Childhood Maltreatment and Depressive Symptoms in College Students

By

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ABSTRACT

The current study examined the relationship between the different types of child abuse (i.e., sexual, physical, psychological maltreatment, neglect, and witnessing violence) and depression in college students. Potential variables of the relationship also were investigated. The final analyses included 89 (21 males, 60 females, 6 non-binary individuals, and 2 not specified individuals) college students. The participants completed several self-report surveys measuring demographic information, depression, stress, and childhood abuse histories. Results indicated that a history of childhood abuse correlated positively with depression in college students. However, none of the different types of childhood abuse were predictive of depression in the current sample. Additionally, stress was found to be positively correlated with depression in college students.

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CHAPTER I: INTRODUCTION

Abuse and neglect in childhood are well-established risk factors for later psychopathology. World Health Organization (2001) reported that worldwide, there is approximately 40 million children below the age of 15 subjected to child abuse each year (Badr et al., 2018). One study determined that one in three children worldwide is the victim of emotional, physical, or sexual maltreatment (Vallati et al., 2020). Compared with other health problems, the burden of child maltreatment is substantial. A nationally representative study of children reported that 10.2% of United States children experienced some form of maltreatment in 2008 with that number increasing each year (Fang et al., 2012).

The American Psychological Association (2009) defines child abuse and neglect or child maltreatment as any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm.

Neglect is a failure to meet the child's basic needs (e.g., not providing enough food, shelter or basic supervision, necessary medical or mental health treatment, adequate education or emotional comfort). According to the APA (2009), physical abuse refers to the injury of a child on purpose (e.g., striking, kicking, beating, biting or any action that leads to physical injury). Sexual abuse is the use, persuasion or forcing of a child to engage in sexual acts or imitation of such acts (APA, 2009).

Childhood emotional abuse is a form of childhood maltreatment, which can be characterized as a caregiver degrading, terrorizing, isolating, and denying/rejecting a child, and includes corruptive caregiving (e.g., taking advantage of a child; Shin et al., 2015). Emotional abuse can also be described as a caregiver using threatening behavior toward a child, rejecting and hostile verbal abuse, or exploitation of a child (Li, Carracher, & Bird, 2020).

Negative Correlates of Child Maltreatment

The potential negative consequences of child maltreatment have been extensively reported in the literature. For example, child maltreatment is associated with serious internalizing problems (e.g. depression, anxiety, or social withdrawal) and externalizing problems (e.g. aggression and delinquent behavior; Badr et al., 2018). Child maltreatment also has been shown to have lifelong adverse health, social, and economic consequences for survivors, including behavioral problems and mental health conditions, reduced quality of life, and lower levels of economic well-being (Fang et al., 2012). Additionally, difficulties in job performance across the lifespan are associated with childhood maltreatment.

There are a multitude of educational risks for children, adolescents, and adults who experience maltreatment in childhood compared to those who do not. Maltreated adolescents were significantly more likely to be absent from school, experienced more social difficulties and social withdrawal, and less likely to attend higher education than their non-maltreated counterparts (Dvir et al., 2014).The effects of child maltreatment on

an individual's self-esteem are also well documented in the literature. Researchers report children who have experienced child abuse have fewer friends and lower self-esteem than children with no histories of abuse (Badr et al., 2018).

Child maltreatment also has been shown to cause an economic burden on society. The median age for child maltreatment victims was 6 years old in 2008 (Fang et al., 2012). Using the median age, Fang et al., (2012) calculated the average lifetime cost per victim, which was defined as the sum of short-term health care costs, long-term health care costs, productivity losses, child welfare costs, criminal justice costs, and special education costs. In the United States, there was an estimated average lifetime cost per victim of nonfatal child maltreatment to be $210,012 in 2010 dollars. For fatal child maltreatment, the average lifetime cost per death was estimated to be $1,272,900 in 2010 dollars. The total lifetime costs were estimated to be $121.6 billion (Fang et al., 2012). As such, the financial costs of child maltreatment are vast, making it a significant public health concern.

Lifelong Effects of Child Maltreatment

Children who experience maltreatment are at an increased risk for internalizing disorders, externalizing disorders, and psychosocial impairment at initial presentation, while also assessed later in adolescence and adulthood (Dvir et al., 2014). Childhood maltreatment has been broadly linked with severe forms of adult psychiatric problems such as impulsivity, anxiety, depression, hopelessness, suicidal ideation and suicide attempts. The potential for unfavorable mental and physical health problems as an

aftermath of childhood physical abuse can last decades after the exposure (Badr et al., 2018). Exposure to childhood maltreatment showed significant increase in the prevalence of very severe forms of depression, anxiety, and stress compared to those who did not report any exposure (Fang et al., 2012).

Development and Course of Depressive Disorders

Major depression is one of the most prevalent psychiatric disorders worldwide. It is one of the leading causes of disability and a significant contributor to disease, affecting more than 300 million people worldwide (Li et al., 2021). Depression is not a homogeneous disorder, or a disorder that has the same root cause for all individuals; instead, depression severity, symptom patterns, and age at onset vary considerably between individuals (Nelson et al., 2017). It is therefore essential to identify variables that explain this variance in order to improve our understanding of the depressive disorders. Recently, childhood maltreatment has been discussed as an important factor influencing not only the incidence of depressive disorders but also specific characteristics (Nelson et al., 2017). However, more research needs to be done to fully understand the development and course of depressive disorders and their association with histories of child maltreatment.

Emotional Abuse and Mental Health Correlates

Emotional abuse has been suggested as a core component underlying all forms of child maltreatment and has similar developmental consequences as other types of child maltreatment. Experiencing emotional abuse is often a strong predictor of later pathology

relative to other types of maltreatment (Crow et al., 2014). Specifically, emotional abuse seems to be particularly relevant for the development of depression and depressive symptoms. Among all forms of early life incidents including all forms of child maltreatment, emotional maltreatment was the strongest predictor for later depression, hopelessness, suicidal ideation, anxiety, and impulsivity. Given the established short- and long-term effects of child maltreatment on the developing child, these findings are not surprising. This was an expected finding as exposure to maltreatment often generates a vulnerable psychological status that may have short and long-term effects on the child (Badr et al., 2018).

Li, Carracher, and Bird (2020) stated that the more 'silent' forms of childhood maltreatment (like emotional abuse) were more strongly associated with depressive symptoms and mentalizing incapacity, or the inability to understand one's own mental state. Childhood emotional abuse not only appeared as the strongest predictor of adult depression symptoms and mentalizing incapacity when accounting for every other form of childhood maltreatment, but remained a strong predictor of adult depression symptoms even after controlling for mentalizing incapacity, (one's inability to understand the self and others; Li, Carracher, & Bird, 2020). Findings also suggested that childhood emotional abuse was a more reliable and powerful predictor of subsequent depression compared to every other form of childhood maltreatment (Li, Carracher, & Bird, 2020)

A considerable body of evidence suggests that childhood trauma is associated with the onset, symptom severity, and course of depression and anxiety symptoms (Huh

et al., 2017). For example, in a large study of health maintenance organization members, childhood emotional abuse was a stronger predictor of recent and lifetime history of depressive disorders than every other adverse childhood experience examined, including physical and sexual abuse (Crow et al., 2014). In a sample of adult psychiatric outpatients, diagnoses of depressive disorders were more strongly related to emotional abuse than to physical or sexual abuse (Crow et al., 2014). Likewise, a sample of women presenting to a primary care practice, childhood emotional abuse and neglect were significant predictors of depressive symptoms (Christ et al., 2019). Crow and colleagues (2014) also found support for the greater role of childhood emotional abuse compared to other early trauma types in its relationship with both emotion dysregulation and depression. Their findings indicate that taken together, emotion dysregulation and emotional abuse scores account for almost half the variance in current depressive symptoms. This suggests that emotional abuse may be a particularly impactful form of childhood trauma, and it may co-occur and often be inextricable from other types of childhood trauma.

As support for this assumption, diverse models hold that maltreatment experiences contribute to the development of cognitive vulnerabilities, or predisposed beliefs that makes an individual susceptible to psychological problems. Although emotional abuse by parents did not predict the worsening of emotional mechanisms (i.e., the conscious or unconscious change in an emotional response), it has been directly associated with depressive symptoms, both concurrently and prospectively (Calvete et al.,

2014). This result is consistent with many previous studies that showed that parental maltreatment is a predictor of the onset of depression. Maladaptive emotion regulation strategies originating from childhood traumas can contribute to a vulnerability to psychological dysfunctions, such as depression and anxiety, later in life (Huh et al., 2017). Several studies have reported childhood maltreatment to be related to a greater depression severity as well (Nelson et al., 2017). Emotional neglect was the most commonly reported form of childhood maltreatment in individuals with depression, and emotional abuse was shown to be the most closely related to depression severity (Nelson et al., 2017).

Of all types of abuse, only emotional abuse was independently associated with depressive symptoms, emotion dysregulation, and interpersonal problems. In particular, childhood abuse has consistently been linked to depressive disorders in adulthood in both retrospective studies and prospective studies (Christ et al., 2019). Studies that examined the impact of multiple types of abuse have demonstrated childhood emotional abuse to be even more strongly related to depression, and it was found that childhood emotional abuse was independently associated with depressive symptoms. These results are consistent with previous studies that found childhood emotional abuse to be more strongly related to depression (Christ et al., 2019).

Emotional abuse itself is associated with a myriad of neuropsychosocial problems including disturbance in brain limbic systems, dissociative symptoms, anxiety, depression, low self-esteem, hostility and delinquency (Shin et al., 2015). Emotional

abuse often occurs in conjunction with other forms of maltreatment. For children exposed to childhood emotional abuse, the development of favorable interpersonal relationships and normative personality is often hampered by parental verbal aggression, negative interpersonal communication, and exploitative caregiving behaviors (Shin et al., 2015). This can lead to an absence of interpersonal skills developing due the maltreatment one experiences by socializing agents such as parents or caregivers.

Evidence has consistently demonstrated that adolescents with a history of childhood maltreatment have a greater vulnerability for becoming depressed or suicidal than individuals without such a history (Infurna et al., 2016). Experiences of abuse and neglect in childhood have been consistently associated with higher rates of adult depression. However, a full understanding of the relationship between childhood maltreatment and depression cannot be achieved until different types of abuse and neglect are differentiated or considered in combination. Infurna and colleagues (2016), found that specific types of childhood maltreatment revealed that some types of maltreatment were strongly associated with a depression outcome.

Maltreatment and Mental Health Risk

Exposure to traumatic events and interpersonal trauma in childhood is associated with a wide range of psychosocial, developmental, and medical impairments in children, adolescents and adults, with emotional dysregulation being a core feature that may help to account for this heightened risk (Dvir et al., 2014). Affect regulation difficulties also play a role in many psychiatric conditions, including anxiety disorders and mood

disorders, specifically in major depression in youth and lifespan development. Emotional awareness and social cognition appear to be key elements in the ability to regulate emotions (Dvir et al., 2014). For example, children growing up experiencing increased traumatic events are more likely to be emotionally reactive to stress and also less capable of healthy emotional regulation, leading to maladaptive coping strategies, which is common in depression. The irrational or harmful thoughts come to dominate the self-experience in victims of childhood emotional abuse (Li, Carracher, & Bird, 2020).

Childhood maltreatment, including emotional abuse, also leads to a breach in the development of healthy emotion regulation abilities for individuals. Knowing that emotional abuse and emotion dysregulation both relate to depression is only the first step in understanding their roles in the development of depression. Crow and colleagues (2014) conducted a study in which they investigated the relationship between forms of maltreatment and emotion regulation. Results provided support for increased depression symptoms and increased emotion dysregulation as a function of childhood trauma (Crow et al., 2014). Certain analyses confirmed that emotion dysregulation may be one mechanism through which childhood emotional abuse increases risk for depression in adolescence and through adulthood.

Childhood emotional neglect and childhood emotional abuse were associated with the rumination and behavioral avoidance, two emotion regulation strategies that Infurna and colleagues (2016) found are most strongly related to depression. It appears that childhood trauma disturbs development of the ability to regulate emotions in a healthy

manner. Children who experienced neglect were shown to be less able to understand negative emotion and to have fewer adaptive emotion regulation skills than those children who had not been neglected. Childhood dysregulation may also have detrimental effects across the lifespan by increasing the risk of emotional dysregulation in adulthood. Individuals who experience interpersonal trauma in childhood are at increased risk for numerous psychiatric disorders, including attachment disorders, PTSD, depression, and anxiety disorders. Emotional abuse has been found as the most powerful predictor of emotional dysregulation (Dvir et al., 2014). It was also found those who experienced childhood maltreatment had a reduced ability to understand and regulate emotions. This led to heightened levels of internalizing and externalizing psychopathology and impaired social functioning beginning in childhood and continuing into adulthood (Dvir et al., 2014).

Adults with experiences of childhood maltreatment were twice as likely as those without to develop both recurrent and persistent depressive episodes (Li, Carracher, & Bird, 2020). Childhood maltreatment is a strong predictor of psychological disorders, such as depression and anxiety, during adolescence and throughout the life span (Calvete et al., 2014). Some studies have found emotional abuse to be associated with lifetime depression (Li, Carracher, & Bird, 2020). The effects of childhood maltreatment in triggering adult psychopathology, suggests that depressive disorders are associated with childhood maltreatment (Jawahar et al., 2018). Childhood emotional abuse necessarily constitutes a risk factor for adulthood onset of depression. Reporting depression, anxiety,

and stress during adolescence and young adulthood are such examples of the long-term consequences (Badr et al., 2018).

Maltreatment Relating to Depression and Other Psychopathology in Adulthood

The harm caused by child maltreatment to health and wellbeing can persist into adult life, prior experience of abuse being a factor in poorer adult physical or mental health (Radford et al., 2013). Compared with individuals who have not been maltreated, those with a history of childhood maltreatment are at greater risk of meeting criteria for a depressive episode at any point in life (Nanni et al., 2012). Adults with a history of maltreatment are also at greater risk of enduring cognitive and biological vulnerabilities associated with heightened stress sensitivity.

As previously reviewed, abuse and neglect in childhood have been consistently linked to a range of mental health problems later in life. Adults who reported childhood maltreatment, especially emotional abuse, were found to have increased risk of lifetime and current depressive disorders in adulthood, even decades after occurrence of emotional abuse (Dvir et al., 2014). Crow and colleagues (2014) found that childhood emotional abuse is significantly related to later adult depression. Childhood maltreatment has consistently been shown as a risk factor for later depression, panic disorder, social phobia, generalized anxiety, substance abuse, posttraumatic stress disorder (PTSD). Despite this relative lack of research on emotional abuse, there is growing evidence suggesting its importance relative to other abuse types with respect to various negative outcomes (Crow et al., 2014).

Depression in College-Aged Students

One confounding—or perhaps a compounding—variable when considering the interplay of depressive symptoms and previous maltreatment, is higher education status. Notably, one group for whom stress is particularly acute is college students, who consistently report significantly higher levels of stress than the general population. Eighty percent of students indicate they feel at least moderately stressed indicating that emotional health is at its lowest recorded level (Pedersen & Jodin., 2016). There are common stressors that affect college students: intrapersonal, interpersonal, academic and environmental stressors (Bulo & Sanchez, 2014). College students are prone to stress because of the transitional time period in which they find themselves. Students face a number of new challenges, such as living independently, while losing the daily familial support and previous life structure (Pedersen & Jodin, 2016). Bulo and Sanchez (2014) found that studying for exams, worrying about academic performance, time-management, the rising financial cost, future careers, and social relationships are among the main causes of reported perceived stress in college students.

The tension college students feel may bleed into other aspects of their daily experience to create role conflict. With regard to gender, female students report higher levels of stress than males and feel less confident about their ability to cope with stress. Some students may attempt to cope through avoidance of stressors, while others use positive reappraisal and/or social support (Pedersen & Jodin, 2016). Anything that poses a challenge or threat to well-being undermines both mental and physical health. Stress is

associated with poor health habits and reductions in perceived health, anxiety, depression, and suicidal ideation. Bulo and Sanchez (2014) found that intrapersonal and interpersonal factors were found to worsen college stress and depression. College students were more likely to label themselves as being depressed since starting college. The transition to college marks a time when traditional supports, such as family and friends from high school, are not as accessible. Most students attributed these feelings to academic issues, loneliness, financial difficulties and social problems, which only caused stress to increase over time.

Li, et al., (2021) found in their study that childhood emotional abuse was strongly associated with depressive symptoms in college students. The transition from secondary to post-secondary education is a peak period for the onset of depressive symptoms in students (Li et al., 2021). Among the common types of childhood maltreatment, emotional abuse has been reported as the strongest risk factor of depressive symptoms in adults. Li, et al., (2021) found that depressive symptoms were more likely to be observed in college students who reported emotional or physical abuse. Depressive symptoms were more common in college students living in a single-parent family, reporting fair or poor housing status, having a poor family relationship, poor classmate or teacher-classmate relationship, and having higher academic pressure (Li et al., 2021). These demographic characteristics were useful to identify college students who were more vulnerable to depressive symptoms. Childhood emotional abuse has been found as the strongest risk factor for depressive symptoms among college students (Li et al., 2021).

Understanding the intermediate link between childhood emotional abuse and depressive symptoms is of great significance for preventing and treating depression in young adults. As previously reviewed, there is a well-established association between childhood emotional abuse and later depressive symptoms more generally (Li et al., 2021). It is unclear how general stressors, such as those experienced in higher education, might influence or exacerbate mental health symptoms in individuals who also experienced maltreatment. Information about the specific history of childhood maltreatment (type, frequency, etc.) may help to identify individuals who are at high risk of later developing depression (Infurna et al., 2016). Childhood maltreatment, especially in the form of emotional abuse or neglect, represents a relevant risk factor in the development of severe, early-onset, chronic and treatment resistant depression (Nelson et al., 2017). More research is needed, however, to better understand the relationship between depression and depressive symptoms in college students with histories of childhood emotional abuse.

Purpose and Hypotheses

Given that college students are at an increased risk for perceived stress due to the environmental stressors inherent to college demands, it is possible that they could be at an increased risk for depressive symptoms if they have previous experiences of maltreatment. Therefore, the purpose of the current study was to attempt to replicate previous findings that examine the relationships among childhood maltreatment and depressive symptoms in college students.

Hypothesis 1: It was hypothesized that severity of child abuse history as measured by the CCMS (Higgins & McCabe, 2001b) would have a significant and positive relationship with symptoms of depression as measured by the overall scores on the CES-D (Radloff, 1977).

Hypothesis 2: College students who endorsed significant levels of psychological distress as measured by overall scores on the USS (Stallman & Hurst, 2016) would also have a significant and positive relationship with symptoms of depression as measured by the overall scores on the CES-D.

Hypothesis 3: Multiple linear regression was used to examine the relationship between the child abuse subscales and the depression measure. In this study, it was hypothesized that each type of child abuse (i.e., physical abuse, sexual abuse, psychological maltreatment, neglect, and witnessing violence) measured by the CCMS would have a significant relationship with symptoms of depression as measured by the overall scores on the CES-D.

Hypothesis 4: Investigators explored trends in gender differences for mean scores of depression as measured by the CES-D as well as gender differences in mean scores of psychological distress as measured by the USS. It was predicted that mean scores of depression measured by the CES-D for females will be significantly higher than mean scores than non-females (i.e. male and non-binary) assessed. Further, it was hypothesized that mean stress scores measured by the USS for females will be significantly higher than non-females (i.e. male and non-binary) assessed.

CHAPTER II: METHOD

Participants

The proposed study used a convenience sample of undergraduate students over the age of 18 who attend different universities or community colleges across the United States. Participants were recruited to participate in the study via social media platforms (e.g., Facebook and/or Instagram), as well as MTSU's Psychology Department Research Pool, SONA. All genders and ethnic groups were encouraged to participate. Participants were not compensated for their participation in the current study, however they may have received course extra credit for participating. A priori power analysis indicated that a sample size of 76 would yield .8 power for a large effect size. In order to compensate for incomplete data, a total sample size of 95 participants was recruited. Six participants were excluded from the study due to their failure to respond to all items after beginning the survey. Therefore, a total of 89 participants had completed the survey and were used in the final analyses. Demographic data for the 89 participants are represented in Table 1. Participants were mostly female (64.9%), White/Caucasian (71.1%), 18-21 years old (58.8%), and were currently obtaining a Bachelor's degree (78.4%) at the time of the study.

Measures

Comprehensive Child Maltreatment Scale (CCMS). The CCMS is a retrospective self-report measure for adults to use to assess maltreatment experienced during childhood (Higgins & McCabe, 2001b). The original version of the CCMS is

Table 1

Demographic Information

Variable	n	%
Gender		
Male	21	21.6
Female	60	64.9
Non-binary	6	6.2
Not Listed	0	0
I prefer not to respond	2	2.1
Age		
18-21 years old	57	58.8
22 – 25	18	18.6
26 and older	17	17.5
I prefer not to respond	0	0
Ethnicity		
Black / African-African	8	8.2
White / Caucasian	69	71.1
Hispanic	7	7.2
Asian	3	3.1
Not listed	1	1.0
I prefer not to respond	4	4.1
Which degree are you in the process of obtaining?		
Trade/technical/vocational training	0	0
Associate's Degree	2	2.1
Bachelor's Degree	76	78.4
Master's or Doctoral Degree	12	12.4
Other	1	1.0

n = 89

comprised of 22 questions that are divided into separate categories to assess five different

types of maltreatment commonly experienced by children: physical abuse, sexual abuse,

psychological maltreatment, witnessing family violence, and neglect (Higgins &

McCabe, 2001b). The response ratings are on a 5-point scale (1 = *never or almost never*,

2 = *occasionally*, 3 = *sometimes*, 4 = *frequently*, 5 = *very frequently)* for all categories

except for sexual abuse. For sexual abuse, participants rate items on a 6-point scale (0 =

never, 1 = *once*, 2 = *twice*, 3 = *3 to 6 times*, 4 = *7 to 20 times*, 5 = *more than 20 times*).

On the original measure, items within four of the categories (i.e., physical abuse, sexual

abuse, psychological maltreatment, neglect) are listed three times to account for different

individuals (i.e., mother, father, and other adult/older adolescent) who may be involved in

the childhood abuse experienced. In the current study, however, the participants were

asked to report on each item as it relates to their caregiver (i.e., mother, father, foster

parent, step-parent, a relative, family friend) with the items being listed only once. The

category of witnessing family violence is made up of two items calling for a response

regarding family violence that was observed. To obtain a total score for each scale, the

different scores on all five scales should be summed. Due to the changes to the

instrument for the purposes of this study (i.e., the elimination of "mother" and "father"

report to include one "caregiver" report, as well as researcher error resulting in 3 missed

items) a total score of 100 is possible due to the 3 missing items on the sexual abuse

subscale. The sexual abuse subscale has a total possible score of zero to 55 (reduce due to

3 missing items), while the other four abuse subscales (i.e., physical, psychological

maltreatment, neglect, and witnessing violence) each have a total possible score of three to 15.

The CCMS has a total Cronbach's coefficient alpha for adults of .93 (Higgins & McCabe, 2001b). The alpha coefficients have been analyzed for each individual scale and are as follows: physical abuse α = .66, sexual abuse α = .88, psychological maltreatment α = .78, witnessing family violence α = .77, and neglect α = .84 (Higgins & McCabe, 2001b). Test-retest reliability over a 6 to 8-week interval for the total CCMS was .92 (Higgins & McCabe, 2001b). Concurrent criterion-related reliability was also demonstrated in a study comparing the CCMS to comparable subscales of the Child Abuse and Trauma Scale (Higgins & McCabe, 2001b).

Center for Epidemiologic Studies Depression Scale (CES-D Scale). The CES-D scale is a self-report measure used to identify depressive symptomology in the general population (Radloff, 1977). The CES-D scale consists of 20 items that are designed to assess components of depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of appetite, sleep disturbance, and psychomotor delay (Radloff, 1977). Items on the CES-D assess how an individual might have felt during the past week and include both negatively and positively worded items. The item responses were scored using a 4-point scale (0 = *Rarely or None of the Time*, 1 = *Some or a Little of the Time*, 2 = *Occasionally or a Moderate Amount of Time*, 3 = *Most or All of the Time*). Positively worded items (i.e., 4, 8, 12, and 16) are reverse-scored. The total score for each response column is summed to obtain the total score on the measure. The possible range

of scores is zero to 60, with higher scores indicating the presence of more symptomology in individuals.

The CES-D has a total Cronbach's alpha of .85 in the general population and .90 in the patient population (Radloff, 1977). The test-retest reliability over a 2 to 8-week period for the CES-D was .57 (Radloff, 1977). Moderate test-retest reliability can be explained in part by the fact that the CES-D measures *current* symptomatology, with symptoms being more cyclic in nature rather than chronic. This could explain variation in symptom reporting in individuals tested over time.

University Stress Scale (USS). The USS is a 21-item self-report measure that is used to identify both the categories of stress experienced by university students as well as the overall intensity of the stress experienced (Stallman & Hurst, 2016). Items on the USS assess categories of academic, relationships, equity, parenting, practical, and health that could potentially be areas related to stress (Stallman & Hurst, 2016). Individuals are asked how often each item has caused them stress during the past month. The response ratings for each item on a 4-point scale (0 = *Not at all*, 1 = *Sometimes*, 2 = *Frequently*, and 3 = *Constantly)*. The total score is then found by summing all items together. Scores that are greater than or equal to 13 is predicative of significant psychological distress.

The USS demonstrated good internal consistency as measured by a Cronbach's alpha of .83 (Stallman & Hurst, 2016). Test-retest reliability was measured by administering the USS a second time to a portion of the total sample size (twenty-five

percent). The correlation between the first and second administrations of the measure was .82 demonstrating good test–retest reliability overall (Stallman & Hurst, 2016).

Effort Validity. To assess for effort validity, four multiple-choice items created for this study were randomly included in the survey. These items can be found in Appendix A. All questions had to be answered correctly for the participant's data to be included in this study.

Demographic Form. The participants were given a demographic form after completing the previous measures (See Appendix B). The demographic form consisted of questions about gender (To which do you identify: Male, Female, Non-binary, Not listed, or I prefer not to respond), age (18-21 years old, 22-25 years old, 26 and older, or I prefer not to respond), and ethnicity (Black/African-American, White/Caucasian, Hispanic, Asian, Not listed, or I prefer not to respond). The demographic form also consisted of a question (Which degree are you in the process of obtaining?) to determine whether participants were currently enrolled in college or not. The age determinant was divided into groups in order to prevent participants (older, nontraditional students) from being more easily identifiable. The gender determinant included "Non-binary" so as not to exclude a population of participants due to nontraditional gender identification.

Procedure

Approval from the Middle Tennessee State University's Institutional Review Board was obtained prior to conducting the study. Following IRB approval, participants were recruited for this online study using the social media platforms Facebook and

Instagram, as well as MTSU's online research recruitment system (i.e. SONA).

Participants were provided a link to access the study via Qualtrics as part of the online

nature of the study. Prior to agreeing to participate in the study, participants reviewed the

exclusionary criteria (i.e., participants must be at least 18 years old). After agreeing that

they did not meet exclusionary criteria, participants were directed to the Qualtrics survey

where informed consent for participation was obtained. The informed consent form

detailed the procedure, risks, and benefits of the current study (See Appendix C).

Once participants consented to engage in the current study and indicated their

self-reported age to be at least 18 years old, the survey began. Each subsection of the

survey included instructions on how to respond to the survey items. The different scales

(i.e., the CCMS, Higgins & McCabe, 2001b; the CES-D, Radloff, 1977; and the USS,

Stallman & Hurst, 2016) were alternated for each participant to reduce bias and priming,

with each survey ending with the demographic form. Effort validity questions were also

presented after each scale. Once participants completed the study, they were provided

with a debriefing form that includes information about the study's purpose, contact

information for the principal investigator and faculty advisor, and additional resources

available to them, should they be helpful (See Appendix D).

CHAPTER III: RESULTS

Statistical Analyses

The statistical software SPSS (version 28.0.1.1) was used to perform all statistical analyses. An alpha level of .05 was used. Prior to analyses, the raw data were initially inspected for effort validity and missing values. All participants answered the effort validity questions correctly; however, an oversight in the construction of the survey used in the original data collection resulted in three missing items on the CCMS with regard to the sexual abuse subscale. Because CCMS scores are summed for interpretation, authors opted to retain CCMS scores, but acknowledge that total scores and sexual abuse subscale scores are likely to underestimate abuse history for participants. While the original CCMS allows participants to potentially have a score over 100 (i.e., 115) for their total score, participants in this study could not obtain a score higher than 100 for the CCMS total score due to the three missing items on the sexual abuse subscale.

Preliminary analysis evaluated the form, function, and extent to which response patterns demonstrate normality, independence, and homoscedasticity. Data were visually inspected for linearity. Data were assessed for completeness and for the presence of outliers. Six participants were removed for incomplete data. Descriptive statistics and bivariate correlations were run to examine trends in data and associations of study variables. Levels of skewness and kurtosis did not fall within acceptable limits of -1.96 to +1.96 for several of the child abuse variables (i.e., sexual, physical, and neglect) and the CCMS total. Therefore, bootstrap bias-corrected and accelerated confidence intervals,

which do not require a normality assumption, were used to determine significance. The primary study hypotheses were assessed through a series of bivariate correlations, which is a statistical technique used to determine the existence of a relationship between two different variables. Multiple linear regression was used to evaluate the relationships of the CCMS child abuse subscales (i.e., physical, sexual, psychological maltreatment, neglect, and witnessing violence) with total depression scores measured by the CES-D. The study also used Welch ANOVAs and Games-Howell pairwise comparisons to determine if there was a significant difference between the depression and psychological distress mean scores of females and non-females (i.e., male and non-binary).

Descriptive Statistics

For each of the current study variables (i.e., depression, stress, and child abuse), mean scores and standard deviations were included in the descriptive statistics for the sample (See Table 2). Also included were the possible values for each scale and subscale included in the study to illustrate the potential range an individual could score.

Hypothesis Testing

Based on the BC_a confidence intervals for the Pearson's bivariate correlations, there was a positively significant correlation between total severity of child abuse history endorsed and total depression scores. Depression scores were significantly and positively correlated with stress scores (Table 3). As can be seen in Table 3, physical abuse, psychological maltreatment, neglect, and witnessing violence significantly positively correlated with depression. Sexual abuse however, did not correlate with depression.

Table 2

Descriptive Statistics

Variable	Overall		Possible Values for Each Scale
	M	*SD*	
University Stress	40.92	9.08	0 – 63
Depression	22.58	11.92	0 – 60
Child Abuse Total	24.69	11.56	12 – 100
Physical Abuse	4.97	2.23	3 – 15
Psychological Abuse	8.17	3.38	3 – 15
Neglect	4.74	2.67	3 – 15
Witnessing Violence	4.89	2.09	3 – 15
Sexual Abuse	1.92	5.48	0 – 40

Note. $n = 89$. University Stress = total score of the University Stress Scale (USS). Depression = total score of the Center for Epidemiological Studies Depression Scale (CES-D). Child Abuse Total = total score of the CCMS (taking into account the 3 missing items on the Sexual Abuse subscale). Physical Abuse = total score of the of the physical abuse subscale of the Comprehensive Child Maltreatment Scale (CCMS). Psychological Abuse = total score of the psychological maltreatment subscale of the CCMS. Neglect = total score of the neglect subscale of the CCMS. Witnessing Violence = total score on the witnessing violence subscale of the CCMS. Sexual Abuse = total score on the sexual abuse subscale of the CCMS (taking into account the 3 missing items).

Table 3

Correlations Among Study Variables

Variable	1	2	3	4	5	6	7	8
1. University Stress	--							
2. Depression	.70*	--						
3. Psychological Abuse	.59*	.43*	--					
4. Witnessing Violence	.36	.35*	.66*	--				
5. Physical Abuse	.27*	.25*	.55*	.49*	--			
6. Sexual Abuse	.29	.17	.28*	.22	.32	--		
7. Neglect	.46	.40*	.65*	.45*	.43*	.29*	--	
8. Child Abuse Total	.53*	0.41*	.80*	.68*	.69*	.72*	.72*	--

Note. N = 89. University Stress = total score of the University Stress Scale (USS). Depression = total score of the Center for Epidemiological Studies Depression Scale (CES-D). Physical Abuse = total score of the of the physical abuse subscale of the Comprehensive Child Maltreatment Scale (CCMS). Psychological Abuse = total score of the psychological maltreatment subscale of the CCMS. Neglect = total score of the neglect subscale of the CCMS. Witnessing Violence = total score on the witnessing violence subscale of the CCMS. Sexual Abuse = total score on the sexual abuse subscale of the CCMS. Child Abuse = total score of the CCMS.

*significance based on a BC_a 95% Confidence Interval

For hypothesis three, a regression analysis, using a standardized data set to address potential collinearity issues, was conducted to test for a significant relationship. After conducting the regression analysis, data suggested that the full model was significant in predicting depression when physical abuse, sexual abuse, psychological maltreatment, neglect, and witnessing violence were combined, *Adj. R^2* = .17, *F*(5, 85) = 4.69, *p* < .001. None of the abuse subscales, however, were independently significant in predicting depression, when controlling for the other abuse subscales in the model (See Table 4).

Investigators further explored trends in gender differences for mean scores of depression as measured by the CES-D, as well as gender differences in mean scores of psychological distress as measured by the USS. It was hypothesized that females would have significantly higher mean scores on both measures compared to the other gender categories assessed. Descriptive statistics for stress and depression for all genders are shown in Table 5. There were no gender differences for total stress scores, *F* (2, 11.9) = 2.93, *p* = .03. The *F* test for depression scores was marginally significant, *F* (2, 12.3) = 3.83, *p* = .051. Importantly, the Games-Howell pairwise comparisons indicated females had higher depression scores than males (M_Δ = 6.87, BC_A 95% CI [2.03, 11.49]). Depression scores were similar for non-binary and females (M_Δ = 5.37, BC_A 95% CI [-7.58, 17.51]), as well as non-binary and males (M_Δ = 12.24, BC_A 95% CI [-1.95, 25.04]).

Table 4

Regression Coefficients for Child Abuse Subscales

Variable	Significance	BC$_a$ 95% Confidence Intervals	
		Lower	Upper
Physical Abuse	0.93	- 0.24	0.22
Sexual Abuse	0.65	- 0.10	0.14
Psychological Abuse	0.13	- 0.10	0.50
Neglect	0.19	- 0.08	0.59
Witnessing Violence	0.34	- 0.11	0.31

Note. n = 89. Child Abuse = total score of the Comprehensive Child Maltreatment Scale (CCMS). Physical Abuse = total score of the of the physical abuse subscale of the CCMS. Sexual Abuse = total score on the sexual abuse subscale of the CCMS. Psychological Abuse = total score of the psychological maltreatment subscale of the CCMS. Neglect = total score of the neglect subscale of the CCMS. Witnessing Violence = total score on the witnessing violence subscale of the CCMS.

*p < 0.05

Table 5

Descriptive Statistics for Depression and Stress by Gender

Variable	Depression		University Stress	
	M	*SD*	*M*	*SD*
Gender				
Female (*n* = 60)	23.18	11.27	40.84	7.76
Not Female (*n* = 27)				
Male (*n* = 21)	16.43	9.66	36.71	8.89
Non-binary (*n* = 6)	28.67	19.20	50.17	15.74
Not listed (*n* = 0)	--	--	--	--
I prefer not to respond (*n* = 2)	33.50	6.36	43.50	3.53

Note. n = 89. Depression = total score of the Center for Epidemiological Studies Depression Scale (CES-D). University Stress = total score of the University Stress Scale (USS).

*$*p < 0.05$

CHAPTER IV: DISCUSSION

Discussion

There has been a lot of research on the relationship between child abuse and depression in adulthood. However, there is greater need for research on how child abuse relates to depression and stress in college students. The purpose of the current study was to explore the relationships between the different types of child abuse (i.e., sexual, physical, psychological maltreatment, neglect, and witnessing violence) and depression and stress among college students.

As was predicted, total child abuse scores were significantly correlated with depression. These findings are consistent with Crow and colleagues (2014), who found that childhood abuse experienced is significantly and positively related to later adult depression. Further, the current study's findings are similar with Li, et al., (2021), who found in their study that childhood abuse was strongly associated with depressive symptoms in college students and higher rates of depressive symptoms endorsed.

In addition to total child abuse scores being significantly correlated with depression, higher levels of academic-related stress were also significantly correlated with depression, as was predicted. The current study's findings are consistent with Bulo and Sanchez (2014), who found that intrapersonal and interpersonal factors were found to worsen college stress and depression. These findings demonstrate how histories of child abuse, academic stress, and depression in college students are interrelated. This could be

beneficial in identifying potential risk factors for stress and depression in individuals who have histories of child abuse.

The current study found that gender variables were significantly correlated with depression, but not with stress. These findings are inconsistent with those that found females are more likely to endorse depressive symptomatology as compared to males (Pedersen & Jodin, 2016). However, these findings are inconsistent with the studies that found female students report higher levels of stress than males. This could be due to the fact that while other research only looked at male and female gender differences, the current study included non-binary individuals (although the sample size for individuals who identify as non-binary was quite small in this study). This could contribute to or explain the discrepancy in findings between other research and the current study. Further, the population of the current study was limited to mostly female participants (64.9%) which could impact the significance in gender variance.

Contrary to what was predicted, none of the child abuse subscales significantly correlated with depression, when controlling for each child abuse subscale. These findings are inconsistent with the research conducted by Higgins and McCabe (2001a), who found that sexual abuse and psychological maltreatment have a higher rate predicting depression in adults. Since no given form of abuse was independently significant in this study, it could mean that there is a combination of abuse subtypes that lead to depression in adults. The current study's findings could be due to the sample tested. The sample was a relatively small sample, with limiting factors such as age range

and diversity among the participants. These factors could limit the findings and potentially impact the correlations between the abuse subscales and predicting depression.

It is notable that the sexual abuse subscale accounts for 40% of the CCMS total score, and while the sexual abuse subscale was the only abuse subscale not significantly correlated with depression, the CCMS total score was *still* significantly correlated with depression. This demonstrates just how powerful the other child abuse subscales (i.e., physical, psychological maltreatment, neglect, and witnessing violence) are in predicting depression. It also provides further implications in the relationship between the various types of child abuse and depression symptoms.

Relevant to the correlational findings among the child abuse variables and depression and stress, it should be considered that other researchers who found significant relationships between a history of abuse and measures of depression may have used more diverse definitions of abuse than what was used in the current study. The CCMS (Higgins & McCabe, 2001b) is a widely used measure of childhood maltreatment and abuse, but studies using measures with different definitions of abuse may yield different results. This could potentially play a part in why none of the abuse variables correlated with depression when using a multiple linear regression analysis.

Limitations

There also are certain limitations of the current study that warrant attention. One limitation worth noting is the small and potentially restricted sample size that was used in

the study. A smaller sample size can affect statistical power and analyses. Furthermore, limitations exist with generalizability of the findings due to the recruitment method of the current study. The participants were young adult, college-aged individuals recruited from a psychology research pool from a medium-sized university in the southeastern United States, as well as through social media platforms. It is likely that even individuals recruited through social media platforms are narrow in geographic scope due to the snowball sampling techniques of researchers (i.e., recruiting through their own social media pages). It is unknown how these students may differ from other individuals from broader geographic locations and from the general population.

An additional drawback of this study is the limited number of male and non-binary participants who participated in the current study. Due to the majority female sample, gender differences among the study variables were difficult to explore, and inferences from results are limited. This could partly explain why no significant gender differences were found. Also, the sample was comprised of mostly Caucasian individuals with less representation of racial minorities. The sample also primarily contained individuals aged 18-21, which could exclude nontraditional college students who are older than the traditional norms. Another significant limitation is that the current study did not use the full CCMS sexual abuse subscale due to researcher error in which three items were erroneously left off of the survey. Further, the original CCMS measure used separate options for each caregiver (i.e., "mother" and "father"), whereas this study only had one option (i.e., "Caregiver"). This was initially an effort to reduce bias and promote

inclusivity, however the restriction potentially limited interpretability of findings. These things combined could have impacted the validity of the subscale measure. Future research could benefit from a larger, more diverse sample that includes a wider range of students across different academic areas and other locations, as well as more gender-diverse participants and greater racial diversity, and older college-aged participants to address the generalizability issue of the current study.

Conclusion

Despite its limitations, the findings of the current study indicate that child abuse predicts depression in college students. Further, those who endorse depressive symptoms also are more likely to endorse higher levels of academic stress and vice versa. Future studies would be beneficial for college students who have experienced child abuse histories if research continued studying different types of child abuse and their relation to depression. A greater understanding of the components that influence child abuse would better explain the risk factors for adulthood depression in college students. This would help guide resilience strategies aimed at reducing the risk of depression in college students.

Further, given the significant positive relationship between stress and depression found in this study regarding college students, this relationship is a topic that deserves further exploration. Potential future studies could utilize correlational designs to gather additional information on specific risk factors related to academic stress and how academic stress and depression are connected. Increased knowledge about the

relationship between stress and depression would allow for more informed strategies aimed at decreasing stress in college students and those strategies supporting individuals who are experiencing depression.

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APPENDICES

APPENDIX A: EFFORT VALIDITY

Validity questions were added to determine the effort of the participants.

1. What month comes immediately after April?
   a. March
   b. December
   c. May
   d. June

2. What does 2+2 equal?
   a. 3
   b. 4
   c. 5
   d. 8

3. What article of clothing is traditionally worn on the foot?
   a. Shoe
   b. Jacket
   c. Hat
   d. Gloves

4. What does 1+1 equal?
   a. 1
   b. 2
   c. 3
   d. 4

APPENDIX B: DEMOGRAPHIC FORM

1. Gender
   a. Male
   b. Female
   c. Non-binary
   d. Not listed
   e. I prefer not to respond

2. Age
   a. 18 – 21
   b. 22 – 25
   c. 26 and older
   d. I prefer not to respond

3. Ethnicity
   a. Black / African-African
   b. White / Caucasian
   c. Hispanic
   d. Asian
   e. Not listed
   f. I prefer not to respond

4. Which degree are you in the process of obtaining?
   a. Trade/technical/vocational training
   b. Associate's Degree
   c. Bachelor's Degree
   d. Master's or Doctoral Degree
   e. Other

APPENDIX C: INFORMED CONSENT

Information and Disclosure Section

The following information is provided to inform you about the research project in which you have been invited to participate. Please read this disclosure and feel free to ask any questions. The investigators must answer all of your questions and please save this page as a PDF for future reference.

- Your participation in this research study is voluntary.
- You are also free to withdraw from this study at any time without loss of any benefits.

For additional information on your rights as a participant in this study, please contact the Middle Tennessee State University (MTSU) Office of Compliance (Tel 615-494-8918 or send your emails to irb_information@mtsu.edu. (URL: http://www.mtsu.edu/irb).

Please read the following and respond to the consent questions in the bottom if you wish to enroll in this study.

1. **Purpose**: This research project is designed to help us evaluate various factors that potentially influence depressive symptoms in college students.
   .
2. **Description**: If you agree to participate after reading this informed consent form, there are several parts to this project. They are:
   - A brief demographic survey that will collect information about your gender, age, and ethnicity.
   - A survey that will ask you about negative situations you possibly experienced during childhood, including abuse (e.g., sexual, physical, psychological).
   - A survey that will ask you questions about how you might have felt or behaved in the last week.
   - A survey that will ask you questions about resilience factors.
   - A brief survey asking you to report you current nutritional habits.

3. **IRB Approval Details**
   - Protocol Title: Risk and Resilience: Mental Health Functioning in Individuals with Histories of Adverse Childhood Experiences
   - Primary Investigator: Ciera Schoonover
   - PI Department & College: Psychology - MTSU
   - Faculty Advisor (if PI is a student): N/A
   - Protocol ID: 22-2136 7q   Approval Date: 05/05/2022   Expiration Date: 04/01/2023

4. **Duration**: The whole activity should take less than 30 minutes.

5. **Here are your rights as a participant:**

   - Your participation in this research is voluntary.
   - You may skip any item that you don't want to answer, and you may stop the experiment at any time (but see the note below)
   - If you leave an item blank by either not clicking or entering a response, you may be warned that you missed one, just in case it was an accident. But you can continue the study without entering a response if you didn't want to answer any questions.
   - Some items may require a response to accurately present the survey.

6. **Risks & Discomforts:** For participants who may have a history of negative experiences during childhood, participation in this study may elicit emotional responses. The likelihood and extent of the discomfort, however, are not higher than could be expected during a routine psychological examination. Available resources will be provided at the end of the study for those who wish to speak with a professional. MTSU will not provide compensation in the case of study related injury.

7. **Benefits:**
   a. Benefits to you that you may not receive outside this research: There are no direct benefits to you.
   b. Benefits to the field of science or the community: Although there is no direct benefit to the participant, there is social and scientific value to exploring factors that may be related to determining depressive symptoms in college students.

8. **Identifiable Information**: You will NOT be asked to provide identifiable personal information, such as your M-number, name, or IP address.

9. **Compensation:** The MTSU SONA participants will receive class credit if they meet the following requirements:

   a) *The qualifications to participate in this research are: You must be at least 18 years of age to participate. If you do not meet these qualifications, you will not be included in the research and you will not be compensated.*
   b) *Please do not participate in this research more than once. Multiple attempts to participate will not be compensated.*

c) *To be compensated, you must click through until the end. If you choose to stop for any reason, you will still need to click through until the end to receive compensation (just leave the items blank and click through until the end <; if items require a response to present the survey accurately, you will need to respond to those items as your progress to the end of the survey)>.*

d) *At the end of the survey, you will be directed automatically back to the SONA System to receive credit for your participation in this study. To be used as a receipt, should you need to prove your participation, we recommend that you take a screenshot of the last page.*

10. **Confidentiality.** All efforts, within reason, will be made to keep your personal information private but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office for Human Research Protections, *if* you or someone else is in danger or if we are required to do so by law.

11. **Contact Information.** If you should have any questions about this research study or possibly injury, please feel free to contact Dr. Ciera Schoonover by telephone (615 898 2584) or by email ciera.schoonover@mtsu.edu OR my faculty advisor, N/A. You can also contact the MTSU Office of compliance via telephone (615 494 8918) or by email (compliance@mtsu.edu). This contact information will be presented again at the end of the experiment.

You are not required to do anything further if you decide not to enroll in this study. Just quit your browser. Please complete the response section below if you wish to learn more or you wish to part take in this study.

<u>Participant Response Section</u>

☐No ☐Yes I have read this informed consent document pertaining to the above identified research

☐No ☐Yes The research procedures to be conducted are clear to me

☐No ☐Yes I confirm I am 18 years or older

☐No ☐Yes I am aware of the potential risks of the study

By clicking below, I affirm that I freely and voluntarily choose to participate in this study. I understand I can withdraw from this study at any time without facing any consequences.

☐ NO I do not consent

☐ Yes I consent

APPENDIX D: DEBRIEFING FORM

YOU MUST CLICK TO THE NEXT PAGE TO RECEIVE CREDIT

FOR PARTICIPATION.

Child maltreatment has been found to be associated with a number of internalizing problems such as symptoms of anxiety and depression. Recently, child maltreatment has been discussed as an important factor influencing not only the incidence of depressive disorder, but also its symptoms. The relationship between child maltreatment and depressive symptoms in college students, however, is a less studied area of research. The current study examined the potential relationship between child maltreatment, mental health concerns, and resilience factors in college students.

If you should have any questions about this research study, please feel free to contact Dr. Ciera Schoonover by email ciera.schoonover@mtsu.edu or via telephone (615 898 2584). You also can contact the MTSU Office of Compliance via telephone (615 494 8918) or by email compliance@mtsu.edu. If you, or someone you know, have experienced child abuse, you may wish to speak to a professional. If you would like to talk with someone, the following resources are available:

Mobile Crisis Line for Emergencies
Call: 1-800-704-2651

National Suicide Prevention Lifeline
Call: 1-800-273-8255

National Hopeline Network:
Call: 1-800-442-4673

PTSD Crisis Text Line
Text: HOME to 741741

A NOTE TO PARTICIPANTS: We suggest that you take a screenshot of this debriefing page to keep for your records. This would give you access to the resources on this page.

APPENDIX E: IRB APPROVAL FORM

IRB
INSTITUTIONAL REVIEW BOARD
Office of Research Compliance,
010A Sam Ingram Building,
2269 Middle Tennessee Blvd
Murfreesboro, TN 37129
FWA: 00005331/IRB Regn. 0003571

MIDDLE TENNESSEE
STATE UNIVERSITY

IRBN001 - EXPEDITED PROTOCOL APPROVAL NOTICE

Thursday, May 19, 2022

Protocol Title	*Risk and Resilience: Mental Health Functioning in Individuals with Histories of Adverse Childhood Experience*
Protocol ID	22-2136 7q
Principal Investigator	**Ciera Schoonover** (Faculty)
Co-Investigators	Karrie Hubbard (klh2bf), Amanda Wilson (akw4h), and Madelyne Williams (mnw6s)
Investigator Email(s)	ciera.schoonover@mtsu.edu
Department	Psychology
Funding	NONE

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU IRB through the **EXPEDITED** mechanism under 45 CFR 46.110 and 21 CFR 56.110 within the category *(7) Research on individual or group characteristics or behavior*. A summary of the IRB action is tabulated below:

IRB Action	**APPROVED for ONE YEAR**		
Date of Expiration	4/30/2023	Date of Approval: 4/21/22	Recent Amendment: 5/19/22
Sample Size	FIVE HUNDRED (500)		
Participant Pool	Target Population: Primary Classification: **General Adults (18 or older)** Specific Classification: **College/University Sutdents (MTSU SONA)**		
Type of Interaction	☐ Non-interventional or Data Analysis ☒ Virtual/Remote/Online Interaction ☐ In person or physical Interaction – Mandatory COVID-19 Management		
Exceptions	1. Contact information and simple demographics are permitted. 2. Retention of participant information to comply with SONA policy is approved.		
Restrictions	1. Mandatory ACTIVE Informed Consent. 2. Other than exceptions listed above, identifiable data/artifacts, such as, audio/video data, photographs, handwriting samples, personal address, driving records, social security number, and etc., MUST NOT be collected. Recorded identifiable information must be deidentified as described in the protocol. 3. Mandatory Final report (refer last page). 4. Not Approved for in-person data collection		
Approved Templates	IRB Templates: Recruitment Script (SONA) and Online Informed Consent Non-MTSU Templates: Web Posting and Social Media script		
Research Inducement	SONA Credit (2)		
Comments	NONE		

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Post-approval Requirements

The PI must read and abide by the post-approval conditions (Refer "*Quick Links*" in the bottom):

- *Reporting Adverse Events:* The PI must report research-related adversities suffered by the participants, deviations from the protocol, misconduct, and etc., within 48 hours from when they were discovered.
- *Final Report:* The PI must close-out this protocol by submitting a final report before 4/30/2023 (Refer to the Continuing Review section below); REMINDERS WILLNOT BE SENT. Failure to close-out or request for a continuing review may result in penalties including cancellation of the data collected using this protocol and/or withholding student diploma
- *Protocol Amendments*: An IRB approval must be obtained for all types of amendments, such as: addition/removal of subject population or investigating team; sample size increases; changes to the research sites (appropriate permission letter(s) may be needed) alterations to funding; and etc.   The proposed amendments must be clearly described in an addendum request form. The proposed changes must be consistent with the approval category and they must comply with expedited review requirements.
- *Research Participant Compensation:* Compensation for research participation must be awarded as proposed in Chapter 6 of the Expedited protocol. The documentation of the monetary compensation must Appendix J and MUST NOT include protocol details when reporting to the MTSU Business Office.
- *COVID-19:* Regardless whether this study poses a threat to the participants or not, refer to the COVID-19 Management section for important information for the PI

Continuing Review   (Follow the Schedule Below)

This protocol can be continued for up to THREE years by requesting a continuing review before 4/30/2023.   Refer to the following schedule to plan your annual progress report; REMINDERS WILL NOT BE SENT.   Failure to obtain an approval for continuation will result in cancellation of this protocol

Reporting Period	Requisition Deadline	IRB Comments
First year report	3/31/2023	NOT COMPLETED
Second year report	3/31/2024	NOT COMPLETED
Final report	3/31/2025	NOT COMPLETED

Post-approval Protocol Amendments:

The current MTSU IRB policies allow the investigators to implement minor and significant amendments that would fit within this approval category. *Only TWO procedural amendments will be entertained per year (changes like addition/removal of research personnel are not restricted by this rule).*

Date	Amendment(s)	IRB Comments
05/19/2022	Additional participant sample consistent with the approval is added. Recruitment script and online informed consent are added to reflect the amendment.	IRBA2022-366

Other Post-approval Actions:

The following actions are done subsequent to the approval of this protocol on request by the PI or on recommendation by the IRB or by both.

Date	IRB Action(s)	IRB Comments
NONE	NONE	NONE

COVID-19 Management:

The PI must follow social distancing guidelines and other practices to avoid viral exposure to the participants and other workers when physical contact with the subjects is made during the study.

- The study must be stopped if a participant or an investigator should test positive for COVID-19 within 14 days of the research interaction. This must be reported to the IRB as an "adverse event."
- The MTSU's "Return-to-work" questionnaire found in Pipeline must be filled by the investigators on the day of the research interaction prior to physical contact.
- PPE must be worn if the participant would be within 6 feet from the each other or with an investigator.
- Physical surfaces that will come in contact with the participants must be sanitized between use
- PI's Responsibility: The PI is given the administrative authority to make emergency changes to protect the wellbeing of the participants and student researchers during the COVID-19 pandemic. However, the PI must notify the IRB after such changes have been made. The IRB will audit the changes at a later date and the PI will be instructed to carryout remedial measures if needed.

Data Management & Storage:
All research-related records (signed consent forms, investigator training and etc.) must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data must be stored for at least three (3) years after the study is closed. Additional Tennessee State data retention requirement may apply (*refer "Quick Links" for MTSU policy 129 below*). The data may be destroyed in a manner that maintains confidentiality and anonymity of the research subjects.

The MTSU IRB reserves the right to modify/update the approval criteria or change/cancel the terms listed in this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:
- Post-approval Responsibilities: http://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php
- Expedited Procedures: https://mtsu.edu/irb/ExpeditedProcedures.php
- MTSU Policy 129: Records retention & Disposal: https://www.mtsu.edu/policies/general/129.php