1-1-2021

Stress, Depression, and Anxiety, Oh My: Examining the effects of a single-session seminar on depression and anxiety symptomatology

Katelyn Sharpe
University of Mississippi

STRESS, DEPRESSION, AND ANXIETY, OH MY: EXAMINING THE EFFECTS OF A SINGLE-SESSION SEMINAR ON DEPRESSION AND ANXIETY SYMPTOMATOLOGY

A Thesis

presented for the partial fulfillment requirements

for the degree of Master of Arts

in the Department of Psychology

The University of Mississippi

Katelyn M. Sharpe

May 2021

ABSTRACT

Young adults (aged 18-25) were identified as the most stressed age group due to internal and external factors that are relatively unique to their group. High stress levels are alarming as they coincide with a multitude of adverse effects on psychological health, including difficulty falling and staying asleep, reduction in overall sleep quality, and exacerbated depression and anxiety symptomatology. Young adults attending post-secondary education institutions are at particular risk for developing and maintaining these adverse psychological effects of stress, especially considering the low rate in which they seek treatment for psychiatric difficulties. Limited literature exists to date regarding condensing a well-established, evidence-based intervention that targets stress, sleep, depression, and anxiety difficulties in a quick, relatable, and accessible format designed specifically for college-attending young adults. The present study aimed to observe the effects of presenting an hour-long video based on an evidence-based therapeutic intervention for the above-stated difficulties. However, no significant differences between baseline and follow-up data were observed. Future directions for further research in this area are discussed.

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I. INTRODUCTION

Stress in Young Adulthood

Psychological stress, defined as the perception that one's coping resources are not sufficient to meet the demands of stimuli in the environment, is an inevitable part of human life (Lazarus & Folkman, 1984). The majority of adults experience moderate levels of stress daily, which appears to decrease in prevalence as age increases (Cohen & Janicki-Deverts, 2012; American Psychological Association, 2017). Cohen and Janicki-Deverts (2012) analyzed the psychological stress data of three national surveys collected in 1983, 2006, and 2009. Each survey measured psychological stress by using the Perceived Stress Scale – 10 (Cohen, Kamarck, & Mermelstein, 1983), which assesses an individual's level of perceived stress from different life situations. The results of the study found that stress levels were the lowest in older-aged individuals (aged 65 and older) and the highest in young adults (aged 18 – 25) regardless of the survey date (Cohen & Janicki-Deverts, 2012). This is similar to the results of a more recent national survey conducted by the American Psychological Association (2017) where older adults were classified as the "least stressed" and young adults as the "most stressed."

This is perhaps due to the idea that young adults face various internal and external stressors that are relatively unique to their age group. The transitionary period between adolescence and adulthood is thought to be a time for considerable growth and change for the individual, but this period is also wrought with stress and uncertainty surrounding the inevitable changes that occur for the emerging adult (Salmela-Aro, Aunola, & Nurmi, 2007). For many young people, moving away from the family household and living independently is a potential

stressor, especially when combined with new financial burdens that accompany such a move (Brougham, Zail, Mendoza, & Miller, 2009). Emerging young adults also experience changing and developing social relationships, modified roles and titles (e.g., "husband" and "wife") and possible parenthood (Brougham, Zail, Mendoza, & Miller, 2009; Blanco et al., 2008). During this transitionary time, it has been demonstrated that young adults also experience a change in goals, moving away from wants such as traveling and friendships and transitioning to goals related to family, work, health, and higher-education (Salmela-Aro, Aunola, & Nurmi, 2007).

In pursuit of these goals related to further educational attainment, approximately 40.4% of young adults, aged 18 – 25, were enrolled in postsecondary educational programs as of 2017 (United States Census Bureau, 2018). This comprises the majority of all college students at 80.8%, considering both part-time and full-time enrollment status (American College Health Association, 2018). For those who attend college, both community colleges and universities, additional sources of stress are present beyond what young adults who are not in college experience. For example, social support for college students tends to change, such as reduced communication with family and friends that may be replaced with new, though not as close, social relationships (Hudd et al., 2000). Additionally, young adult students encounter a variety of stressors on the basis of their academics activities (e.g., overwhelming workloads; familial pressure to succeed; academic performance; fear of failure; poor time-management skills; post-graduation plans) that are not as frequent in their same-aged, non-college-attending peers (Misra & McKean, 2000; Pierceall & Keim, 2007; Blanco et al., 2008; Beiter et al., 2015).

These issues are perhaps related to the measurably high levels of stress experienced by this group found in multiple studies. For example, Pierceall and Keim (2007) administered the Perceived Stress Scale, a 14-item measure designed to assess overall stress level, and discovered

that 75% of college students in their sample reported moderate stress levels and 12% reported high stress levels. Similarly, Hudd et al. (2000) found that 52.1% of college students experience high levels of stress at some point during a typical college semester. Thus, the majority of college students experience stress, oftentimes at high levels (Leppink, Odlaug, Lust, Christenson, & Grant, 2016; Miron et al., 2018).

High stress levels are alarming as they coincide with a multitude of adverse effects on health. Higher levels of perceived stress have been correlated with a higher incidence of physical and psychological health concerns such as increased headache and migraine, body mass index, alcohol consumption, depressive symptoms, insomnia, somatic distress, and anxiety (Felsten & Wilcox, 1992; Labbe, Murphy, & O'Brien, 1997; Adams & Rini, 2007; Aldridge-Gerry et al., 2011; Gress-Smith, Roubinov, Andreotti, Compas, & Luecken, 2015; Leppink et al., 2016). Further, perceived stress in young adults is positively correlated with an increase in clinically-significant anxiety and depression symptoms, particularly when stress is experienced at high levels (Felsten & Wilcox, 1992; Beiter et al., 2015; Miron et al., 2018). For example, Miron et al. (2018) measured perceived stress, anxiety symptoms, and depression symptoms in 4,301 undergraduate students. They found that 25% of the sample reported high, severe stress levels, and strong positive correlations were discovered between stress and anxiety symptoms (0.76) and stress and depression symptoms (0.72), indicating that stress and psychological symptomatology are related (Miron et al., 2018).

Increased anxiety and depression symptoms, especially when brought upon by increased stress, are associated with functional impairments that affect daily life, which can potentially serve to worsen and exacerbate the sources of stress in college-attending young adults. Concerning impairments include: difficulty maintaining social relationships, greater likelihood of

alcohol and substance abuse, changes in appetite with a possibility for the development of obesity and eating disorder symptoms, and decreased academic performance (Jaffe, Froom, & Galambos, 1994; Johnson, Chilcoat, & Breslau, 2000; Goodman & Whitaker, 2002; Weitzman, 2004; Measelle, Stice, & Hogansen, 2006; Shanahan, Copeland, Angold, Bondy, & Costello, 2014). In addition to the impairments previously listed, low quality of sleep and trouble falling and staying asleep have been linked to depression, anxiety, and stress symptoms, particularly in young adult populations; those who report significantly low sleep quality also tend to endorse increased depression, anxiety, and stress symptomatology (Yang, Wu, Hsieh, Liu, & Lu, 2003; Nebes, Buysse, Halligan, Houck, & Monk, 2009; Benitez & Gunstad, 2012; Fatima, Doi, Najman, & Mamun, 2016). Since ever-increasing, high levels of stress are correlated with these impairing factors, it is worthwhile to consider the prevalence and impact of these psychiatric symptoms on young adults.

Psychiatric Symptoms in Young Adults

Globally, the lifetime prevalence for anxiety disorders is 28.8% and 20.8% for mood disorders, including depression (Kessler et al., 2005). Three-fourths of all lifetime cases of psychiatric disorders first occur before age 24 (Kessler et al., 2005; World Health Organization, 2017), suggesting that children, adolescents, and young people are particularly vulnerable to the onset of psychiatric symptoms. Considering the large percentage of college students that endorse moderate and high stress levels and the correlation with increased anxiety and depressive symptoms, this vulnerable period of time may seem concerning in the development and maintenance of psychiatric symptoms.

Eisenberg, Gollust, Golberstein, and Hefner (2007b) investigated the prevalence of symptoms of anxiety, depression, and suicidality in undergraduate college students (but did not include reference to specific diagnoses). They found that 15.6% of undergraduates endorsed clinical levels of anxiety and depressive symptoms. Additionally, among undergraduate students, 13.8% endorsed mood disturbances, and 4.2% reported anxiety symptoms similar to anxiety disorder diagnostic criteria. Further, 2.5% of undergraduates reported suicidal ideation within four weeks prior to the data collection (Eisenberg et al., 2007b).

Auerbach et al. (2016) discovered that 20.3% of college students, aged 18-22, from 21 different countries met criteria for a Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV; American Psychiatric Association, 1994) psychiatric disorder within the recent twelve months. Of those, 8.6% of males and 15.1% of females met criteria for any anxiety disorder. Rates of depressive disorder were similarly high among this same group, with 4.3% of male college students and 7.8% of female students meeting diagnostic criteria for any mood disorder (Auerbach, 2016).

Prior 12-month prevalence for DSM diagnoses in college students was also assessed using a nationally representative sample from the United States alone (Blanco et al., 2008), wherein 45.79% of college students examined (n = 2188) met criteria for a psychiatric diagnosis and 39.84% reported what was previously categorized as an Axis I clinical disorder. Of those 39.84%, 10.62% endorsed a mood disorder and 11.94% endorsed an anxiety disorder (Blanco et al., 2008).

Perhaps unsurprisingly, considering that almost half of examined young adult college students met criteria for a psychiatric diagnosis and endorsed concerning psychiatric symptomatology (Blanco et al., 2008), members of this group have also reported that their

mental health has impacted academic performance. For example, Eisenberg et al. (2007b) examined 1,181 young adult undergraduate college students and found that 44.3% said their mental health affected their academic performance, and 18.4% stated they missed academic obligations due to mental health concerns (Eisenberg et al., 2007b). These data contribute to the cyclical notion that stress is correlated with an increase in depressive and anxiety symptoms (Felsten & Wilcox, 1992; Beiter et al., 2015; Miron et al., 2018), which are then reported as factors that influence academic performance, alongside the implication that academic performance concerns are a primary source of increased stress for college students (Beiter et al., 2015). In sum, college students seem to report moderate to high levels of stress and are at particular risk to experience clinically concerning levels of psychiatric symptoms, and thus in potential need of psychological assistance to prevent these factors from resulting in functional impairments.

Treatment Statistics

While many colleges and universities have counselors and therapists on staff, the majority of college students with clinical levels of psychiatric symptoms do not seek treatment from a professional (Auerbach et al., 2016; Blanco et al., 2008; Eisenberg, Golberstein, & Gollust, 2007a; Zivin, Eisenberg, Gollust, & Golberstein, 2009). Blanco et al. (2008) discovered that less than 25% of college students with psychiatric diagnoses sought mental health treatment in the year prior to data collection. Similarly, Eisenberg et al. (2007a) found that of college students with diagnosable psychiatric concerns (n = 468), the proportion of those who did not receive treatment were between 37% and 84%, depending on the disorder type. College students who endorsed significant depressive symptoms, both with and without anxiety symptoms, were

identified as those least likely to seek treatment from health professionals (Eisenberg et al., 2007a). Also of interest, Eisenberg et al. (2007a) noted that college students above the age of 26 were more likely to seek mental health treatment for endorsed disorders than those who are younger, further solidifying the idea that young adult college students (aged 18 – 25) are seeking treatment at a relatively low rate (despite being an at-risk population).

This observation is consistent with the results of a longitudinal study that suggested the majority of young adult college students with clinical levels of psychiatric symptoms did not seek treatment over a two-year period (Zivin et al., 2009). With a total sample size of 763, over half of college students in this sample had at least one psychiatric diagnosis at baseline assessment, 60% of whom were still diagnosable with the same condition when follow-up data were collected two years later. Of this latter group, approximately less than half received treatment at any point during the study (Zivin et al., 2009).

Perhaps even worse, when a college student does decide to seek help for psychiatric symptoms, most do not receive adequate mental health services (Auerbach et al., 2016), potentially due to a lack of knowledge about how to locate mental health service providers and/or navigate insurance payments for services (Eisenberg et al., 2007a). This is alarming considering that most students have immediate access to services with few barriers, in that universities offer free or reduced-rate counseling and therapy treatment services (although previous studies have indicated that only 59% of students report knowing about these resources; Eisenberg et al., 2007a). Because it seems young adult college students are largely not seeking services for their psychiatric symptoms, some researchers have implemented programs aimed at bringing mental health services to the students rather than waiting for them to seek services themselves.

One form these programs can take is known as preventive mental health care, aimed at intervening and bringing psychiatric services to students regardless of disorder classification or symptom endorsement. Preventive care is defined as programs that encourage individuals to utilize mental health services before the impairment of symptoms affects daily functioning and results in lasting consequences, which is different than intervention programs that aim to treat psychological symptoms that have already manifested. In this case, preventive care programs have shown to be moderately effective at reducing stress and other problematic areas before the development or maintenance of depressive and anxious symptomatology (Brown et al., 2001; Braithwaite & Fincham, 2009; O'Connell, Boat, & Warner, 2009, Breedvelt et al., 2018; Ssegonja et al., 2019).

An example of the impact preventive programs can have on individuals is outlined by Breedvelt et al. (2018) in which a meta-analysis was conducted that consisted of 26 studies regarding the effects of depression-based interventions on young adults. These studies were organized and labeled as containing either a preventive program or an intervention. While no significant effects for delivery, focus, or type of control were found when analyzing non-preventive interventions, they discovered a moderately positive effect of preventive programs on reducing overall depression symptoms, both at the conclusion of the studies and after brief follow-up periods, when compared to the control groups (Breedvelt et al., 2018).

Similarly exemplifying the benefits of preventive services, Ssegonja et al. (2019) conducted a meta-analysis that examined 36 preventive program studies regarding depression symptoms in children and adolescents. They found that group-based cognitive behavioral therapy reduced the incidence, prevalence, and amount of depression symptoms after the preventive program for at least 12 months or more (Ssegonja et al., 2019). Considering the strong positive

correlations between depression, anxiety, and stress (Felsten & Wilcox, 1992; Beiter et al., 2015; Miron et al., 2018) and the successful reduction of emotional symptoms in previous reviews of prevention strategies, utilizing a preventive program to address all areas of concern may be useful.

Transdiagnostic Approach

The transdiagnostic approach (Barlow, Allen, & Choate, 2004; Norton & Paulus, 2016) to psychological treatment and prevention affords a model to address multiple domains of symptoms simultaneously using a singular method to address core constructs of specific disorders by focusing on symptoms/processes of central importance. The transdiagnostic approach refers to treatments that apply common elements of evidence-based interventions to address emotional distress and difficulties such as stress, depression, and anxiety at once. If a specific construct is involved in the onset and maintenance of multiple psychiatric disorders, then it would then be a target of transdiagnostic treatment (Sauer-Zavala et al., 2017). For example, worry about body weight and image is a construct shared by both bulimia and anorexia that serves to maintain the disorders over time (Fairburn, Peveler, Jones, Hope, & Doll, 1993; Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002; Fairburn, 2008). Rumination, repeatedly thinking about the causes or consequences of a negative emotional experience, is another example of a maintenance construct shared across multiple disorders and symptoms: depression, various types of anxiety, and stress (Baer & Sauer, 2011; McLaughlin & Nolen-Hoeksema, 2011; Sauer-Zavala & Barlow, 2014). In these cases, a transdiagnostic approach would target the shared construct, thus allowing for a singular treatment and prevention approach to address a

multitude of different disorders and symptom-presentations (Barlow, Allen, & Choate, 2004; Sauer-Zavala et al., 2017).

In a large randomized test of this approach, Barlow et al. (2017) examined whether or not transdiagnostic approaches were as successful at reducing psychiatric symptoms as disorder-specific treatments more narrowly focused on treating specific domains of impairment. They found that a transdiagnostic approach lead to similar symptom reduction as disorder-specific therapy interventions (Barlow et al., 2017), indicating that broadening the scope of the therapeutic service to encompass a variety of disorders did not seem to diminish the beneficial effects of mental health therapy.

A transdiagnostic approach to treating and preventing psychiatric symptoms has other potential benefits when directedly applied to the young adult college population. For example, treatment efficiency in this group that reports a multitude of psychiatric symptoms and disorders with shared symptoms of central importance, may be substantially enhanced (McHugh & Barlow, 2010). In the case of young adult college students where stress is correlated with the onset of both anxiety and depression symptoms (Felsten & Wilcox, 1992; Beiter et al., 2015; Miron et al., 2018), bringing a preventive transdiagnostic approach directly to the students could be beneficial, especially when given consideration to the idea that college students are likely not seeking treatment on their own accord. Given the applicability of this approach to the current study, its structure will be reviewed in more detail (below).

Unified Protocol for Transdiagnostic Treatment of Emotional Disorders

The Unified Protocol – Second Edition (Barlow et al., 2018) is a transdiagnostic, cognitive-behavioral treatment manual that was developed to simultaneously address general

symptoms and constructs important in the etiology and maintenance of many emotional disorders and disturbances (e.g., mood disorders and anxiety disorders; Ellard, Fairholme, Boisseau, Farchione, & Barlow, 2010; Barlow et al., 2018). Across a variety of disorders and their associated symptoms, the Unified Protocol aims to address excessive or maladaptive responses to one's emotional experiences (Barlow et al., 2018), indicating that it could be a beneficial approach to providing mental health assistance to college students that experience varying types of psychiatric symptoms. An abundance of research exists on a transdiagnostic approach involving the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Unified Protocol) that demonstrates that this treatment intervention is effective at reducing psychiatric symptoms, including symptoms related to stress, anxiety, and depression (Ellard et al., 2010; Farchione et al., 2012; Bullis et al., 2015; de Ornelas Maia, Nardi, & Codoso, 2015; Reinholt et al., 2016; Barlow et al., 2017).

The Unified Protocol covers four core concepts demonstrated in a multitude of different endorsed symptoms and disorder-types (emotional awareness, flexibility in cognitive appraisals, identifying and preventing emotional and behavioral avoidance, and exposure to emotion cues; Ellard et al., 2010). Within these core concepts, the Unified Protocol has numerous sections, or modules, that are usually used in both individual and group treatment across several therapy sessions. The first module, Setting Goals and Maintaining Motivation, covers the patients' goals for therapy and encourages the continuation of treatment service (Barlow et al., 2018). The second module, Understanding Emotions, is dedicated to teaching patients about emotions and their components: thoughts, feelings, and behaviors (Barlow et al., 2018). The third module, Mindful Emotion Awareness, is used to promote mindfulness, the idea of a present-focused and nonjudgmental awareness of one's emotional experiences (Barlow et al., 2018). The fourth

module, Cognitive Flexibility, specifically focuses on the role that thoughts have in influencing emotions. This module is dedicated to teaching alternate perspectives of an emotional experience (Barlow et al., 2018). The fifth module, Countering Emotional Behaviors, covers the specific role that behaviors have in influencing emotions. This module is used to help patients develop alternative, more adaptive behavioral strategies for dealing with emotional or environmental difficulties (Barlow et al., 2018). The sixth module, Understanding and Confronting Physical Sensations, covers the role that feelings (i.e., physical sensations or interoceptive cues) have in an emotional experience. The therapist guides patients in confronting these feelings to lessen their impact in subsequent experiences (Barlow et al., 2018). The seventh module, Emotion Exposures, is designed to deliberately induce heightened emotional states to allow patients to practice utilizing the knowledge gained up to this point in treatment (Barlow et al., 2018). The eighth module, Recognizing Accomplishments and Looking to the Future, focuses on evaluating progress and planning patients' lives after treatment ends (Barlow et al., 2018).

According to pilot testing by Ellard et al. (2010), the Unified Protocol demonstrated strong treatment effectiveness in that 73% of the sample (n = 18; aged 18-44) that received treatment via the Unified Protocol reached responder status (i.e., significant improvement in their reported psychiatric symptoms) and 60% reached high end-state functioning (i.e., no longer met criteria for a psychiatric diagnosis). Additionally, after a six-month follow-up, 85% of individuals exhibited a significant reduction in symptoms, and 69% no longer met criteria for a psychiatric diagnosis (Ellard et al., 2010). This suggests that the Unified Protocol is not only effective at reducing symptoms immediately after treatment, it is also effective six months from the last therapy session (potentially even more so). Similarly, Farchione et al. (2012) found that participants who received treatment using the Unified Protocol showed significant improvement

on clinical severity, overall depression and anxiety symptom endorsement, and symptom impairment on daily life both immediately after treatment and after a six-month follow up. Since these earlier trials, the effects of the Unified Protocol on psychiatric symptoms have been tested multiple times using randomized designs in a variety of sample types (children, adolescents, and adults) with different psychiatric symptoms (anxiety only, depression only, comorbid anxiety and depression) with similar outcomes (Bilek & Ehrenreich-May, 2012; Bullis et al., 2015; de Ornelas Maia, Nardi, & Cardoso, 2015; Ehrenreich-May et al., 2017; Reinholt et al., 2016), indicating that the Unified Protocol has robust positive effects. This suggests that the Unified Protocol could be of benefit to young adult college students with concerns regarding stress, depressive symptoms, and anxiety symptoms.

Perhaps most interesting about the Unified Protocol is that it has shown to be successful in group therapy as well (Bullis et al., 2015; de Ornelas Maia et al., 2014; Reinholt et al., 2016). Bullis and others (2015) found that the administration of the Unified Protocol in a group therapy setting resulted in a moderate to strong reduction of depression and anxiety symptoms. Similar results were also discovered in a study by Reinholt and others (2016). Additionally, group treatment using the Unified Protocol was shown to be as effective as medication treatments for anxiety and depression (de Orlenas Maia et al., 2015). These data are not surprising considering portions of the Unified Protocol, especially those designed for children and adolescents, were specifically created to be administered in a group format (Bilek & Ehrenreich-May, 2012; Ehrenreich-May et al., 2017; Barlow et al., 2018).

Bentley et al. (2018) investigated the effects of a group-based, single session workshop given to college students that covered basic emotion-management techniques found in the Unified Protocol. They discovered that the two-hour workshop was favorably viewed by their

participants and was successful at teaching college students about emotion-management. A limited amount of data was presented on the impact of the workshop on overall psychiatric symptoms, however, both in terms of immediate impact and sustained effects during a follow-up period (Bentley et al., 2018). Given these preliminary results, the Unified Protocol seems to be a relatively promising framework for preventive group interventions; however, future research on the effectiveness of the Unified Protocol in a preventive manner is warranted.

Summary and Purpose of the Present Study

As outlined above, young adults in college experience various stressors relatively unique to their age group (Hudd et al., 2000; Pierceall & Keim, 2007; Blanco et al., 2008; Misra & McKean, 2000; Beiter et al., 2015), and these stressors culminate in reports of moderate to high stress during the college semester (Hudd et at., 2000, Pierceall & Keim, 2007). This is concerning in that high levels of stress have previously been investigated and were found to positively correlate with clinically elevated symptoms of both depression and anxiety (Felsten & Wilcox, 1992; Beiter et al., 2015; Miron et al., 2018). Though large amounts of stress have been linked to the development and maintenance of psychiatric symptoms and functional impairments (Jaffe et al., 1994; Johnson et al., 2000; Goodman & Whitaker, 2002; Weitzman, 2004; Measelle et al., 2006; Shanahan et al., 2014), the majority of young adults in college are not seeking out or remaining involved with adequate mental health services, so these high levels of stress are largely remaining unchecked and preventive measures are not being taken to reduce rates of depressive and anxious symptomatology (Auerbach et al., 2016; Blanco et al., 2008; Eisenberg et al., 2007a; Zivin et al., 2009).

Since college-attending young adults report numerous types of psychiatric symptoms and disorders (Auerbach et al., 2016; Blanco et al., 2008; Eisenberg et al., 2007b), a transdiagnostic approach to prevent the onset and maintenance of psychiatric symptoms may be a beneficial way of targeting multiple problematic areas at once. The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Barlow et al., 2018) is an evidence-based, transdiagnostic approach to treating psychiatric symptoms in all ages that demonstrates effectiveness when given in a group format (Ellard et al., 2010; Bilek & Ehrenreich-May, 2012; Farchione et al., 2012; Bullis et al., 2015; de Ornelas Maia, Nardi, & Codoso, 2015; Ehrenreich-May et al., 2017; Reinholt et al., 2016; Barlow et al., 2017). It has even shown some piloting success using a singular preventive session in an undergraduate college sample (Bentley et al., 2018). Therefore, the purpose of the present study is to examine the effects of one single-session lecture covering the four major concepts demonstrated in the Unified Protocol (increasing emotional awareness via psychoeducation, monitoring emotion-driven thoughts and behaviors, engaging in mindfulness and present-focused awareness, and solving potential problems in navigating emotional experiences) on measures of participant psychological dysfunction. It is hypothesized that depression, anxiety, and stress will be significantly reduced comparing pre- to post-participation in an educational session geared toward preventing emotional duress.

II. METHODS

Participants

Potential participants were adult undergraduate students (i.e., over the age of 18) who were currently enrolled in a course at the University of Mississippi. Course credit or extra credit was arranged for participating individuals. Additionally, participants were recruited through in-class announcements, flyers distributed throughout the university's campus, and word-of-mouth. The current study was open to undergraduate students that were between the ages of 18 and 25, so all eligible participants had the opportunity to gain credit.

Measures

Demographic Questionnaire. Participants were given a short questionnaire with demographic information such as: age, gender, ethnicity, university classification (i.e., freshman, sophomore, junior, senior), academic major, and current grade point average. Participants were also asked about their current involvement in any therapy or treatment programs related to mental health.

Depression, Anxiety, and Stress Scale – 21 (DASS-21; Appendix A). The DASS-21 (Lovibond & Lovibond, 1995) is a self-report measure that is used to assess severity of symptoms related to depression, anxiety, and tension/stress. The DASS-21 comprises 21 statements that individuals rate on a 4-point Likert-type scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Individuals are asked to recall how they have felt over the past week and rate the severity and prevalence of specific symptoms.

Within each subscale (e.g., depression, anxiety, and tension/stress), higher scores indicate more endorsed symptoms related to that domain. The DASS-21 is a reliable measure with $\alpha = .94$ for the depression scale, $\alpha = .87$ for the anxiety scale, and $\alpha = .91$ for the tension/stress scale (Antony et al., 1998). It has demonstrated high internal consistency using clinical and nonclinical samples, particularly with regard to undergraduate university students (Antony et al., 1998; Osman et al., 2012).

Pittsburgh Sleep Quality Index (PSQI; Appendix B). The PSQI (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) is a 19-item self-report measure used to assess overall sleep quality over the past month, asking individuals to rate their subjective sleep quality, duration, latency, onset, termination, and disturbances. To endorse or deny these sleep-related concerns, individuals use a 4-point Likert-type scale ranging from 0 (not during the past month) to 3 (three or more times a week). Higher scores indicate lower levels of sleep quality, with a clinical cutoff established at five indicating poor quality of sleep. The PSQI has demonstrated adequate reliability ($\alpha = .83$), validity, and factor structure across both clinical and nonclinical samples (Buysse et al., 1989; Buysse et al., 1991; Backhaus, Junghanns, Broocks, Riemann, & Hohagen, 2002).

Qualitative Questionnaire. Participants were given a qualitative questionnaire that asked participants to give their opinions on the material presented in the present study. Questions were related to participant satisfaction, usefulness of the content, and applicability to real life scenarios.

Procedure

Upon signing up for the study, participants received instructions on how to participate in the present study. Participants were first provided a brief overview of the study including an outline of the procedure, possible risks and benefits, an explanation of the compensation of course credit (if applicable), and a reminder of the right to withdraw at any time. Participants consented and had to be over the age of 18 continue. After giving informed consent, participants completed the demographics questionnaire, the DASS-21, and the PSQI via Qualtrics, an online surveying program.

After baseline data were collected, participants viewed a pre-recorded seminar session based on core modules of the Unified Protocol (Barlow et al., 2018): psychoeducation about emotions, monitoring and adjusting thoughts and behaviors, and problem-solving techniques. The seminar was adjusted to provide a broad overview of these evidence-based therapy techniques to avoid symptom- and disorder-specific treatment presentations, as it was expected that participants with varying types and degrees of psychiatric symptoms would view the seminar. Upon the completion of the seminar, participants were asked various qualitative questions regarding their opinion on the seminar and if they found it useful. Within the pre-recorded video at random intervals, the presenter asked participants to remember short phrases that they were asked to repeat in the qualitative questionnaire to ensure the participants watched the video.

Participants were emailed and asked to provide follow-up data four weeks after they viewed the seminar recording, utilizing similar follow-up periods of other single-session studies (Perkins, 2006; Lau-Barraco & Dunn, 2008; Danitz, Suvak, & Orsillo, 2016; Dvorakova et al., 2017; Reyes-Parra, Uribe, & Bianchi, 2019). Follow-up data collection included the DASS-21

and PSQI. Participants were also asked if they have engaged in other mental health treatment services since the conclusion of the seminar. Community mental health resources were electronically distributed to every participant after follow-up data collection, regardless of the final outcome of their measured psychiatric concerns.

Statistical Analyses

SPSS was used to compute descriptive statistics regarding participant demographics and endorsed symptomatology collected via the DASS-21 and the PSQI. To test the proposed hypotheses for this within-subject study, paired-samples *t* tests were conducted comparing baseline and follow-up scores on the DASS-21 and PSQI. An a priori G*Power analysis was conducted to determine the sample size necessary to conduct the proposed statistical analyses (Faul, Erdfelder, Lang, & Buchner, 2007). When using a medium effect size of **d** = 0.5, a power level of 0.8, and an alpha of 0.05, results indicated that a sample size of 27 participants was needed.

III. RESULTS

Participants

The analyzed sample (n = 246) was largely female (74.1%) with 98.8% identifying as young adults (aged 18-25). The majority of participants were White/Caucasian (77.3%) followed by Black/African American (10.9%), Hispanic/Latinx (4.0%), Asian (4.0%), and mixed race (2.8%). The sample mostly consisted of single (98.0%) university freshmen (78%). The majority (84.6%) of the sample reported that they were not involved in mental health treatment at the time of initial data collection, although some participants endorsed current use of psychiatric medications as a sole form of treatment (7.7%), therapy/counseling services (4.0%), or using both approaches simultaneously (3.6%).

Follow-up data were collected for 15 of the 246 participants, all of whom identified as young adults (aged 18-25). They were largely female (73.3%) and White/Caucasian (73.3%), followed by Black/African American (20.0%) and Asian (6.7 %). The majority of the sample indicated that they were not involved in mental health treatment (93.3%) and only one participant endorsed medication usage to manage experienced psychiatric symptoms. Descriptive statistics can be found in Table 1 for both samples.

Table 1 – Participant Demographics

Total Sample		**Frequency**
Age (years)	18 – 25	244
	26 – 34	1
	35 – 44	1
Gender	Male	62
	Female	183
	Prefer Not to Say	1

Ethnicity	White/Caucasian	191
	Black/African American	27
	Hispanic or Latino	10
	Asian	10
	Mixed Race	5
	Other	2
University Year	Freshman	192
	Sophomore	43
	Junior	7
	Senior	4
Mental Health Treatment	None	208
	Medication	19
	Counseling/therapy	10
	Both	9
Sample 2 Demographics		**Frequency**
Age (Years)	18 – 25	15
Gender	Male	4
	Female	11
Ethnicity	White/Caucasian	11
	Black/African American	3
	Asian	1
University Year	Freshman	9
	Sophomore	5
	Senior	1
Mental Health Treatment	None	14
	Medication	1

Endorsed Psychiatric Symptomatology

Considering data from the overall sample at baseline, the mean depression score reported on the DASS-21 was 3.82 (SD = 4.60), the mean anxiety score was 2.83 (SD = 3.69), and the mean stress score was 4.58 (SD = 4.24). After the follow-up period, DASS-21 scores were obtained again for the 15 participants included in second round of data collection (Sample 2).

Mean scores of 3.47 (SD = 3.70), 2.67 (SD = 3.03), and 3.93 (SD = 4.13) were obtained for the depression, anxiety, and stress subscales, respectively. Paired-samples *t* tests were conducted to determine whether or not the 15 follow-up participants exhibited significant change in scores between measurement points. Across all subscales, no significant differences were observed (see Table 2).

Table 2 – DASS-21 Scores

Total Sample Baseline	**Mean**		**Standard Deviation**	
Depression	3.81		4.60	
Anxiety	2.83		3.69	
Stress	4.58		4.24	
Sample 2 Baseline	**Mean**		**Standard Deviation**	
Depression	5.27		5.10	
Anxiety	2.20		2.34	
Stress	5.47		4.09	
Sample 2 Follow-Up	**Mean**		**Standard Deviation**	
Depression	3.47		3.70	
Anxiety	2.27		3.03	
Stress	3.93		4.13	
Paired-Samples *t* tests	**Mean**	**SD**	***t***	**Sig.**
Depression	1.80	5.21	1.33	.202
Anxiety	-.07	3.31	-.078	.939
Stress	1.53	4.87	1.22	.243

Reported Sleep Quality

On the measure of overall sleep quality (PSQI), 81.2% of participants in the initial sample reported low sleep quality scores. The mean total score reported on the PSQI was 6.93 (SD = 2.81), which indicated a generally low quality of sleep among this sample (i.e., a score above 3.0 suggests sleep difficulty). With regard to those included in the second sample, a mean score of 6.67 (SD = 4.08) was observed at the second administration of the PSQI, also suggesting low quality of sleep. A paired-samples *t* test was conducted to analyze between group differences

on overall sleep quality. Similar to above, no significant differences were reported between administrations of the measure (see Table 3).

Table 3 – PSQI Scores				
Total Sample Baseline	**Mean**		**Standard Deviation**	
Total Sleep Quality	6.66		3.23	
Sample 2 Baseline	**Mean**		**Standard Deviation**	
Total Sleep Quality	6.93		2.81	
Sample 2 Follow-Up	**Mean**		**Standard Deviation**	
Total Sleep Quality	6.67		4.08	
Paired-Samples *t* tests	**Mean**	**SD**	***t***	**Sig.**
Total Sleep Quality	.27	2.15	.48	.639

Participant Opinions

Following the video, all participants were asked to recall the words included as an attention check. Almost half (45.3%) of participants were able to correctly recall the words they were asked to remember, while 21.9% offered incorrect, but relevant, words (e.g., cognitive triangle and information about emotions), which suggested they were also paying attention to the video in some capacity (albeit not sufficient to recall the explicitly indicated phrase).

Participants were also asked to describe what they most liked about the video, with 42.0% reporting that they enjoyed learning about emotions and how to better handle difficult psychiatric symptoms they experienced. Additionally, 20.3% noted that they liked the speaker's relaxed pacing and 19.9% reported enjoying the provided examples and visuals. Participants were also asked to indicate what they liked the least about the presented video, with 34.6% indicating that they disliked the length of the video (ubiquitously preferring that it were shorter). Similarly, 16.5% of participants also mentioned that they would prefer if the speaker spoke more quickly to decrease the video length overall.

When asked to identify ways in which they could seek more information about the ideas presented in the video, half of the participants (50.3%) reported that they could use the internet. One-fifth (20.3%) of the sample said that they could continue practicing the information presented in the video. Participants indicated that they would be most likely to apply the techniques to adjust thinking and behaving (61.9%) than any other topic covered in the video, though only 16.3% of participants rated the likelihood of applying these techniques to their daily lives a 10 on a 0 – 10 scale (M = 6.34, SD = 2.49). With regard to the 15 participants included in the second sample, the majority (53.3%) indicated that they spent little to no time learning any additional information on the topics presented in the video in the interim between baseline and follow-up administration; however, 73.3% reported that they attempted to apply the video's concepts to their daily lives. More information about participant opinions of the video can be found in Table 4.

Table 4 – Participant Opinions

Total Sample		**Frequency**
Remembered Words	No	63
	Somewhat	54
	Yes	112
Most Memorable	Problem-Solving	13
	Cognitive Triangle	81
	Self-Care	69
	Avoidance	16
Most Liked	Speaker	47
	Informative	97
	Illustrations and Visuals	46
Most Disliked	Length	80
	Slow-Paced Speaker	38
	Illustrations and Visuals	23
How to Learn More	Ask Others (Educated)	19
	Ask Others (Uneducated)	2
	Internet	116

	Practice the Video	47
Where to Apply the Concepts	Emotions	143
	Problem-Solving	2
	Sleep Habits	30
	Eating Habits	3
Sample 2 Follow-Up		**Frequency**
Tried to Learn More	Yes	7
	No	8
Applied to Daily Life	Yes	11
	No	4

IV. DISCUSSION

The present study investigated the potential effects of a single-session lecture video covering the four major concepts demonstrated in the Unified Protocol (increasing emotional awareness via psychoeducation, monitoring emotion-driven thoughts and behaviors, engaging in mindfulness and present-focused awareness, and solving potential problems in navigating emotional experiences) on measures of participant psychological dysfunction. Consistent with previous research (Felsten & Wilcox, 1992; Beiter et al., 2015; Miron et al., 2018), the analyzed sample of young adults endorsed potentially elevated depression, anxiety, and stress scores in comparison to normative means. These scores remained constant among the small group of people who could be recruited for follow-up, yielding no significant differences between time points. This is potentially because the video itself was not effective in reducing endorsed psychiatric symptoms, although the possibility of uncontrolled external factors influencing the outcome also exists. Some indication of the latter may be apparent in the percentage of people who could not recall the repeated, specifically mentioned phrase meant to serve as an attention check (54.7%). It is also possible that the very small sample size for repeated measurement analysis contributed to null results in these comparisons. The latter explanation is difficult to evaluate given the multitude of potential reasons for null results; however, the difficulty of recruitment under pandemic conditions suggested that these few participants were likely among the most motivated and/or affected by the intervention (and thus had the highest possibility for change). Overall, the implications for the impact of pre-recorded messaging for the purposes of ameliorating symptoms is not yet clear and much more research is needed.

Additionally, the majority of the baseline sample (81.2%) endorsed low quality of sleep, reifying the idea that sleep issues are indeed a concerning factor in this population (consistent with substantial previous research; Yang et al., 2003; Nebes et al., 2009; Benitez & Gunstad, 2012; Fatima et al., 2016). On average, participants reported difficulty both falling and staying asleep, consistently getting 6 hours of sleep or less, and being non-purposefully awakened by anxiety and stress in the middle of the night. No significant differences were reported between baseline and follow-up sleep quality scores among the small sample participating in follow-up, which suggested similar outcomes and possible explanations as outlined above. Additionally, if these data about sleep represent true lack of change (rather than an artifact based on limited power), this could have some explanatory value for understanding the lack of change in anxiety, depression, and stress since sleep quality is a factor that is closely linked to overall severity of endorsed psychiatric symptomatology (Yang et al., 2003; Nebes et al., 2009; Benitez & Gunstad, 2012; Fatima et al., 2016).

Informal measurements of student opinions and behavioral indications of attention also provided some interesting information about interface and the means through which students might have obtained content-specific knowledge. Although the percentage of people explicitly providing the correct response to the attention check question was much lower than might be expected given the frequency of presenting this information (45.3%), another 21.9% offered at least some indication that they had obtained content from the presentation (i.e., relevant, yet incorrect, responses). As previously mentioned, the impact of this limited attention may have contributed to null results in changes between baseline and follow-up, but it is not an explanation for generally elevated scores on the measures of symptoms and sleep behaviors. In combination with feedback from over half (51.1%) of the participants that indicated a negative reaction to the

length of the video, it is possible that a shorter recording might have facilitated greater engagement and retention of information. This is purely speculative without additional study, however, and requires manipulation of this variable to determine if shorter segments would be more effective. Regardless, these collective, less formal results suggest that examination of the manner in which information is presented would be helpful in future studies, with particular emphasis on optimizing attention, engagement, and relevance for this audience.

Limitations and Future Directions

The present study has several limitations, including the fact that it was conducted during the COVD-19 pandemic. The distal, electronic means of communication that were mandated during the period of data collection greatly limited the ability to engage with the participants or facilitate learning these concepts in a synchronous fashion. This would have allowed the opportunity for more conversational, reciprocal communication, which in turn would have afforded the ability for participants to ask questions and may have promoted greater engagement. Synchronous learning has also been demonstrated to be more effective than asynchronous learning, particularly when learning novel ideas and information that has not been learned before (Chou, 2002; Johnson, 2006; Offir, Lev, & Bezalel, 2007; Giesbers, Rienties, Tempelaar, & Gijselaers, 2013), which likely constituted the vast majority of participants with regard to the concepts presented in the current study. Synchronous, in-person discussion of these concepts could therefore have a strong impact on the degree to which they are adequately conveyed and impactful on measured symptoms.

Additionally, pandemic conditions may have also contributed to the difficulty in obtaining follow-up participants. As classes, schedules, and life in general were all in flux, local

research participation in the Department of Psychology decreased by a substantial amount. It was particularly challenging to involve participants in studies that required multiple contacts or serial effort across time-delayed measurement. This is in some sense logical given that nearly all research studies being conducted were forced to use online implementation and most of these required only brief participation in a single survey without any human contact. If students were able to meet their research requirements in this fashion, then they may have been less inclined to organize their activity to participate in any one specific study (i.e., for follow-up). Additionally, the impact of COVID-19 on measured levels of psychopathological symptoms and sleep behaviors was a potential confound for the study. Without a priori measurement it was uncertain as to whether or not this same group of participants would have been generally elevated on the measures administered if the pandemic were not occurring. Much research has been conducted to suggest that this likely influenced symptom expression and health behaviors (Cullen, Gulati, & Kelly, 2020; Rajkumar, 2020; Usher, Durkin, & Bhullar, 2020; Vindegaard & Benros, 2020; Yao, Chen, & Xu, 2020), although broader, more longitudinal research is necessary to understand how that might impact college students' adjustment (particularly first-semester students, who comprised the majority of this sample).

Finally, future studies aimed at reducing psychiatric symptomatology in a single session may have more impact if symptoms were measured in multiple ways. The present study relied upon retrospective self-report, which has been demonstrated to be a valid method of measuring endorsed psychiatric symptoms. It is not as thorough as a comprehensive, multi-modal measurement strategy that also incorporates structured interviewing and behavioral observation, however, which may be useful to implement in future examinations. Similarly, more systematic, repeated measurement conducted over the course of students' entire first year of college may

afford the ability to understand trends in their overall symptoms and functioning (discernible through application of more complex, longitudinal statistics). Although the current study did not provide insight as to the potential effects of treatment it did establish that symptoms were globally elevated, providing a foundation to support the need for additional, more detailed research in the future.

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LIST OF APPENDICES

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Appendix A

Instructions

Please read each statement and select a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement, but please answer each question.

The rating scale is as follows:

0: Did not apply to me at all

1: Applied to me to some degree, or some of the time

2: Applied to me to a considerable degree, or a good part of time

3: Applied to me very much, or most of the time

I found it hard to wind down

0 1 2 3

I was aware of dryness of my mouth

0 1 2 3

I couldn't seem to experience any positive feeling at all

0 1 2 3

I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)

0 1 2 3

I found it difficult to work up the initiative to do things

0 1 2 3

I tended to over-react to situations

0 1 2 3

I experienced trembling (e.g., in the hands)

0 1 2 3

I felt that I was using a lot of nervous energy

0 1 2 3

I was worried about situations in which I might panic and make a fool of myself

0 1 2 3

I felt that I had nothing to look forward to

0 1 2 3

I found myself getting agitated

0 1 2 3

I found it difficult to relax

0 1 2 3

I felt down-hearted and blue

0 1 2 3

I was intolerant of anything that kept me from getting on with what I was doing

0 1 2 3

I felt I was close to panic

0 1 2 3

I was unable to become enthusiastic about anything

0 1 2 3

I felt I wasn't worth much as a person

0 1 2 3

I felt that I was rather touchy

0 1 2 3

I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)

0 1 2 3

I felt scared without any good reason

0 1 2 3

I felt that life was meaningless

0 1 2 3

Appendix B

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. **Please answer all questions.**

1. During the past month, what time have you usually gone to bed at night? _____
2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night? _____
3. During the past month, what time have you usually gotten up in the morning? _____
4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.) _____

5. During the past month, how often have you had trouble sleeping because you…	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
a. Cannot get to sleep within 30 minutes				
b. Wake up in the middle of the night or early morning				
c. Have to get up to use the bathroom				
d. Cannot breathe comfortably				
e. Cough or snore loudly				
f. Feel too cold				
g. Feel too hot				
h. Have bad dreams				

i. Have pain				
j. Other reason(s), please describe:				
6. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
	No problem at all	Only a very slight problem	Somewhat of a problem	A very big problem
8. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?				
	Very good	Fairly good	Fairly bad	Very bad
9. During the past month, how would you rate your sleep quality overall?				
	No bed partner or room mate	Partner/ room mate in other room	Partner in some room but not same bed	Partner in same bed
10. Do you have a bed partner or room mate?				
	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
If you have a room mate or bed partner, ask him/her how often in the past month you have had:				
a. Loud snoring				
b. Long pauses between breaths while asleep				
c. Legs twitching or jerking while you sleep				

d. Episodes of disorientation or confusion during sleep				
e. Other restlessness while you sleep, please describe:				

VITA

Education

University of Mississippi August 2013 – May 2017
Bachelor of Arts in Psychology
Overall GPA: 3.64
Thesis: *Perceptions of Headache Trigger Potency*
Advisor: Todd A. Smitherman, Ph.D.

Relevant Graduate Coursework

Abnormal Psychology, Personality Assessment, Evidence-Based Practices, Ethics and Interviewing, Learning and Conditioning, Psychology Theories, Cognitive Assessment, Cognitive Psychology, Developmental Psychology, Physiology, Research Methods, Psychology Statistics I and II

Honors, Awards, and Activities

Sally McDonnell Barksdale Honors College Scholar (2013 – 2017)
Chancellor's Honor Roll (Spring 2014 – Spring 2017)
Best Poster Presentation at the UM Conference on Psychological Science (April 2016)
Psi Chi Member (National Honor Society in Psychology)
Sigma Xi Associate Member (Scientific Research Society)