death (Kilpatrick et al., 2013). Furthermore a new Criterion C was added, this criterion was composed of active avoidance symptoms such as thoughts, feelings and external reminders of the trauma that were previously part of a broader Criterion C in the *DSM-IV* (APA, 2013; Kilpatrick et al., 2013). There were also new Criterion sections added. The new Criterion section D was added in order to address negative cognition and mood issues linked to the trauma (Kilpatrick et al., 2013). Also, a new "Criterion E was added to address issues with arousal and reactivity associated with the traumatic event that includes new symptoms (reckless or self-destructive behavior)" (Kilpatrick et al., 2013, p. 538). With these revisions came a great deal of controversy that broadening the definition would lead to what researchers call a "conceptual bracket creep" (McNally, 2009) with nearly everyone in America calling themselves a trauma survivor thereby, vastly increasing the prevalence of PTSD (McNally, 2009; Calhoun et al., 2012). However, current national estimates of PTSD prevalence using the *DSM –IV* and *DSM-5* criteria have demonstrated that all 6 *DSM-5* prevalence estimates were slightly lower than the *DSM-IV-TR* (Kilpatrick et al., 2013). One of the major reasons individuals met *DSM-IV* criteria and not the criteria for the *DSM-5* was the elimination of non-accidental, non-violent deaths from Criterion

A as well as having to endorse 1 avoidance symptom in Criterion C (Kilpatrick et al., 2013)

PTSD requires exposure to a stressor event before determining any other symptomology in the other areas of the diagnostic category. Therefore, if an individual is experiencing symptoms but they do not meet the event criterion based on the trauma definition there will not be a viable diagnosis of PTSD. In addition, multiple versions of the *DSM* have delineated the type of stressor that qualifies an individual to have a viable diagnosis of the disorder in the Stressor Criterion or Criterion a portion of the diagnostic category. This is the main controversy that has fueled not only the debate over this diagnosis, but also the multiple revisions to the diagnostic criteria for PTSD. The reason for this controversy is not only based on diagnostic concerns, but also the pervasive effects the disorder has on the individual and on our society. The newest revision of the *DSM-5* does not factor in predisposition factors or vulnerabilities to the disorder or the potential impact of stressful life events. Moreover, the diagnostic assessment process has not adequately considered that there may be individuals suffering emotional and psychological ramifications of life events who do not meet the full diagnostic criteria. These individuals may experience sub-threshold PTSD symptomology as classified in the Criterion a portion of the (*DSM-5*) diagnostic category. There have been multiple studies that have addressed these two concerns, the studies have suggested that individuals may experience PTSD symptoms, often very significant symptom presentation, but this coincides with stressful life events not traumatic life events as outlined in the diagnostic criteria. Furthermore, the studies have also suggested that many individuals suffer significant psychological issues even when

experiencing what is classified as sub-threshold symptomology for PTSD (see Dickstein et al., 2013; Gold & Robinson, 2010; Hockemeyer et al., 2009; Jakupcak et al., 2011; Koenen et al., 2007; Koenen et al., 2010; Lima et al., 2014; Mol et al., 2005 Smyth et al., 2008). All of these issues are highly relevant for counselors when considering the assessment and treatment of PTSD related symptoms .These include the factors that may lead to higher levels of vulnerability to PTSD, the impact of stressful life events and the impact of sub-threshold symptoms.

The newest revision of the *DSM-5* does not factor in predisposition factors, nor does it contain diagnostic criteria for sub-threshold PTSD which is when a person does meet the full criteria for PTSD, but is experiencing some symptoms of PTSD. Several studies of the general population, suffer from a myriad of symptoms of PTSD disorder (Marshall, 2001, Breslau et al., 2004, Stein et al., 1997) without meeting the full criteria. Furthermore, these individuals often experience a high range of comorbid symptomology that is severe. Thus, there continues to be issues with the *DSM-5* revision is the stressor A criterion which does not include events that may elicit these symptoms that is not death, threatened death, actual or serious injury, or actual or threatened sexual violence (APA, 2013). Even with recent research demonstrating the impact of stressful life events that are not included in the criteria contributing to PTSD symptomology in the newest revision of the *DSM-5* ((Mol et al., 2005; Gold et al., 2005; Smyth et al., 2008, Hockemeyer et al., 2009).

Symptoms of PTSD

PTSD affects approximately 7.7 million American adults in a given year, though the disorder can develop at any age including childhood (PTSD Statistics. (2014). Retrieved

from http://www.ptsdunited.org/ptsd-statistics-2/).Symptoms include strong and unwanted memories of the event, bad dreams, emotional numbness, intense guilt or worry, angry outbursts, feeling “on edge,” and avoiding thoughts and situations that are reminders of the trauma (PTSD Statistics. (2014). Retrieved from http://www.ptsdunited.org/ptsd-statistics-2/).

These symptoms can be debilitating to the individual, family and workplace whether the individual is experiences a partial or full diagnosis of PTSD. PTSD is a pervasive disorder that causes severe pain and suffering for the individual and family system of the person affected. Furthermore, the economic costs of PTSD can staggering for society. The total cost for brain disorders in the European Union in 2010 was 798 billion dollars with 7.7 million dollars being spent on PTSD alone (Olesen, Gustavsson, Svensson, Wittchen & Jonsson, 2012). In the United States alone, the annual cost of treating anxiety disorders is 42.3 billion dollars annually with PTSD having the highest rates of healthcare service use? (PTSD Statistics. (2014). Retrieved from http://www.ptsdunited.org/ptsd-statistics-2/). PTSD alone is estimated to cost the United States 3 billion dollars a year in productivity (Koenen et al., 2010).

PTSD has primarily been viewed as a response to severe trauma, but everyone experiencing trauma does not in fact develop PTSD. The precursors to the development of PTSD are currently unknown with many studies pointing to previous stressful or adverse life events, prior to the identified traumatic event, increasing one's vulnerability to the disorder (Koenen, 2010). Furthermore, studies are demonstrating that vulnerability to PTSD may have a genetic variable. A higher pattern of PTSD has been shown in children of trauma-exposed Holocaust survivors and survivors of 911 in New

York (Yehuda, Halligan & Bierer, 2001; Yehuda et al., 2005). Studies like these suggest that genetics and early environment may play a role in one's vulnerability to PTSD. In addition, several research studies have demonstrated that early childhood factors may be associated with the development of PTSD (Koenen et al., 2007, Koenen, 2010; Lima et al., 2014). Koenen's, (2007) longitudinal study suggested that children raised in poverty had more than two and half times the risk of developing PTSD by the time they were 32 when exposed to a traumatic event compared to children who were from other socioeconomic backgrounds. Furthermore, the results of the study showed that children, who moved more than two times, were raised with a mother who suffered from depression, or had parental changes before the age of eleven increased their risk for PTSD two-fold (Koenen, 2007). These risk factors have never been considered in the stressor criterion in any of the revisions of the *DSM*, however, research shows that these factors put children at a much greater risk of developing PTSD if they experience a trauma (Koenen, 2007). These risk factors are critical when risk of exposure to a traumatic event is considered. The likelihood that a child will experience at least one trauma in their life is high. In fact, twenty-five percent of children in the United States will witness or experience a traumatic event before they even turn sixteen (Retrieved from http://www.nctsn.org/resources/audiences/school-personnel/trauma-toolkit). Therefore, the fact that so many children will experience at least one traumatic event in their life makes it important to look at early childhood factors as a predisposition to the development of PTSD. Furthermore, individuals who have a history of trauma seldom suffer from just one traumatic event (Kessler, 2000). At this point, the stressor criterion in the DSM-5 does not consider early childhood factors as a possible trigger of

symptomology, therefore a diagnosis can be hard to attain without being able to factor in the influence of pre-existing conditions. Koenen, (2010) has suggested that PTSD may be caused by preexisting conditions prior to the traumatic event. In the 2007 study, researchers were able to identify two sets of risk factors which included external characteristics such as temperament, antisocial behavior as well as environmental factors (Koenen et al., 2007). The main stressors that were linked with an increase in PTSD and trauma exposure were maternal distress and loss of a parent (Koenen et al., 2007). This study further indicated that there were other risk factors as well such as a low IQ and socioeconomic status with the development of PTSD only. Low IQ at age 5, antisocial behavior, and poverty before age 11 continued to predict PTSD related to traumatic events that occurred between the ages of 26 and 32 (Koenen et al., 2007). Conversely, protective factors against developing PTSD have also been found. For example, just the perception of having non-controlling mothers and caring fathers, during childhood and adolescence, appeared to be protective against the development of PTSD following exposure to severe urban violence in adulthood (Lima et al., 2014).

Until recently the primary populations that have been studied related to PTSD have focused on adult women and veterans. These two populations have long been the primary focus of researchers based on the fact that these two populations experience a high rate of PTSD symptomology (Foa, 2006; Nash et al., 2009; Sharansky et al., 2000; Valdez & Lilly, 2014). Research continues to demonstrate that women experience a higher rate of PTSD than men. In fact, extant literature has shown that women are twice as likely as men to develop posttraumatic stress disorder (PTSD), even though more men are exposed to potentially traumatic events (Foa, 2006, p. 34). In a study that

examined the gender differences in trauma exposure and PTSD in prison population's researchers found that that 40.2% of the females had PTSD versus 12.5% of the men (Komarovskaya, Loper, Warren & Jackson, 2011). In the study men witnessed more trauma than women, but women were more often victims of interpersonal trauma (Komarovskaya et al., 2011). In a more recent study on gender differences among National Guard members, women suffered more symptoms of PTSD and had a higher rate of sub-threshold PTSD than men after deployment citing sexual stressors as the main stressor (Polusny et al., 2014). These findings are similar to other research findings that women endorse higher rates of sexual violence throughout their life (Coid et al., 2001; Komarovskaya et al., 2011).

Expanding upon this Valdez & Lilly, (2014, p. 38) examined the gender gap in PTSD and found evidence for sex differences in four types of traumatic events: more males than females reported being threatened or beaten by a stranger, whereas more females reported witnessing family violence of being stalked. Furthermore, trauma that is intentional is more disturbing to females than males and masculine gender types were also more resilient to trauma exposure (Valdez & Lilly, 2014). These and other studies suggest there are inherent reasons why women may be more predisposed to develop symptoms of PTSD than men despite them being exposed to a lesser number of traumatic events (Komarovskaya et al., 2011; Polusny et al., 2014) . Valdez and Lilly's research goes on to suggest that further research is needed to explain whether there is some type of cognitive or emotional coping factor that may have some sort of protective effect (Valdez & Lilly, 2014). These studies suggest that women experience a higher rate of PTSD symptomology than men (Komarovskaya et al., 2011; Polusny

et al., 2014). Additionally, studies have implied that there are predisposing factors which may influence one's vulnerability to develop PTSD (Koenen et al., 2007; Koenen, 2010). However, factors have also emerged that may elicit a protective effect on the development of PTSD such as masculine gender types (Valdez & Lilly, 2014).

Research also continually demonstrates that veteran's returning from war-involved areas of the world experience a high rate of PTSD. Not only has PTSD been studied extensively in women, but even more so within the population of veterans. When one hears the word veteran people unconsciously link the term PTSD to this population of individuals. The ramifications of PTSD became more widely studied after the Vietnam War when veterans returned with a host of symptoms that became a pervasive public health concern. More recently, the wars in Iraq and Afghanistan have brought the issue of PTSD to the forefront of research as the suicide rate for the military has increased at an exponential rate. A more recent study determined the suicide rates for all branches of the service increased from 2005-2007 (Hyman, Ireland, Frost & Cottrell, 2012). Estimates of PTSD rates related to these wars range from 8% to over 20%, or 192,000 to 480,000 individuals (Hoge, Auchterlonie, Millikin, 2006). It is due to the pervasiveness of PTSD within this population that the disorder has been so widely studied. However, PTSD does not only affect women and veterans in our society, but is a disorder than can affect anyone who experiences either trauma or stressful life experiences.

PTSD is a pervasive issue for our society which affects a wide range of individuals in the general population. When PTSD is not effectively diagnosed and treated comorbid issues occur that flood our healthcare and economic systems. Furthermore,

the stringent criteria of the *DSM* rules out stressful life events like divorce, job loss and financial issues as possible Criterion an events which eliminates several individuals from ever getting a valid diagnosis because someone is defining their traumatic experience for them. Even when a traumatic event occurs, and criterion A is met, often people do not have enough symptoms of the disorder to get a diagnosis.

The Impact of Stressful Life Events on PTSD Symptomology

Many studies have begun to examine the idea that stressful life events can cause multiple symptoms of PTSD, or even a full diagnosis of PTSD. From a diagnostic perspective these types of stressful life events do not meet the diagnostic criterion in category A for PTSD. Criterion A states that the individual must be exposed to actual or perceived death, actual or perceived sexual abuse, and actual or perceived physical harm (APA, 2013). Researchers have begun to question the notion that only these types of events can cause symptoms of PTSD with numerous studies being published on the pervasive effects of stressful life events on individuals in specific and general population samples. One of the most groundbreaking studies in the current literature is the Mol et al., (2005) study which is cited over 111 times in the literature. Mol et al., (2005) found that people from the general population whose worst event was a life event, such as chronic illness, marital discord or unemployment, had on average more PTSD symptoms from this type of event than people whose worst event is traumatic such as an accident or natural disaster. This study has been replicated and extended in various populations up through present day to determine if the culmination of stressful life events can in fact cause sub-threshold and full PTSD symptomology (Gold et al., 2005; Mol et al., 2005; Robinson & Larson, 2010; Smyth et al., 2008).

Stressful life events are those events that we as a society take for granted as normal life events that many individuals experience over the course of their lives. The majority of the population do not understand how stressful life events could cause symptoms of PTSD. Stressful life events are not a concretely defined classification of events. However, within the field of psychology, there has been enough research on this subject to develop multiple surveys which are designed to assess the impact of perceived stressful life events. For example, many researchers use the Life Events Survey to determine the impact of stressful life events. This measure is used in multiple studies. For instance, (Robinson & Larson, 2010) used the Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) in their study of college undergraduates to examine this phenomenon. The Life events survey uses examples of stressful life events such as the unexpected death of a loved one, relational stress, problems with school/work, serious illness in the family and legal problems as just a few of the indicators of significant stressful events in the participants' lives. While (Mulder, Ferguson & Horwood, 2013) designed their own measure based on stressful life events which included things such as: a major relationship break-up; major financial problems and serious problems at work or with employment; having a serious or chronic (non-life-threatening) illness; serious problems with studies or education; and other similar or related events nominated by participants. These and other studies have used surveys as well as designed surveys that include many of the same stressors such as loss of job, financial issues, academic struggles and relationship problems (Robinson & Larson, 2010; Mulder et al., 2013; Smyth et al., 2008; Liu et al, 2014; Mol et al., 2005; Gold et

al., 2005). Based on this research stressful life events are defined as events that cause distress, but do not meet the Criterion A for the PTSD diagnosis is the *DSM-5* nosology.

Therefore, there is paucity in the research on the impact of stressful life events on sub-threshold and full PTSD indicators because they are not considered in the criteria of the DSM. However, preliminary studies that have been conducted on the effects of the culmination of stressful life events have been very significant. Several of these studies demonstrate the importance of not underestimating the impact of stressful life events (Mol et al., 2005, Gold, et al., 2004; Robinson & Larson, 2010; Smyth et al., 2008; Mulder, Ferguson & Horwood, 2013; Liu et al., 2014).

For instance, the results of the Robinson & Larson (2010) study found that stressful life events contributed more to symptoms of PTSD than participants who experienced a significant trauma when they sampled over 1000 students in a college population. In the Robinson & Larson (2010) study, researchers accounted for previous trauma by delineating groups into three categories: those who had suffered a trauma over the past year, those that had only suffered a stressful event over the past year and those who had experienced a combination of both a stressful event and a trauma over the past year. This controlled for previous trauma being a factor in the participant's perception of the stressful event which was an extension of previous studies in the literature (Gold et al., 2005; Mol et al., 2005 additionally, (Mulder et al., 2013) conducted a 30 year longitudinal study with a general population sample of 987 participants. The participants in this study were interviewed at various points throughout their lives to determine predictors of PTSD symptomology as well as whether or not PTSD symptoms were specific to traumatic life events. Of the 987 individuals in the sample study, 929 (94.1%)

reported experiencing at least one stressful life event before age 30 with 51% experiencing a criterion B symptom (re-experiencing) of PTSD, 45% experiencing a criterion C symptom (avoidance and numbing) and 50% experiencing 1 criterion D symptom (increased arousal) with only 38% of the sample having no symptoms of PTSD (Mulder et al., 2013, p. 574). The study found strong associations between exposure to both traumatic and stressful life events in relationship to the development of Gold et al. (2005) reported similar results in an earlier study with a sample of 800 undergraduate students. The participants were divided into two groups based on whether or not their traumatic event met the stressor criterion or not. The results showed that individuals who experienced a stressful life event and greater distress had greater symptoms of PTSD that someone who experienced a trauma as defined by the DSM-IV stressor criterion (Gold et al., 2005). One interesting aspect of this study was the large number of participants that indicated the loss of a loved one or illness as the trigger for their PTSD symptomology. The loss of a loved one is not included in the DSM-5 stressor criterion unless it is a close relative or close friend who died expectantly or traumatically. The *DSM-5* does not account for PTSD symptomology from the loss of a loved one, or a long-term illness that may be suffered by an individual such as cancer. Though, previous research has cited that individuals experience symptoms of PTSD just from losing a loved one whether it was expected or not. In fact, many studies have determined that at the very least bereavement, and long term illness of a loved one should be included in the *DSM* criteria for PTSD (Ziksook et al., 1998; Gold et al., 2005; Mol et al., 2005). Researchers did take these studies into account including

bereavement in the new diagnostic criteria of the *DSM 5*, but only if the death was violent or accidental (APA, 2013).

Multiple studies have replicated the Gold et al., (2005) study. Those studies have shown that people experiencing an event that does not meet the Criterion A for PTSD are exhibiting symptoms of PTSD. For example, Cameron, Palm & Collette, (2010) found that when participants were asked to report on PTSD symptoms related to the most upsetting event that has occurred in their lifetime, individuals who reportedly met the *DSM-IV* stressor criterion showed no difference than those participants who had experienced an event that did not meet the criteria for the *DSM-IV*. Furthermore, The Gold et al.,(2005) study was also similarly replicated in a study on the variations in Criterion A and PTSD rates a in large community sample of more than 800 women which continued to demonstrate the impact of non-criterion A1 events (stressful life events) still unrecognized in the *DSM- 5* manual (Anders, Frazier Frankfurt,2011).

These studies have ordinarily been conducted on general population samples. However, specific stressful events have also been studied with more specificity focusing on the comorbidity of sub-threshold and full PTSD with other issues such as bullying, and falls in the elderly.

The Impact of Stressful Life Events Within Specific Populations

Many studies have examined the impact of stressful life events on PTSD symptomology in the general population. Conversely, other studies have looked at more specific populations of individuals who may experience symptoms of full or sub-threshold PTSD due to the specific stressor they are currently experiencing such as: bullying in school, bullying in the workplace, childbirth, and trauma from falls in elder

populations (Idsoe, Dyregov & Idsoe, 2012; Ford & Ayers, 2009; Jayasinghe et al., 2014; Munoz, Moreno-Jimenez, Sanz Vergel, Hernandez, 2010). These studies have examined the impact of these types of stressful life events, specifically events that do not usually meet the stressor Criterion A for PTSD in the *DSM-5* (APA, 2013). These types of stressful life events may be treated by medical or psychological professionals, but are hardly thought of as trauma unless the issues are extreme such as life threatening or violent. Therefore, these types of clinical issues are rarely thought of as a precursor to PTSD symptomology. Thus, individuals who present for treatment with these issues may never get the relief from their symptomology because clinicians and medical professionals are not properly trained to understand the impact of these types of events (Idsoe et al., 2012). For example, (Idsoe et al., 2012) found that the exposure to bullying is a potential risk factor for PTSD symptomology among students. This in turn means that health and educational professionals should be checking for trauma related symptoms when bullying is identified as a factor for students. Additionally, training teachers to learn the how to identify symptoms of trauma should be paramount in order for students to get the correct evidence-based treatment for exposure to traumata (Idsoe et al., 2012). Currently, the *DSM-5* fails to include diagnostic criteria that allows for a more broadened definition of criterion A events that does not have to be connected to a perceived threat or injury. For example, bullying behaviors do not always suggest an imminent threat, but individuals still experience significant levels of PTSD. For another example, in a study on bullying in the workplace, researchers found that PTSD symptoms are common among victims of workplace bullying; almost half of the sample met all the *DSM* criteria for PTSD with the most frequent cluster of

symptoms centering on re-experiencing in the *DSM-IV* criteria (Munoz et al., 2010). Not only did researchers find a high rate of PTSD symptoms within the workplace but, they also determined that women suffered a higher incident rate of PTSD Symptoms.

Symptoms of PTSD are not only prevalent among victims of bullying, but in other populations as well. For example, Jayasinghe et al., (2014, p. 433) found a distinct pattern of behaviors, physical sensations, emotions and thoughts that accompany anxiety after a fall as well as avoidance of ambulation and emotional numbing, and vivid memories of the fall (re-experiencing), which are all symptoms of PTSD. However, at this present time many of these clients are not being treated with evidence-based approaches for these issues even though they are experiencing either sub-threshold or full PTSD. Jayasinghe et al., (2014) purports that exposure-based CBT is an effective treatment for PTSD symptomology within this population which is an evidence-based approach to treat trauma. Ford & Ayers, (2008) also found that childbirth can be traumatic enough to produce PTSD symptoms. Following childbirth, 16% of women may have anxiety disorders and 2% develop full PTSD with 30% having sub-threshold symptomology with studies showing the majority of women who develop PTSD had normal deliveries (Ayers, 1999; Soderquist, Wijma, & Wijma, 2002 as cited in Ford & Ayers, 2009). These studies continue to demonstrate the impact of perceived stressful life events like lack of support during childbirth, being a victim of bullying at school and in the workplace and falls in the elderly that manifest PTSD symptomology.

Additionally, it has been widely recognized that levels of PTSD and sub-threshold PTSD are high among college populations. New literature has begun to examine the stressors of modern college life, finding an unusually high occurrence of potentially

traumatic events (PTE's) (Galatzer_Levy, Burton & Bonanno, 2012, p. 543). In terms of commonplace stressors, college students routinely faces challenges such as changes in their environment, loss or diminishment of previous social support networks, new and increased academic pressures, need to create new peer relationships, and increases in personal responsibility in housing and money management (Vaez & LaFamme, 2008).

Furthermore, in a study that examined if students met the criteria for a *DSM-IV* diagnosis researchers found that 66% of college students met the criteria (Ouimette, White, Colder, & Farrow, 2011 as cited in Galatazer-Levy et al., 2012) with the highest level of traumatic events including life-threatening illness (35%) and the sudden death of a loved one (34%). Interestingly, illness and sudden death of a loved one are not included in the *DSM-5* criterion therefore, this study demonstrates how these types of stressful life events can cause sub-threshold and full PTSD symptomology.

Not only are particular stressful life events a contributing factor to PTSD symptomology, but several disorders have a high comorbidity rate with sub-threshold symptoms.

Comorbidity with PTSD symptomology

Other studies have demonstrated that many disorders are comorbid with PTSD or sub-threshold PTSD. These disorders may or may not include threatened or the perceived threat of death or abuse depending on the situation, however, the majority of the time health professionals do not assess these clients for PTSD symptomology. Multiple studies have shown that issues like eating disorders and non-suicidal self injurious behaviors have comorbid PTSD, and may have been caused by the culmination of stressful life events not even traumata (Lui et al., 2014). These studies

have specifically looked at stressor criterion areas that are not included in either the *DSM-IV-TR* or *DSM-5* (APA, 2013) diagnostic criteria for PTSD, but demonstrate full and sub-threshold symptomology. For example, Lui et al., (2014) found that a greater history of negative life events increased the likelihood that non-suicidal self injurious behaviors would take place even while controlling for gender and comorbid depression. Yet, another study found that the vast majority of women and men with anorexia nervosa, bulimia, and binge eating disorders reported a history of trauma with sub-threshold PTSD being more prevalent among women with bulimia and more prevalent in both men and women with binge eating issues (Mitchell, Mazzeo, Schlesinger, Brewerton, & Smith, 2011). It is vitally important for clinicians and health care professionals to be aware of the impact of these types of events in order to accurately assess and properly treat individuals. If sub-threshold and full PTSD have high comorbid rates with eating disorders, and non-suicidal self injurious behaviors, then evidence-based treatments to address PTSD symptomology are essential, and may even ameliorate symptoms of the presenting diagnosis. For example, researchers mention that adolescents who are more at risk to engage in NSSI behavior when experiencing a stressful life event may benefit from treatment strategies that involve treatment that increases adaptive coping responses (Liu et al, 2014).

Future research is paramount in order for researchers to understand the pervasive effects of stressful life events that do not meet the criterion for PTSD. Issues such as bullying in schools, bullying in the workplace, childbirth, falls in the elderly, eating disorders and non-suicidal self-injurious behaviors need to be understood as either causing symptoms of PTSD or having comorbidity with the presenting diagnosis (Idsoe,

Dyregov & Idsoe, 2012; Ford & Ayers, 2009; Jayasinghe et al., 2014; Liu et al., 2014; Munoz et al., 2010).

Recognizing the impact of stressful life events on symptoms of sub-threshold and full PTSD diagnoses will be important for future clinicians and health care professionals to be aware of not only in specific populations but in more general terms. Studies continue to support the evidence that there is no distinction between traumatic and non –traumatic negative events in causing PTSD symptoms (Mulder et al., 2013; Mol et al., 2005; Gold et al., 2005; Robinson & Larson, 2010). Researchers are suggesting that clinicians and other health care professionals need to learn to more accurately assess PTSD symptomology, whether or not the client meets the diagnostic criterion for PTSD. This should include symptomology and assessment of stressful events over the lifespan that could contribute to either sub-threshold or full PTSD. The pervasive effects of sub-threshold PTSD have been proved to be extremely debilitating for individuals who suffer from these symptoms, and have a high comorbidity rate with multiple disorders such as anxiety, depression and suicidal behaviors.

Sub-threshold PTSD

Sub-threshold posttraumatic stress disorder has been defined as a subset of symptoms from the PTSD disorder that does not meet the full criteria for PTSD in the *DSM-5* (APA, 2013). These symptoms often cause the same amount of distress for the individual, or more stress than a diagnosis of PTSD. For example, one recent study Jakupcak et al., 2011) found that Iraq and Afghanistan war veterans with sub-threshold PTSD had much higher levels of anger and hostility when compared to the non-PTSD group. In another study on veteran's researchers found that the sub-threshold group

was more likely to suffer from comorbid disorders such as depression, anxiety disorders, panic disorders and an increase in their risk for suicidal behaviors (Grubaugh et al., 2005).

The research articles that are published on sub-threshold PTSD have different definitions for the disorder as well as different criteria by which the authors define the disorder (Marshall, 2001, Breslau et al., 2004, Stein et al., 1997). These disparities have served to make it more challenging to understand and investigate the impact of sub-threshold symptoms of PTSD (Cukor, Wyka, Jayasinghe & Difede, 2010). Sub-threshold has been called subsyndromal PTSD and partial PTSD in various research articles throughout the past 15 years (Breslau, 2004; Jeon et al., 2007; Muller et al., 2014). In more recent years, authors appear to be using the term sub-threshold more frequently in order to define PTSD. This study is using the term sub-threshold in order to define the syndrome. In an early study by Stein et al., (1997) the authors used the definition of partial PTSD to describe clients as having at least 1 symptom in each of the PTSD criterion groups (re-experiencing, avoidance and numbing, and increased arousal for the duration of at least one month with impairment in occupational, social and home functioning) as cited in Breslau, Lucia & Davis, (2004). Other researchers define it as suffering from symptoms in the re-experiencing cluster, but having symptoms in either the hyper arousal or avoidance clusters (Blanchard et al., 1996, Kilpatrick & Resnick, 1993). The confusion on not only the nomenclature of this syndrome, but also the symptoms that make up the disorder has caused a lack of agreement surrounding what makes up the sub-threshold symptomology. One thing that is agreed upon is that sub-threshold PTSD, also referred to as subsyndromal PTSD and partial PTSD, refers to the

"presence of symptoms of posttraumatic stress disorder (PTSD), but with too few symptoms to meet the full diagnostic criteria for PTSD in the DSM" (Cukor et al., 2010, p. 218). More importantly, studies to date have found that sub-threshold PTSD, although it is defined in several different ways, is about as common as full PTSD and is associated with a great deal of impairment (Marshall et al., 2006).

Marshall et al., (2001) was one of the first researchers to examine the role of comorbidity in sub-threshold PTSD and the relative contribution of sub-threshold PTSD symptoms to overall impairment related to a comorbid diagnosis. Their study suggested that comorbidity is common and it is imperative to understand because sub-threshold symptoms were found to be associated with greater impairment and greater suicidal ideation (Marshall et al., 2001). Breslau et al., (2004) set out to determine whether or not partial PTSD differs from a full diagnosis of PTSD, and whether or not there is a set criteria to define and diagnose sub-threshold PTSD. This study used a large community sample to ascertain the differences between full and partial PTSD. The authors report that understanding the relationship between PTSD and partial PTSD has important implications because the size of the group that endorsed symptoms of partial PTSD was more than twice the size of the full PTSD group (Breslau et al., 2004). This study was not able to determine whether or not partial PTSD should attain its own diagnostic criteria within the DSM, but the study did discover that there are major differences between partial and full PTSD with the partial PTSD group suffering from significant impairment.

Due to the severity of the impairment for individuals who are suffering from sub-threshold PTSD it is imperative that clinicians, physicians and other healthcare related

workers begin to assess clients for sub-threshold PTSD in order to treat the problem. If clinicians are unable to accurately diagnose sub-threshold PTSD, and those individuals do not receive the services they need just because they do not meet the diagnostic criteria the ramifications could be devastating. For example, Jakupcak et al., (2011) found that Iraq and Afghanistan war veterans with sub-threshold PTSD endorse high levels of aggression and hostility as symptoms they are suffering from. Other studies have also confirmed the high risk of suicidality in sub-threshold populations see Marshall et al., (2001). In other research authors have indicated that the comorbidity factors associated with sub-threshold PTSD cannot be ignored (Pietrzak, Goldstein, Southwick & Grant, 2012).). Researchers' state there is empirical evidence that partial PTSD, and even a single PTSD symptom, can be associated with a wide array of comorbid disorders almost as large as for full PTSD (Pietrzak et al., 2012). These and other studies suggest that understanding the pervasive effects of sub-threshold PTSD warrants further investigation. (Cukor et al., 2009; Jakupcak et al., 2007; Marshall et al., 2001 As a result of the pervasive effects of sub-threshold PTSD researchers are beginning to examine what types of evidence-based treatments may help to ameliorate symptoms (Dickstein, Walter, Schumm & Chard, 2013; Jayashinge et al., 2014).

Treatment of Sub-threshold PTSD

Some researchers have already begun to treat sub-threshold PTSD with evidence-based treatments recommended for clients who suffer from a diagnosis of full PTSD. For example, Dickstein et al., (2013) treated military veterans who suffered from sub-threshold PTSD with cognitive processing therapy. Cognitive Processing Therapy (CPT) is an evidence-based treatment for trauma. Dickstein et al., (2013) found that

overall, veterans' self-reported PTSD symptomology decreased significantly over time which suggests that CPT is an effective treatment for sub-threshold PTSD. Therefore, this study indicates that evidence-based therapies such as CPT can be effective in treating sub-threshold PTSD. Additionally, Eye Movement Desensitization and Reprocessing Therapy (EMDR), which is an evidence-based treatment for PTSD, has proven to be effective in treating sub-threshold PTSD. One study used heart rate variability, which can be used to measure trauma, as well as other assessments on four patients who were suffering from sub-threshold PTSD or small "t" traumas as the authors defined it. The four patients in this study underwent EMDR therapy with their heart rate variability being measured at baseline and then at multiple points afterwards which showed that symptom scores decreased between the baseline measures and end of treatment with improvements being maintained at follow-up (Frustaci, Lanza, Fernandez, Giannantonio & Pozzi, 2010). These evidence-based treatments for PTSD have been effective in treating sub-threshold PTSD within veteran and community samples (Dickstein et al., 2013, Frustaci et al., 2010, Jayasinghe et al., 2014)

Therefore, sub-threshold PTSD has been proven to be a disorder that should be diagnostically considered. Furthermore, it has proven to be a treatable disorder that responds very well to evidence-based treatments for full PTSD. The categorical indicators for sub-threshold PTSD may be more unimportant than the individual symptomology experienced by the individual. Sub-threshold PTSD is a prevalent disorder and may be even more prevalent in some studies than PTSD. Some studies suggest there is a lifetime prevalence of sub-threshold PTSD somewhere between 6.6%

and 9.8% in US adults (Schnurr, 2014) in comparison with average rates of PTSD being between 6% and 8% (Kessler et al., 1995; Pietrzak et al., 2011).

Several studies have also indicated that stressful life events can cause sub-threshold PTSD as well as full criteria PTSD (Mol et al., 2005; Gold et al., 2005; Smyth et al., 2008, Hockemeyer et. al., 2009). These studies indicate that individuals may experience stressful life events such as divorce and job loss that can cause sub-threshold PTSD. With the preceding research demonstrating the comorbidity of sub-threshold PTSD with mental health disorders, suicidality and impaired functioning it is essential that further research be conducted in order to explore this pervasive issue within our society The research is clear that stressful life events contribute to PTSD and sub-threshold PTSD, and that effective identification of these events and symptomology need to be determined by clinicians in order to more effectively treat the issues. Additionally, there are certain types of coping responses that have been found to help ameliorate PTSD symptomology. Therefore, it is not only evidence-based treatments for trauma that need to be utilized, but the increasing of adaptive coping response styles that could be fostered with the cognitive-behavioral therapy. One such area is the consideration of coping, both in the process of treatment and in relation to the variables that may make some individuals more vulnerable to PTSD or more resilient (Lui et al., 2014). Then evidence-based treatments for PTSD and the adaptation of certain coping could be used to address symptomology

Coping Response

The mechanisms that help individuals from developing PTSD are not fully understood at this time, but "resilience to PTSD could be increased by various types of

coping mechanisms such as social support, coping confidence and the psychological framework of an individual" (Lukaschek et al., 2013, p. 532). Coping consists of cognitive and behavioral efforts which help to manage specific external and/or internal demands that are appraised as taxing or as exceeding the resources of an individual (Folkman & Lazurus, 1980, p. 211). Various coping mechanisms have been found to protect individuals from the development of PTSD symptomology, thereby, increasing a level of resiliency when exposed to traumatic events. These include coping mechanisms such as adaptive Coping mechanisms. Adaptive coping mechanisms are often defined as problem-focused or approach-based in the literature and are used to demonstrate one's ability to effectively deal with a stressor directly (Moos, 1990). Approach-based coping is usually comprised of logical analysis, positive reappraisal, seeking guidance, support and problem solving (Moos, 1990). Maladaptive coping mechanisms such as avoidance-based or emotion-focused mechanisms are often used analogously as well, and are defined as an attempt to circumvent the stressor through various approaches (Sharansky et al., 2000). Avoidance-based coping is ordinarily comprised of cognitive avoidance, acceptance or resignation, seeking alternative rewards and emotional discharge (Moos, 1990). Avoidance coping or emotion-focused coping, as it is often called, appears to relate to one's vulnerability in the development of PTSD (Sharanksy et al., 2000).

Approach or problem-focused coping mechanisms appears to help individuals adapt or develop resiliency to the stressor (Moos, 1993; Sharansky et al., 2000). Approach-based coping contributes to the development of resiliency in that based on the comparison of logical analysis, positive reappraisal, seeking guidance and support, and

problem solving appear to be analogous to proposed definitions of resiliency from various researchers (Moos, 1993; Tran, Gluck, Luger-Shuster, 2013). Although, resilience is a term that has been widely researched, there is still not a strict agreement on the definition of the term (Tran et al., 2013). For example, resiliency can be defined as an "individual's ability to maintain stable equilibrium after the long term in spite of facing continuing adversity" (Newton-John, Mason & Hunt, 2014, p.360). Other researchers suggest that self-reliance and social support are key in the development of resilience (Reich, Zautra & Hill, 2010). Researchers often use the term resiliency in publications which are very similar to the definitions of approach-based coping. Lukaschek, (2013) reported that resiliency to PTSD could be increased by social support, coping confidence and psychological framework, For example, In a study on Gulf War veterans data suggests that soldiers who actively attempt to cope with combat-related stress during a war by analyzing and making efforts to solve a problem, seeking guidance and support from others, and positively reappraising the situation fared better initially and in the long run than those who coped by avoiding thinking about the situation, getting involved with distracting activities, letting off emotional steam, or resigning themselves to the situation (Sharansky et al., 2000). Additionally, Brailey et al's., (2007) findings on US soldiers after deployment, suggest that the association of stressful life events with PTSD symptoms decreases as unit cohesion increases. This study indicates that an increase in unit cohesion, which is a form of social support or a coping mechanism, decreases PTSD symptomology. This suggests that an approach-based coping response style of seeking guidance and support would help to ameliorate symptoms of PTSD. Many studies have supported the concept of unit cohesion which

appears to contribute to resiliency factors when coping with stressors. Similarly, when deployed health care workers are exposed to possible traumatic events they have used social support by other workers to increase resiliency after exposure (Gibbons et al., 2014). Furthermore, individuals who used a higher percentage of approach-based coping strategies to deal with combat-related stress reported lower levels of psychological symptoms when returning from the Gulf War 18-24 months later (Sharansky et al., 2000). Additionally, when combat health care providers were assessed for adaptive coping mechanisms that protected them against psychological distress from trauma researchers found that coping mechanisms such as self-reflection through reading, writing, journaling and prayer), social support (informal talk therapy, family connectedness, work support), humor, healthy behaviors (exercising and eating well) and compartmentalization of feelings until they were ready to revisit them (Gibbons et al., 2014). In college populations results indicate that the ability to shift attention to and from the disturbance contributed to adaptation of the event (Galatzer-Levy et al., 2012

However, avoidance coping or emotion-focused coping as it is often called, appears to contribute to the development of PTSD (Sharanksy et al., 2000). Similarly, when Los Angeles Police Department officers were assessed for PTSD symptomology following the 1992 riots, researchers found that engaging in avoidance coping strategies such as: cognitive avoidance, acceptance or resignation, and emotional discharge it increased PTSD symptomology (Harvey-Lintz, Terri, Tidwell, Romeria, 1992) Multiple studies continue to indicate that approach-based coping mechanisms as well as potentially flexible coping mechanisms can ameliorate symptomology related to PTSD (Harvey-Lintz et al., 1992; Galatzer-Levy, et al., 2012; Moos, 1993; Sharansky et al., 2000).). By ascertaining what type of coping response participants subscribe to, then we can begin to make some assumptions about what types of traits may preserve some individuals from developing symptoms of PTSD or a full diagnosis of PTSD.

Conclusion

In conclusion, this study is to determine whether or not stressful life experiences contribute to the development of full PTSD or sub-threshold PTSD. Numerous studies have indicated that stressful life experiences contribute to PTSD symptomology (Mol et al., 2005, Gold, et al., 2004; Robinson & Larson, 2010; Smyth et al., 2008; Mulder, Ferguson & Horwood, 2013; Liu et al., 2014). It is important for clinicians and researchers to understand the pervasive impact of stressful life events especially within college populations. Studies show that college populations are at an increased risk of developing PTSD due to stressful life events like academia and roommate issues (Galatzer-Levy et al., 2012). In the future it will be paramount for clinicians to be able to assess whether or not students are experiencing PTSD symptomology, then possibly have guidelines for evidence-based treatment possibly based on approach-based coping mechanisms. This study may determine whether or not approach-based coping responses help to circumvent or ameliorate PTSD symptomology. This information may prove useful for enhancing coping responses in individuals to help alleviate PTSD symptoms. To our knowledge a study exploring the phenomenon of approach/avoidance based coping mechanisms moderating the relation between stressful life event and sub-threshold PTSD has not been conducted.

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CHAPTER 3

CHAPTER III. Research Methodology

In this study, the relations of stressful life events and PTSD symptomology were examined. Additionally, the coping mechanisms reported by participants were analyzed to determine whether or not various coping responses were perceived to ameliorate psychological distress related to the events. In addition, data about respondent's age, ethnicity, gender and current year in college were collected in order to determine if there is a different rate of symptomology for gender, ethnicity and year. In this chapter the research questions, description of the participants, description of the survey instruments, description of the data collection procedures, and a review of the methods for the data analysis are provided.

Research Questions

Q1: Do college students experiencing stressful life events report sub-threshold symptoms of PTSD?

Q2: What is the relation between stressful life events among college students and the sub-threshold PTSD symptoms they are experiencing?

Q3: Is the relationship between stressful life events and the number of PTSD symptoms moderated by coping style?

Participants

The subject population included undergraduate and graduate students (>19 years) who were currently enrolled at Auburn University, a large public university in the Southeastern U.S. This population was directly in line with the specific goals and objectives of this study examining the impact of stressful life events in traditional college populations (i.e. undergraduate). Following the IRB approval, the students in the study were recruited from undergraduate courses in the College of Education. Professors were asked

via email if they would be willing to allow their undergraduate students to take part in a research study. The professors were then contacted again by the researcher to determine what date and time were best for the surveys to be administered. The data was collected on two different days from 7 different classes in the College of Education. The majority of the classes surveyed were undergraduate courses in Special Education, Counseling, and Rehabilitation. Other courses that were sampled included early childhood education courses. Since these were undergraduate College of Education courses the students could have been from various departments not just the College of Education. One hundred and Eighteen students submitted survey packets. Of that number, five of the participants did not complete the surveys based on empty survey packets being turned back in to the professor. The estimated response rate of the participants was 96%. Of the 113 students that completed surveys, N =106 were used for this study in the analytic sample. The seven survey packets were not used because those participants indicated they had experienced trauma based on *DSM-5* stressor criterion guidelines on the *BTQ* measure, and endorsed a score of > 37 on the *PCL* which indicated a diagnosis of PTSD,

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Procedures

After Auburn University IRB approval was granted, professors in the College of Education were contacted via email to determine if the researcher could collect data during their undergraduate courses. These courses were targeted because the study was looking at students who were undergraduates, and the College of Education had a large number of undergraduate courses that could be easily accessed for the study. As part of the recruitment and data collection procedures students were recruited during their classes. All students were provided with an envelope containing the measures, directions for each measure, and an informational letter about the study which included the consent information. The students were briefly informed by the researcher about the nature of the study, and informed that their participation was strictly voluntary. Students in the College of Education undergraduate courses were also provided with instructions about their participation in the study. Students were informed that if they chose to

participate they would be asked to return the completed surveys in the provided envelope, and if they chose not to participate they were simply instructed to return the unanswered surveys in the provided envelope. The students were also informed that there were no known risks associated with the surveys and that their responses would remain anonymous. Since the surveys inquired about stressful life events, information about the Auburn University Counseling Center was provided as a resource in case students felt any distress when they filled out the surveys. Students were provided with an IRB-approved informational letter instructing them on how to proceed with the surveys only if they gave their consent for their responses to be included in the study. The surveys included a demographic measure, the *Moos Coping Response Inventory, Brief Trauma Questionnaire, PTSD Checklist, and the College Students Stressful Events Checklist.* Upon completion of the data collection, the surveys were examined to make sure none needed to be excluded; reasons for exclusion were failure to complete the survey or obvious pattern answering. After all the surveys were collected, all the data were analyzed using SPSS software (Version 22, 2013).

Measures

The participants were given a brief demographic questionnaire. To measure the stressful life events the *College Students Stressful Events Checklist* was utilized. To measure whether an individual had experienced trauma over the past year the *Brief Trauma Questionnaire* was employed *(BTQ).* To assess whether the participant would qualify for a full or sub-threshold diagnosis of PTSD the *PCL- 5* was used, and to determine what type of coping response the participant utilized the *Moos Coping Response Inventory (MCRI)* was used.

Demographic Measure

The demographic questionnaire was developed to assess participants' gender, age, and race/ethnicity, classification in school.

Moos Coping Response Inventory (MCRI)

This study used the *Moos' Coping Response Inventory* (Moos, 1992) to assess participants' level of coping. *The Moos' Coping Response Inventory* focuses on two different types of coping styles: approach-based coping and avoidance-based coping. Approach-based coping strategies include logical analysis, positive reappraisal, seeking guidance /support and problem solving, while avoidance-coping response style includes cognitive avoidance, acceptance or resignation, seeking alternative rewards and emotional discharge (Moos, 1993).

The Moos Coping Response Inventory (MCRI) was developed by using a pool of items that were then categorized into areas of coping which ultimately led to the first version of the measure. The *MCRI-Adult* was developed in five stages that began with the identification of coping domains based on a sample of alcoholic versus normal controls (Moos, 1984). The Moos Coping Response Inventory has developed into a 48 item self-report measure currently. The *CRI-adult* combines two approaches by assessing coping on eight subscales: logical analysis, positive reappraisal, seeking guidance and support, problem solving action, cognitive avoidance, acceptance/resignation, seeking alternative rewards, and emotional discharge (Moos, 1984). The first four subscales measure approach coping, whereas the last four measure avoidance coping. The coping indices have been found to be moderately stable over time among men and women (average *r*s = .45 and .43 respectively for the eight indices when sampling the same population at two different times over a two month period) (Harvey-Lintz et al., 1992). The 48 items were separated into either approach based (α = .89) or avoidance-based ($\alpha = .85$) categories with the two scales being correlated in this sample. (*r* =.67, p < .01) (Sharansky et al., 2000). The *MCRI* is psychometrically sound with internal consistencies being moderate with average alphas across scales of .67 for men and .64 for women, and the coping indices are moderately stable over time for both men and women (*r* = .45 and .43, respectively) (Harvey-Lintz et al., 1992).

Brief Trauma Questionnaire (BTQ)

The *BTQ* is a 10 item self-report measure that originated from the Brief Trauma Interview (Schnurr et al., 1995). *The Brief Trauma Interview* was developed to assess lifetime exposure to 10 categories of

trauma using DSM-IV criteria (Schnurr, Spiro, Vielhauer, Findler, Hamblen, 2002). PTSD was assessed in interview questionnaires that ultimately were developed into what is now known as the *BTQ* (Schnurr et al., 2002).

The *BTQ* was originally designed to assess traumatic exposure according to *DSM-IV* but specifically asked only about Criterion A1 (life threatening or serious injury) because of the difficulty of accurately assessing A.2 (subjective response) in a brief self-report format. Therefore, since Criterion A.2 has been eliminated from the *DSM-5,* the *BTQ* provides a complete assessment of Criterion A in the new version of the *DSM* (Schnurr, Vielhauer, & Findler, 2013). This measure identifies events that are traumatic such as unwanted sexual contact, or if they have been seriously injured in a situation which they thought they would be killed. The interrater reliability kappa coefficients for the presence of trauma that met Criterion A1 for trauma exposure in the *DSM-IV* were above .70 (range .74-1.00) for all the events except illness (.60) (Koenen et al., 2009).

The *BTQ* has been used in studies that are similar to this one (Lancaster, Melka & Rodriguez, 2008; 2009). In the Lancaster, et al., (2008) study, the measure was used to determine the differential effects of traumatic events as defined by the *DSM-IV* and life events in college populations. In this study 66 individuals endorsed a traumatic event by using the *BTQ* measure.

The PTSD Checklist (PCL-5)

The *PCL-5* is a 20 item self-report inventory that assesses the 20 DSM-5 symptoms of PTSD (Weather et al., 2010). The *PCL-5* was derived from the original PCL as a result of the publication of the *DSM-5* manual in 2013. The original *PCL* was based on the criteria for PTSD in the *DSM-IV* manual. This self-report measure has items scored 0-4 for each symptom with a total severity score of 80. The score is derived from summing each item which then gives you a number for each cluster as well as a total score (ptsd.gov). A provisional diagnosis can be made by treating each item rated as 2 = moderately or higher for each symptom endorsed, then following the *DSM-5* diagnostic rule which requires at least 1 B item, 1 C item, 2 D items and 2 E items (ptsd.gov).

The PTSD Checklist (*PCL)* was developed in 1993 as a new self-report rating scale for the assessment of PTSD (Weathers, Litz, Herman, Huska, & Keane, 1993).The *PCL* was administered to 123 male Vietnam veterans who contacted the National Center for PTSD for either clinical services or research participation (Weathers et al., 1993). The Mean *PCL* scores for this sample were 63.6 (*SD*=14.1) for PTSD and 34.4 (*SD*=14.1) for non-PTSD subjects with test-retest reliability of .96. Internal consistency (alpha coefficient) was .93 for B symptoms, .92 for C symptoms, .92 for D symptoms, and .97 for all 17 symptoms with the item-scale total correlations ranging from .62-.87 (Weathers et al., 1993).There are three different versions of the *PCL*; however there is only one version of the new *PCL-5* which is based on the criteria from the *DSM-5*. Since the *DSM-5* was published in 2013 there is not a lot of data on the *PCL-5* to date. 2 studies found the *PCL* and *PCL-5* to be highly correlated (*r* = .87 and .95) with a high level of internal consistency (*α* = .94 and .97) (Weathers et al., 2013 as cited in Keane et al., 2014). Furthermore, recent confirmatory factor analyses examined the *PCL-5* to ensure it is measuring the same construct across groups (Keane et al., 2014). Researchers found the PCL-5 to be a stable measure and consistent over time (Keane et al., 2014).

College Students Stressful Events Checklist

The College Students Stressful Events Checklist was adapted by Arizona State University from the Holmes & Rahe *Social Readjustment Rating Scale* (Holmes & Rahe, 1967). The modification of the *Social Readjustment Scale* included the addition of more events that would be stressful in college populations. For example, college students may have relationship struggles, roommate issues, or academic stressors that affect them. One of the goals of this study was to determine if stressful life events were related to sub-threshold PTSD in college populations, so a measure that adequately addressed stress within that population was essential. The original *Social Readjustment Scale* included items that did not appear to relate to college students such as a "mortgage over $10,000, the foreclosure of a mortgage or loan, and business readjustment" (Holmes & Rahe, 1967). The original Holmes & Rahe *Social Readjustment Scale* was derived from earlier research by Adolph Meyer's life chart which emphasized the importance of life

events such as the ones used in the scale (Holmes & Rahe, 1967). The measure was originally called the *Social Readjustment Scale* and was based on a study implying that social stressors could possibly be contributing factors to illnesses (Rahe, Meyer, Smith, Kjaer, & Holmes, 1964). 394 subjects assigned values to particular stressful life events that were taken from actual clinical experience which led to a correlation of .90 between groups (Holmes & Rahe, 1967). A score of <150 indicates a low level of stress, 150-300 indicates a more moderate level of stress, and a score > than 300 indicates major stress and an elevation in health risks (Roca et al., 2013). Holmes & Rahe's *Social Readjustment Scale* is one of the most cited measurements for stressful life events (Roca et al., 2013). In 2000, researchers decided to conduct a systematic evaluation of the *Social Readjustment Scale* due to criticisms about uncontrollable versus controllable events and undesirable versus desirable events (Scully, Tosi, & Banning, 2000). The researchers found that the SRSS does predict stress-related outcomes despite the criticism is has received and determined that more recent life events (<12 months) are more strongly associated ($r=.44$, $p<.05$) with symptomology than across a lifetime ($r=.12$, $p<.05$). This finding is important for the present study as college students will be asked to report events that have occurred over the past year.

The Holmes and Rahe *Social Readjustment Scale* has been adapted to fit other populations such as the people of India with the presumptive life events scale that has been widely used (Singh, Kauer & Kauer, 1984). The adaptation of the *College Student's Stressful Events Scale* has been used as a stressful event checklist for college students at Arizona State University. A table is attached in Appendix 1 with the adapted items from the original Holmes & Rahe *Social Readjustment Scale*.

Analysis

For this study, college students were assessed to determine if experiencing stressful life events contributed to PTSD symptomology. The relationship between stressful life events and sub-threshold symptoms were also examined. Also, the relationship between coping styles (approach-based coping and avoidance-based coping) and the presentation of PTSD symptoms with stressful life events was

assessed. This study examined the presentation of stressful life events over the past year based on the *College Students Stressful Event's Checklist* which served as the independent variable. This study also examined 3 dependent variables. The first variable was the PTSD symptomology derived from the scores on the *PCL-5*. The other 2 dependent variables were approach-based coping and avoidance based coping mechanisms derived from *the Moos Coping Response Inventory (MCRI).* Those variables included a total score for the approach-based coping style, which included four subscales: logical analysis, positive reappraisal, seeking guidance and support, and problem solving, and a total score for avoidance-based coping which included: cognitive avoidance, acceptance/resignation, seeking alternative rewards, and emotional discharge. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) statistical analyses system (Version 22.0, 2013). Descriptive statistics, a bivariate correlational table, and a regression analysis with a hypothesized moderator were used for the study. Findings were organized and displayed in charts and graphs.

Summary

This chapter provided an overview of the research study, a synopsis of the participants, the measures, procedures, and data analysis. The respondents in the study were obtained through confidential surveys distributed to students in undergraduate courses at large Southeastern University in the United States. These surveys consisted of a demographic questionnaire, and instruments designed to assess the student's exposure to stressful life events, trauma, PTSD symptomology, and the coping mechanisms students may have utilized in response to those stressful life events. Instruments used consisted of the *Brief Trauma Questionnaire (BTQ)*, the *PTSD Checklist* (*PCL-5), the College Students Stressful Events Checklist (CSES), and the Moos Coping Response Inventory (MCRI-Adult).* The procedures for data analysis were also detailed in the chapter.

Chapter IV. Results

Introduction

The purpose of the present study was to quantitatively explore the association between stressful life experiences and sub-threshold PTSD in college populations. Furthermore this study set out to understand the moderating effects of coping mechanisms on sub-threshold PTSD in college populations. The researcher used a brief demographic questionnaire, the *Brief Trauma Questionnaire (BTQ*), *The College Students Stressful Life Events Scale* (*CSES), The Posttraumatic Checklist* (*PCL-5*), and the *Moos Coping Response Inventory* (*MCRI-Adult*). The study intended to determine whether college students experiencing stressful life events reported sub-threshold symptoms of PTSD, the relationship between those stressful events and the number of symptoms they are experiencing, and if that relationship was moderated by coping style. Descriptive statistical analysis was used to examine demographic data, as well as determine if college students experience sub-threshold PTSD symptomology for research question 1. Linear regression was used to determine the relationship between stressful life events among college students and the number of sub-threshold PTSD symptoms they are experiencing. The interactions between stressful life events and coping styles in predicting sub-threshold symptoms were also tested using regression analysis.

Demographics

One hundred and Eighteen students submitted survey packets. Of that number, five of them did not complete the surveys. Of the 113 students that completed surveys, 106 were used for this study in the analytic sample. The full sample included all 113 participants who turned in completed surveys. Seven survey packets were excluded because the participants endorsed items on the *BTQ* which indicated they had experienced a traumatic event. This indicated these participants met the stressor criterion in the *DSM-5*. Furthermore, these participants also endorsed a score > 37 on the *PCL-5* which indicated a diagnosis of full PTSD.

Of the 118 participants, 82 provided demographic data. The missing demographic data was due to a researcher error. The average age was 21 years. The sample consisted primarily of female (89.9%) White / Caucasian (87.6%), and juniors (51.7%), although there was some variability in the classification of students. The full sample is made up of all the participants in the sample. As stated before, the analytic sample excluded participants who endorsed a traumatic event on the *BTQ,* and had a score of >37 on the *PCL* which indicated a possible diagnosis of PTSD. Both the full and analytic samples were comparable in mean age, gender, race and classification. The race/ethnicity in this sample was comparable to the overall population at Auburn which is (86%). However, the gender for this sample was not representative of the overall average at Auburn. See Table 1 for a summary of demographic descriptive statistics.

In Table 2 the means and standard deviations for each measure are illustrated. The reliability scores for the *PCL-5* and the Moos Coping Response Inventory (*MCRI-Adult*) are also outlined in Table 2. In the analytic sample the *PCL-5* had a mean of 16 with a standard deviation of 11 points. While this is still below the cutoff for PTSD (< 37) it is noteworthy because this number demonstrates the average number of participants experiencing sub-threshold PTSD symptomology. Furthermore, the *CSES* had a mean of 334 with a standard deviation of 168 points.

Table 1

Full and Analytic Sample Demographic Characteristics

Characteristic		Full Sample n(%)	Analytic Sample n(%)	Overall Population: Auburn
Gender	Female	80 (89.9%)	74 (90.2%)	48.1%
	Male	9 (10.1%)	8 (9.8%)	51.1%
Race/Ethnicity	White	78 (87.6%)	72 (87.8%)	86%
	Black	10 (11.2%)	9 (11.0%)	7.2%
	N/A	1 (1.1%)	1 (1.2%)	1.3%
Classification	Freshman	5 (5.6%)	5 (6.1%)	
	Sophomore	11 (12.4%)	11 (13.4%)	
	Junior	46 (51.7%)	41 (50%)	
	Senior	27 (30.3%)	25 (30.4%)	

Table 2

Descriptive Statistics

Measures	Full Sample	Analytic Sample	
	Mean/Standard Deviation	Mean/Standard Deviation	Reliability
BTQ	.41 (.5)	.37 (.5)	N/A
Approach-Based Coping	49 (11.4)	48 (11)	α = .92
Avoidance-Based Coping	54 (13)	53 (13)	α = .90
PCL-5	18 (14)	16 (11)	α = .77
CSES	340 (169)	334 (168)	N/A

Research Question 1: Do college students experiencing stressful life events report sub-threshold symptoms of PTSD?

Descriptive statistics based on the analytic sample revealed that all participants in the sample reported some level of stressful life events and exhibited significant subthreshold PTSD symptomology. No participants had a score of 0 on the CSES in this sample, which indicates that all the participants in this sample endorsed some level of stress in their lives. The stressful life events the participants experienced are outlined in descending order in Table 3. The participants endorsed an increase in workload as their number one stressful life event they were experiencing (69%) over the past year. Other stressful life events included: a change in sleep habits (58%), difficulty with a roommate (52%), lower grades than expected (49%), change in eating habits (48%), change in social habits (43%), and change in the health of a family member (42%) as the top events causing stress over the past year. Therefore, college students do experience stressful life events. Furthermore, (76.4%) of the analytic sample had at least 1 or more sub-threshold symptom as indicated by the *PCL-5*. Symptoms are considered significant if they received a score of (>1) for an item on the *PCL-5*. 23.6% of the sample did not endorse an item as significant while 76.4% of the sample endorsed 1 or more symptoms of PTSD. Therefore, college students do experience stressful life events and sub-threshold PTSD symptomology. Additionally, sub-threshold symptoms were analyzed from the analytic sample with the *BTQ* measure used as a control. These results indicated that when controlling for trauma 47.7% had one or more symptoms of PTSD in criterion area B, 31.3% had one or more symptoms in area C, 37.4% had 2 or more symptoms in area D, and 36.2% had 2 or more symptoms in area E. Also, area D showed that 53.8% experienced one or more significant symptoms while area E showed that 52.6% experienced one or more symptoms. The frequency distribution and percentages are listed in Table 3 and Table 4 for research question one.

Table 3

Sub-threshold PTSD Distribution

DSM-5 Criterion Areas		N (%)
Criterion Area B	> 1 symptom	32 (47.7%)
Criterion Area C	>1 symptom	21 (31.3%)
Criterion Area D	>2 symptoms	25 (37.4%)
Criterion Area E	>2 symptoms	20 (36.2%)

Table 4

College Students Stressful Life Events Distribution

College Student Stressful Events	N (%)	College Student Stressful Events	N (%)
Event 18- Increased workload at school	81 (69%)	Event 15 – Serious arguments with a close family member	22 (19%)
Event 24 –Change in sleeping habits	69 (58%)	Event 12 – Serious disagreements with parent	21 (18%)
Event 8 – Difficulty with roommate	61 (52%)	Event 13 – Change in lifestyle for financial reason	21 (18%)
Event 23 – Lower grades than expected	58 (49%)	Event 2 – Death of a close friend	20 (17%)
Event 26 – Change in eating habits	57 (48%)	Event 6 – Responsibilities for others such as children or spouse	16 (14%)
Event 25 – Change in social habits	51 (43%)	Event 27 – Chronic car problems	15 (13%)
Event 9 - Change in health of a family member	50 (42%)	Event 3 – Divorce between parents	12 (10%)
Event 21 – Change in living conditions	50 (42%)	Event 7 – Threat to a major source of income	12 (10%)
Event 1 – Death of a close family member	46 (39%)	Event 31 – Dropped more than on class	12 (10%)
Event 19 - Outstanding personal achievement	46 (39%)	Event 11 – Sexual problems	11 (9%)
Event 14 - Difficulty in identifying a major	44 (37%)	Event 5 – Major personal injury or illness	6 (6%)
Event 16 - Problems with a girlfriend or boyfriend	44 (37%)	Event 22 – Serious disagreements with an instructor	6 (5%)
Event 17 - Having to repeat a course	36 (31%)	Event 29 – Too many missed classes	6 (5%)
Event 30 – Change in plans for a major	35 (30%)	Event 10 - Pregnancy	4 (3 %)
Event 28 – Change in number of family gatherings	32 (27%)	Event 4 – Serious legal problems	2 (2%)
Event 20 – First semester in college	30 (25.4%)		
Event 32 – Minor traffic violations	23 (20%)		

Research Question 2: What is the relationship between stressful life events among college students and the number of sub-threshold PTSD symptoms they are experiencing?

Before fitting regression models to the data, bivariate correlations were calculated. There was a significant correlation between the total score on the *CSES* and the number of sub-threshold PTSD symptoms (r=.36, $p < .01$). There was also a significant correlation between avoidance-based coping mechanisms and sub-threshold PTSD symptoms (r=.29, $p < .01$), and there was significant correlation between approach-based and avoidance-based coping styles (r =.78, $p < .001$). This sample was large enough (N=118) for bivariate correlation. A simple power analysis (using a targeted power of .80), and a moderate effect size (r=.3), shows that 84 subjects are needed. This power analysis was done using GPower (Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. 2009). There is a summary of correlations outlined in Table 3.

Table 5

Correlations Among Study Variables

	1.	2.	3.	4.	5
1. BTQ	-				
2. CSES	.041	-			
3. Approach	.076	.078	-		
4. Avoid	.081	.159	.783***	-	
5. Sub-threshold	.090	.360**	.109	.294**	-

Notes: 1 = Brief Trauma Questionnaire; 2 = College Students Stressful Events Checklist; 3 = Moos Coping Response Inventory (Approach); 4 = Moos Coping Response Inventory (Avoidance); 5 = PCL-5 , ** $p < .01$, *** $p < .001$.

For the second research question, a linear regression model was fit to the data. In the first step the *BTQ* was entered as a control variable. In step two the *CSES* was added as the predictor of interest. This model determined that *CSES* does predict the number of symptoms of sub-threshold PTSD. On average, at higher levels of stress, participants reported greater numbers of sub-threshold symptoms (B = .36, $p < .01$). These results are outlined in the regression summary in Table 6.

Table 6

Regression Summary Table

RQ 2 regression summary table	R^2	F (p)	Beta
Model 1 BTQ	.01	.86(.36)	 .09
Model 2 BTQ CSES	.14	8.07 (.001)	 .08 .36***
A – report the F Change test results here –between Model 1 and Model 2	ΔR^2 .13	Δ F(p) 15.17 (.000)	

Note: *** p <.001

Research Question 3: Is the relationship between stressful life events and the number of PTSD symptoms moderated by coping style?

To analyze the moderator for this statistical test the scores were mean centered. This procedure was followed as outlined by (Baron & Kenny, 1986). A total score for approach-based coping was utilized which was comprised of four subscales. Those subscales included logical analysis, positive reappraisal, seeking guidance and support, and problem solving. The reliability for the approach-based sub-scores were found to be acceptable (α =.92). Those variables also included a total score for the avoidance-coping response which also included 4 subscales which were cognitive avoidance, acceptance or resignation, seeking alternative rewards, and emotional discharge. The average score for these subscales was used for

avoidance- based coping, the reliability for the scores was found to be acceptable (α =.90). Approach versus avoidance-based coping was also

positively correlated demonstrating that people who report approach also report avoidance type coping mechanisms (*r* = .78). These results are illustrated in Table 5.

This procedure tests regression separately for each interaction. Two interactions were assessed by regression analysis to address research question 3. CSES x Approach and CSES x Avoidance interaction terms were included in separate analyses to test if coping styles moderated the relationship between stress life events and sub-threshold symptoms. There was no significant interaction between coping mechanisms and stressful life events. The R square difference and corresponding F test directly tested the addition of the interaction term which is the moderation effect. Both tests revealed no moderation therefore, the focus for this question will be on the main effects. The main effects demonstrated that stressful life events did have a main effect on sub-threshold PTSD symptomology (B = .28, $p < .01$). There was also a main effect for avoidance-based coping on sub-threshold symptomology (B = .47, $p < .01$).The results from these analyses are illustrated in Table 6.

Table 6

RQ 3 regression summary table	CSES X Avoid			CSES X Approach		
	R^2	F (p)	Beta	R^2	F (p)	Beta
Model 1 – Main Effects	.20	5.9 (.000)		.20	5.9 (.000)	
BTQ			.02			.02
CSES			.28**			.28**
Approach Coping			-.28			-.28
Avoidance Coping			.47**			.47**
Model 2 – Interaction Terms	.20	4.73(.000)		.20	4.63(.007)	
BTQ			.01			.02
CSES			.28**			.28**
Approach Coping			-.28			-.28
Avoidance Coping			.47**			.47**
CSES X Coping			.06			.02
a – report the F Change test results here –between Model 1 and Model 2	ΔR^2 .003	Δ F(p) .39(.53)		ΔR^2 .000	ΔF(p) .00(.99)	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Summary

This study was designed to explore the relationship between the number of stressful life events and sub-threshold PTSD symptomology in college populations Furthermore, this study set out to understand if coping mechanisms moderated the relationship between stressful life events and the number of PTSD symptoms. To assess these questions, a demographic questionnaire, the *Brief Trauma Questionnaire* (*BTQ), The College Students Stressful Events Scale (CSES), The Posttraumatic Checklist (PCL-5),* and the *Moo's Coping Response Inventory (MCRI-Adult)* were used. The results showed that 77% of college students experience stressful life events and have symptoms of sub-threshold PTSD. There was a significant correlation between the total score on the *CSES* and the number of sub-threshold PTSD symptoms. There was also a significant correlation between avoidance-based coping mechanisms and sub-threshold PTSD symptoms, as well as a significant correlation between approach-based and avoidance-based coping styles. However, coping mechanisms were not found to moderate the association between stressful life events in college populations and sub-threshold symptomology. Main interaction effects found that stressful life events were a predictor of sub-threshold symptoms. Furthermore, avoidance-based coping mechanisms were found to be a predictor of sub-threshold PTSD symptomology. However, coping was not found to moderate the relationship between stressful life events and PTSD symptomology.

CHAPTER V. DISCUSSION

This purpose of this study was to analyze the relationship between stressful life events and sub-threshold PTSD symptoms in college populations as well as understand the moderating effects of coping mechanisms on that relationship. For this study, participants completed a packet of surveys that included a demographic questionnaire, a Brief Trauma Questionnaire (*BTQ*), The College Students Stressful Events Scale (*CSES*), The Posttraumatic Checklist (*PCL-5*), and the Moo's Coping Response Inventory (*MCRI-Adult*). This chapter will provide the results from the study based on the descriptive statistics and the linear regression analyses for the research questions. In addition, this chapter will discuss the limitations of the current study, implications for the field of counseling and counselor education as well as recommendations for future research.

Overview

The National Institutes of Health (NIH, 2009) reports that 7.7 million American adults are affected by PTSD. The idea that there is a syndrome that can be caused by a traumatic event or events has been around for centuries, even being reported in Biblical times (Birbaum, 2007). A century before PTSD began to be recognized in the diagnostic manuals, physical and behavioral symptoms of the disorder had been widely cited (Rosenbaum, 2003). Although, the symptoms of this traumatic syndrome have been recorded throughout time it began its classification as a diagnosis when it was introduced as a "gross stress reaction" in the original *DSM I*, however, the most current definition of PTSD began its introduction to the diagnostic category in the *DSM III* in 1980 (Rosenbaum, 1980). The evolution of this disorder, and the symptomology associated with PTSD, has changed dramatically over time, and even now is the subject of much controversy. The controversy mainly stems from the stressor criterion area of the diagnostic category. This criterion area requires that an individual must experience a traumatic event as defined by the *DSM* in order to be diagnosed with PTSD. Our most current revision of the diagnostic category for PTSD was published in the *DSM V* in 2013 (APA, 2013). The stressor criterion in the *DSM V* requires that an individual must be exposed to death, threatened death, actual or threatened injury, or actual or

threatened sexual violence by either direct exposure, witnessing the event, learning of a loved one being a victim of trauma, or undergo repeated exposure to aversive details of a trauma (APA, 2013). While the new diagnostic category is an improvement over the previous *DSM IV* category there is still not account for a phenomenon known as sub-threshold symptomology.

Sub-threshold PTSD has been defined as a subset of symptoms from the PTSD disorder that do not meet the full criteria for PTSD (APA, 2013). Sub-threshold PTSD has been found to cause as much or more distress than PTSD and has been shown to increase comorbid disorders such as: depression, anxiety and suicidal ideation (Grubaugh, 2005; Marshall et al., 2001). Not only are researchers beginning to understand the pervasive effects of sub-threshold symptomology, but how various other types of stressors such as stressful life events may impact sub-threshold symptoms.

Multiple studies have demonstrated how stressful life events can cause sub-threshold or even full PTSD (Gold et al., 2005; Mol et al., 2005; Robinson & Larson, 2010; Smyth et al., 2008). In 2005, Mol et al., (2005) used a general population sample to demonstrate how stressful life events like job loss and divorce cause as many or more symptoms of PTSD than traumatic events. This study has been replicated in college populations which have all shown that the culmination of stressful life events can in fact cause sub-threshold and even full PTSD (Gold et al., 2005; Mol et al., 2005; Robinson & Larson, 2010; Smyth et al., 2008).

Furthermore, coping responses or resiliency factors have been mentioned multiple times in the literature as a potential factor that may moderate sub-threshold and full PTSD symptomology (Liu et al., 2014; Lukaschek, (2013); Sharansky, 2000; Tran et al., 2013). Approach-based coping mechanisms have been found to help individuals adapt or develop resiliency to the stressor (Moos, 1993; Sharansky et al., 2000). However the use of avoidance-based or emotion-focused coping mechanisms have been found to contribute to the development of PTSD (Harvey-Lintz, 1992; Sharanksy et al., 2000). Therefore, these types of coping mechanisms may moderate PTSD symptomology.

This current study set out not only to explore the impact of stressful life events on sub-threshold PTSD symptomology in college populations, but to explore whether approach versus avoidance coping mechanisms would affect sub-threshold symptoms in college populations.

Discussion of Results

The first research question set out to determine if college students who experience stressful life events report sub-threshold symptoms of PTSD. Several studies have found that stressful life events are related to sub-threshold PTSD or full PTSD in college populations (Gold et al., 2005, Mol et al., 2005; Robinson & Larson, 2010; Smyth et al., 2008). Therefore, it was important to continue to contribute to the literature within this college population to support these findings. Descriptive statistics were utilized to determine if participants who reported stressful life events do in fact experience sub-threshold PTSD. Seven of the participants were not used in the study because they had experienced a traumatic event on the *BTQ*, and had a score of (> 37) on the *PCL-5* which indicated a diagnosis of PTSD. Therefore, 7% of the sample had a diagnosis of PTSD based on the *BTQ* and *PCL-5* measures. This is comparable to a recent national epidemiologic survey, where the lifetime prevalence rate of full and sub-threshold PTSD was found to be approximately 6.4%. (Pietrzak, Goldstein, Southwick, Grant, 2011).

Descriptive statistics revealed that everyone in the sample reported some level of stress based on the *CSES* measure. In fact, 69% of the entire analytic sample reported that an increased workload at school was a stressful life event they were experiencing. The other stressful life events that were most prevalent included 58% citing a change in sleep habits, 52% reporting difficulty with a roommate, 49% endorsing lower grades than expected, 48% reported a change in eating habits, 43% cited a change in eating habits, 42% struggled with the change in health of a family member, and 39% reported the death of a close family member. Other studies have found 34.8% males and 39.7% females were exposed to academic problems, 20.2% of males and 21.7% of females reported serious illness in the family happening over the past year (Robinson & Larson, 2010). In another study, 55.8% reported an event they considered as traumatic which

occurred over the past year as either the serious illness of a loved one or death of a loved one (Gold et al., 2005).

Also, there was a significant correlation between stressful life events and sub-threshold symptomology. In fact, 77% of the participants indicated 1 or more symptoms of sub-threshold symptomology on the PTSD screening measure. In another study on stressful life experiences in college populations approximately 20% of the students reported having clinical or sub-threshold symptoms (Smyth et al., 2008). The results in this current study were somewhat higher in comparison when controlling for trauma. The results of this study demonstrated that 47.7% endorsed one or more criterion B symptoms, 31.3% endorsed one or more symptoms in criterion area C item, 37.4% met the criteria for area D with two or more symptoms, and 19.8% met criterion D with two or more symptoms in that area. There are varying definitions and multiple names for sub-threshold PTSD in the literature. A common strategy by various researchers is to require that a person have at least one symptom in one of the criterion areas (Breslau, 2004; Pietrzak, 2011; Stein, 1997). Researchers have also suggested multiple definitions for sub-threshold PTSD such as meeting the criteria for B and either C or D (Blanchard et al., 1996). Stein (1997) suggested the definition should potentially include a minimum of at least one symptom in criterion area B, C or D. Consequently, this study has demonstrated that people who are experiencing stressful life events meet the criteria for sub-threshold PTSD based off of the previous definitions in the literature. Therefore, this study further extends earlier research which also indicated stressful life events can contribute to PTSD symptomology (Mol et al., 2005) by showing the correlation between stressful life events and sub-threshold PTSD.

For the second research question the relationship between stressful life events among college students and the number of sub-threshold PTSD symptoms they are experiencing was examined. The *(BTQ)* measure was used a control variable to control for trauma in the study. 37% of the participants in the sample experienced a traumatic event during their lives. This is lower than a National Epidemiological Study where 61% of men, and 51% of women reported at least one traumatic event in their life (Kessler et

al., 1995). Another study, based on college populations from two universities, found that 66% of college students reported exposure to a traumatic event as outlined by Criterion A in the *DSM-IV* (Ouimette, White, Colder, & Farrow, 2011).

Results from this study demonstrated that there was a significant correlation between stressful life events and the number of sub-threshold symptoms among participants when controlling for trauma. Only one other previous study has controlled for trauma by using a stressful events only group that was found in the literature review (Robinson & Larson, 2010). The current study sought to control for the lifetime experience of a traumatic event based on the *DSM 5* stressor criterion by using the BTQ as a control measure for those participants who endorsed previous traumata. This study also excluded participants with a *BTQ* diagnosis and a score of >37 on the *PCL* which indicated a possible full diagnosis of PTSD.

The results of the analysis in the current study demonstrated that greater number of reported stressful life events paralleled higher levels of sub-threshold symptomology when controlling for trauma. Specifically, participants who experienced a greater number of stressful life events also indicated a greater number of sub-threshold symptoms. Robinson and Larson (2010) found similar results when they compared students who had suffered just a stressful life event to ones who had suffered a trauma, or both a trauma and stressful life event. These researchers found the trauma group and the stressful life events to have comparable levels of PTSD symptomology while the group that had both trauma and stress endorsed higher levels of PTSD (Robinson & Larson, 2010).

In research question coping mechanisms were analyzed to see if they moderated the relationship between stressful life events and sub-threshold symptomology. Both approach-based and avoidance-based coping mechanisms were examined. The internal consistencies for approach-based coping were found to be acceptable (α = .92). The internal consistencies for avoidance-based coping mechanisms were also found to be acceptable (α= .90). These results were higher than other studies which found the *MCRI* to be psychometrically sound but the internal consistencies were more moderate with average alphas across scales of .67 for men and .64 for women (Harvey-Lintz et al., 1992). Both approach-based

coping and avoidance-based coping were positively correlated suggesting that as participants use more approach-based coping mechanisms, they also use some avoidance-based coping mechanisms. This phenomenon has been supported in previous research as the approach-avoidance model of coping (Roth & Cohen, 1986).

However, the results indicated that neither approach nor avoidance based coping mechanisms moderated the relationship between stressful life events and sub-threshold PTSD symptomology. Since the interaction terms were not found to be significant the focus of the study focused on the main effects that were found to be significant. The main effects in research question 3 of this study suggested that stressful life events did have an effect on sub-threshold symptomology but were not moderated by coping style. Other studies have also shown that avoidance-based coping mechanisms increase PTSD symptomology (Harvey-Lintz, 1992). Research has also demonstrated how avoidance-based coping mechanisms can increase symptomology in asthma patients as well as decrease patients overall well-being (Nazarian et al., 2006). These findings are also supported by previous research which reported that resiliency to PTSD could be increased by social support, coping confidence and psychological framework (Lukaschek, 2013) which are all aspects of approach-based coping mechanisms and the opposite of avoidance-based coping. Additionally, findings on US soldiers after deployment, suggest that the association of stressful life events with PTSD symptoms decreases as unit cohesion increases, and soldiers who actively attempt to cope by problem solving, seeking support or guidance, and reappraising the situation had less PTSD symptomology than those who used avoidance tactics (Brailey et al., 2007; Sharansky et al., 2000). This current study also implies that as avoidance-based coping skills increase so do sub-threshold symptoms. These results suggest the importance of understanding the pervasive effects of stressful life events on PTSD symptomology when controlling for trauma as well as the need for more research on the impact of coping mechanisms on PTSD symptomology.

Implications for Counseling

The results of this study provide foundation for several areas of training and education for counselors, within college and mental health settings as well as for counselor educators. First, the results of this study contribute to a growing body of literature which suggests that we need to more adequately address the impact of stressful life events within college populations (Anders et al., 2012; Robinson & Larson, 2010; Smyth et al., 2008). The findings of this study support previous research that indicate the critical need of counselors and counselor educators to be aware of the pervasive effects of stressful life events. These stressors may include personal, academic, and social stressors. The concern is that these stressors may cause sub-threshold PTSD symptoms, symptoms that may have a negative impact on psychological and emotional well-being.

In addition, the findings of the current study add support to the need for counselors to understand the concept of sub-threshold PTSD symptomology. In college populations, students who enter college with either sub-threshold or full PTSD symptomology have greater issues with alcohol and drugs, and experience more negative events related to substance use (Read et al., 2012). Therefore, it will be important for counselors and colleges alike to understand the pervasive effects of sub-threshold symptomology no matter what the cause of the symptoms may be either trauma or stressors.

Furthermore, this may help counselors to link presenting symptoms to stressful life events, thereby, implementing evidence-based practices that may help to ameliorate symptoms. Some researchers have already begun to treat sub-threshold PTSD with evidence-based treatments that are normally recommended for clients who suffer from a diagnosis of full PTSD (Dickstein et al., 2013; Frustaci et al., 2010). Furthermore, findings from the current study suggested that the greater the number of stressful life events a student was experiencing there was a parallel increase in sub-threshold PTSD symptoms. Therefore, these findings suggest the need for greater awareness among counselors and counselor

educators for understanding the relationship between stressful life events and sub-threshold PTSD symptoms. This awareness could potentially be the foundation for the development or use of appropriate screening tools to identify sub-threshold symptomology. For example, several researchers have suggested that perhaps stressful life events that do not meet the stressor criterion should be added to checklists during various intake procedures in order to understand the impact they are having (Anders, Frazier, & Shallcross, 2012). Finally, counselor educators can consider how to expand training and educational methods to better prepare counselors to recognize or understand the relationship between stressful life events and sub-threshold PTSD symptomology.

This project also sought to understand how approach-based coping mechanisms may help circumvent the development of sub-threshold or full PTSD, and the implications this information may have in the future for counseling practitioners. Other researchers have suggested that outreach programs could be created to potentially provide education regarding the impact of stressful life events, how they impact students, and where the students could find help to increase coping mechanisms (Anders et al., 2012,). Even though in this study the type of coping mechanisms did not moderate the association between stressful life events and sub-threshold PTSD symptomology the main effects suggested there was a relationship between avoidance-based coping and sub-threshold PTSD symptoms. Furthermore, the positive correlation between approach and avoidance based coping suggests that both styles may be important to note. Counselors may be able to assess coping mechanisms that are being utilized to determine if approach versus avoidance strategies are being utilized, and how to increase certain areas of coping.

Limitations

One limitation of the study resulted from the data collection being limited to a large southeastern state university. This limited the generalizability of the study to populations other than students who attend a similar university system in the southeastern portion of the United States. Therefore, it is likely that this sample is not representative of a larger population based on the sample being from southeastern

university system. Additional limitations included a sample that consisted of predominantly female participants (90.2%) versus (9.8%) males. Other studies have been comprised of a more even demographic based on gender. For example, the Smyth et al study (2008) was made up of 46.6% male and 53.4% females, while the Robinson and Larson,(2010) study was made up of 52.5% males and 47.5% females. Furthermore, the sample was comprised of primarily white participants (87.8%) versus (11%) African-American participants, or other (1.2%). Although, other studies in college populations have also sampled a similar demographic with (84.5%) Caucasian, (5.6%) African American (Robinson & Larson, 2010) it is possibly a limitation that other race/ethnicities are underrepresented in the sample.

Other limitations of the study included using self-report measures indicating possible response bias. Furthermore, due to the nature of the study participants could have endorsed themselves more conservatively. This concludes that social desirability may also be a factor when reporting sub-threshold symptomology.

Although the sample for this study was sufficient based on the power analysis where 10-15 cases per predictor rule for regression was used this sample was smaller than other studies that have been conducted on college populations. Most of the studies used in the literature review that were similar to this study used between 1190 and 3,640 students (Anders et al., 2008; Robinson & Larson, 2010). Therefore, this could potentially be one limitation of this study.

Another limitation of this study was the point that it was conducted during the semester. Since the participants were surveyed at the end of the semester closer to final examinations and projects the stress level could have been much higher for the students than normal.

Future Recommendations for Research

These results have a number of implications for future research due to the multiple areas that still need to be addressed when looking at the impact of stressful life events and sub-threshold PTSD. More studies should be conducted on the types of stressors that contribute the most to PTSD symptomology.

Furthermore, research to examine if there is a correlation between certain criterion areas of PTSD in relation to stressful life events which would help clinicians better understand what types of events lead to certain symptomology. This research could also potentially lead to a more cohesive definition for sub-threshold PTS. Even though sub-threshold PTSD is named under other specified trauma and related disorders in the *DSM-5* (APA, 2013) there is still an unclear definition for researchers to use.

Also, future research needs to possibly assess the extent to which different types of stressful life events or trauma cause significant markers in pathology (Robinson & Larson, 2010). This kind of research may expand our understanding of the impact of specific types of events. In addition, investigations are needed across age groups to consider differences developmentally related to the nature and type of stress life event. This research would be especially important since most measures of stressful life events focus on events that are more common among adults, transitioning from college or post college (Mol et al., 2005).

More research needs to be conducted on the phenomenon of coping mechanisms and how those mechanisms help symptomology. Specifically looking at a mixed approach-avoidance coping style may be useful in determining which styles are most helpful when adapting to stressors (Roth & Cohen, 1986).

Additionally, more research needs to be done on various types of evidence-based treatment that would be helpful in treating PTSD sub-threshold symptomology. Although, CPT and EMDR therapies have proven to be effective for sub-threshold PTSD in some studies it is essential that this research be expanded. This expansion may include more research on the effectiveness of various treatment modalities, such as exposure therapy (Dickstein et al., Frustaci et al., 2010), in the treatment of sub-threshold PTSD. This new research may thus provide the foundation for the treatment of stressful life events.

Summary

In a recent national epidemiologic survey, the lifetime prevalence rate of full and sub-threshold PTSD was found to be approximately 6.4%. (Pietrzak, Goldstein, Southwick, Grant, 2011). Sub-threshold symptoms can often cause the same amount of distress for the individual, or more stress than a diagnosis of full PTSD. Studies have shown that sub-threshold PTSD can lead to greater impairment as well as comorbidity with depression, anxiety and suicidal ideation (Grubaugh et al,. 2005; Marshall et al., 2001). Furthermore, research has determined that even the impact of stressful life events can cause sub-threshold and full PTSD symptomology (Gold et al., 2005; Mol et al., 2005; Robinson & Larson, 2010; Smyth et al., 2008). In addition, certain studies have suggested that various types of coping responses such as approach versus avoidance may moderate the relationship between stressful life events and sub-threshold PTSD (Harvey-Lintz et. al., 1993; Galatzer-Levy et al., 2012).

This current study demonstrated that stressful life events do impact sub-threshold symptomology in college populations. Furthermore, this study found that as the number of stressful life events increases so does the number of sub-threshold symptoms. Additionally, approach and avoidance based coping mechanisms were not found to moderate the relationship between stressful life events and sub-threshold symptomology. However, main effects were found to be significant in the analysis. The main effects demonstrated that coping styles did predict sub-threshold PTSD symptomology significant , and avoidance-based coping was related to sub-threshold symptomology.

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Table 1

Full and Analytic Sample Demographic Characteristics

Characteristic		Full Sample n(%)	Analytic Sample n(%)	Overall Population: Auburn
Gender	Female	80 (89.9%)	74 (90.2%)	48.1%
	Male	9 (10.1%)	8 (9.8%)	51.1%
Race/Ethnicity	White	78 (87.6%)	72 (87.8%)	86%
	Black	10 (11.2%)	9 (11.0%)	7.2%
	N/A	1 (1.1%)	1 (1.2%)	1.3%
Classification	Freshman	5 (5.6%)	5 (6.1%)	
	Sophomore	11 (12.4%)	11 (13.4%)	
	Junior	46 (51.7%)	41 (50%)	
	Senior	27 (30.3%)	25 (30.4%)	

Table 2

Descriptive Statistics

Measures	Full Sample	Analytic Sample	
	Mean/Standard Deviation	Mean/Standard Deviation	Reliability
BTQ	.41 (.5)	.37 (.5)	N/A
Approach-Based Coping	49 (11.4)	48 (11)	α = .92
Avoidance-Based Coping	54 (13)	53 (13)	α = .90
PCL-5	18 (14)	16 (11)	α = .77
CSES	340 (169)	334 (168)	N/A

Table 3

Sub-threshold PTSD Distribution

DSM-5 Criterion Areas		N (%)
Criterion Area B	> 1 symptom	32 (47.7%)
Criterion Area C	>1 symptom	21 (31.3%)
Criterion Area D	>2 symptoms	25 (37.4%)
Criterion Area E	>2 symptoms	20 (36.2%)

Table 4

College Students Stressful Life Events Distribution

College Student Stressful Events	N (%)	College Student Stressful Events	N (%)
Event 18- Increased workload at school	81 (69%)	Event 15 – Serious arguments with a close family member	22 (19%)
Event 24 –Change in sleeping habits	69 (58%)	Event 12 – Serious disagreements with parent	21 (18%)
Event 8 – Difficulty with roommate	61 (52%)	Event 13 – Change in lifestyle for financial reason	21 (18%)
Event 23 – Lower grades than expected	58 (49%)	Event 2 – Death of a close friend	20 (17%)
Event 26 – Change in eating habits	57 (48%)	Event 6 – Responsibilities for others such as children or spouse	16 (14%)
Event 25 – Change in social habits	51 (43%)	Event 27 – Chronic car problems	15 (13%)
Event 9 - Change in health of a family member	50 (42%)	Event 3 – Divorce between parents	12 (10%)
Event 21 – Change in living conditions	50 (42%)	Event 7 – Threat to a major source of income	12 (10%)
Event 1 – Death of a close family member	46 (39%)	Event 31 – Dropped more than on class	12 (10%)
Event 19 - Outstanding personal achievement	46 (39%)	Event 11 – Sexual problems	11 (9%)
Event 14 - Difficulty in identifying a major	44 (37%)	Event 5 – Major personal injury or illness	6 (6%)
Event 16 - Problems with a girlfriend or boyfriend	44 (37%)	Event 22 – Serious disagreements with an instructor	6 (5%)
Event 17 - Having to repeat a course	36 (31%)	Event 29 – Too many missed classes	6 (5%)
Event 30 – Change in plans for a major	35 (30%)	Event 10 - Pregnancy	4 (3 %)
Event 28 – Change in number of family gatherings	32 (27%)	Event 4 – Serious legal problems	2 (2%)

Event 20 – First semester in college	30 (25.4%)		
Event 32 – Minor traffic violations	23 (20%)		

Table 5

Correlations Among Study Variables

	1.	2.	3.	4.	5
1. BTQ	-				
2. CSES	.041	-			
3. Approach	.076	.078	-		
4. Avoid	.081	.159	.783***	-	
5. Sub-threshold	.090	.360**	.109	.294**	-

Notes: 1 = Brief Trauma Questionnaire; 2 = College Students Stressful Events Checklist; 3 = Moos Coping Response Inventory (Approach); 4 = Moos Coping Response Inventory (Avoidance); 5 = PCL-5 ; ~ $p < .10$, ** $p < .01$, *** $p < .001$.

Table 6

Regression Summary Table

RQ 2 regression summary table	R^2	F (p)	Beta
Model 1 BTQ	.01	.86(.36)	 .09
Model 2 BTQ CSES	.14	8.07 (.001)	 .08 .36***
A – report the F Change test results here –between Model 1 and Model 2	ΔR^2 .13	Δ F(p) 15.17 (.000)	

Note: *** p <.001

Appendix 1

Holmes & Rahe Scale (Holmes & Rahe, 1967)	Items Deleted (D) or Added (A) or Changed (C) or Same (S)	College Student's Checklist
1. Death of a spouse	(D)	
2. Divorce	(C)	3. Divorce between parents
3. Marital Separation from mate	(D)	
4. Detention in jail or other institution	(C)	4. Serious legal problems
5. Death of a close family member	(S)	1. Death of a close family member
6. Major personal injury or illness	(S)	5. Major personal injury or illness
7. Marriage	(C)	6. responsibilities for others, such as spouse/children
8. Being fired from work	(C)	7. Threat to major source of income
9. Marital reconciliation with mate	(C)	8. difficulty with roommate
10. Retirement from work	(D)	
11. Major change in health of a family member	(S)	9. Change in health of a family member
12. Pregnancy	(S)	10. Pregnancy
13. Sexual Difficulties	(S)	11. Sexual Problems
14. Gaining a new family member	(C)	12. Serious difficulties with parents
15. Major business readjustment	(C)	14. Difficulty in identifying a major
16. Major change in financial state	(S)	13. Change in lifestyle for financial reasons
17. Death of a close friend	(S)	2. Death of a close friend
18. Changing to a different line of work		
19. Major change in the number of arguments with spouse	(C)	15. Serious arguments with a close family member 16. Problems with boyfriend or girlfriend **
20. Taking on a mortgage	(D)	
21. Foreclosure on a home	(D)	

22. Major change in responsibility at work	(C)	18. Increased workload at school
23. Son or daughter leaving home	(D)	
24. In-law trouble	(D)	
25. Outstanding personal achievement	(S)	19. Outstanding personal achievement
26. Spouse beginning or ceasing work outside the home	(D)	
27. Beginning or ceasing formal schooling	(C)	20. First semester in college
28. Major change in living condition	(S)	21. Major change in living condition
29. Revision of personal habits (i.e. smoking, dress manners)	(D)	
30. Troubles with boss	(C)	22. Serious disagreements with a professor
31. Major change in working hours and conditions	(D)	
32. Changes in residence	(D)	
33. Changing to a new school	(C)	30. Change in plans for a major
34. Major change in usual type of recreation	(D)	
35. Major change in church activity	(D)	
36. Major change in social activities	(C)	25. Change in social habits
37. Taking on a loan	(D)	
38. Major change in sleeping habits	(S)	24. Change in sleeping habits
39. Major change in number of family get togethers	(S)	28. Change in family get togethers
40. Major change in eating habits	(S)	26. Change in eating habits
41. Vacation	(D)	
42. Major holidays	(D)	
43. Minor violations of the law	(S)	32. Minor traffic violations

** These two items were both analogous to the original item

Items Added to College Students Stressful Events Checklist that were unmatched to original scale.	**Items Added (A)**
17. Having to repeat a course	(A)

23. Lower grades than expected	(A)
27. Chronic car problems	(A)
29. Too many missed classes	(A)
31. Dropped more than one class	(A)

Appendix 2. Approval from the Institutional Review Board at Auburn University

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

R E S E A R C H P R O T O C O L R E V I E W F O R M

F U L L B O A R D o r E X P E D I T E D

For Information or help contact THE OFFICE OF RESEARCH COMPLIANCE (ORC), 115 Ramsay Hall, Auburn University

Revised 2.1.2014 Submit com pleted form to IR Bsu bmit@a u bu rn.ed u or 11*S* Ramsay Hall, A u burn University 36849.

Form must be populated using Adobe Acrobat *J* Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted .

1. PROPOSED START DATE of STUDY: March 10, 2015

PROPOSED REVIEW CATEGORY (Check one): D FULLBOARD llJ EXPEDITED

SUBMISSION STATUS (Check one): ☒ NEW ☐ REVISIONS (To address IRB Review Comments)

2. PROJECT TITLE: Coping Mechanisms Moderate the Association Between Stressful Life Experiences and Sub-threshold PTSD Symptoms in College Students

3. Kelly J. Veal	Student	SERC	KJV0003@tigermail.auburn.edu
PRINCIPAL INVESTIGATOR	TITLE	DEPT	AU E-MAIL

325 W Yorktown Drive, LaGrange, GA 30240	706-594-8148	kveal@troupco.org
MAILING ADDRESS	PHONE	ALTERNATE E-MAIL

4. FUNDING SUPPORT: ☒ N/A ☐ Internal ☐ External Agency: _____ ☐ Pending ☐ Received

For federal funding, list agency and grant number (if available). N/A

Sa. List any contractors, sub-contractors, other entities associated with this project:
n/a

b. List any other IRBs associated with this project (including Reviewed, Deferred, Determination, etc.):
N/A

MAR 11 2015
Research

PROTOCOL PACKET CHECKLIST

All protocols must include the following items:

☒ Research Protocol Review Form (All signatures included and all sections completed)

(Examples of appended documents are found on the OHSR website: http://www.auburn.edu/research/vpr/ohsfsample.htm)

☒ CITI Training Certificates for all Key Personnel.

☒ Consent Form or Information Letter and any Releases (audio, video or photo) that the participant will sign.

☒ Appendix A, "Reference List"

☐ Appendix B if e-mails, flyers, advertisements, generalized announcements or scripts, etc., are used to recruit participants.

☒ Appendix C if data collection sheets, surveys, tests, other recording instruments, interview scripts, etc. will be used for data collection. Be sure to attach them in the order in which they are listed in # 13c.

☒ Appendix D if you will be using a debriefing form or include emergency plans/procedures and medical referral lists (A referral list may be attached to the consent document).

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: 3.11.15 by CJB
_____ by _____
DATE OF IRB REVIEW: _____ by _____

PROTOCOL # [redacted] 15.174

APPROVAL CATEGORY: _____

Institutional Review Board has approved this document for use from 4/6/15 to 4/5/16
Protocol # 15-174 EP 1504