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# Mindfulness and Religiosity/Spirituality as Protecting Factors for Internalizing Symptoms Associated with Adverse Childhood Experiences: A Moderated Moderation Model

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Mindfulness and Religiosity/Spirituality as Protecting Factors for Internalizing Symptoms  
Associated with Adverse Childhood Experiences: A Moderated Moderation Model

By

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An Undergraduate Thesis Submitted in Partial Fulfillment

of the Requirements for the

University Honors Scholars Program

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College of Arts and Sciences

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### **Abstract**

Adverse childhood experiences (ACEs) are traumatic events during a person's early life that can influence their later mental health, physical health, and wellbeing. Internalizing symptoms such as anxiety and depression are common mental health outcomes associated with these events. Two factors, religiosity/spirituality (R/S) and mindfulness, are possible protecting factors to help lessen the effect of traumatic experiences on later mental health. This study examined whether R/S and mindfulness are protective factors in the relationship between ACEs and future internalizing symptoms. Further, this study examined whether the impact of R/S was influenced by an individual's mindfulness (moderated moderation). Participants ( $N = 769$ , age  $M = 20.43$ ,  $SD = 4.507$ ) for this study were recruited through the SONA research platform at East Tennessee State University as a part of the REACH (Religion, Emotions, and Current Health) self-report survey. Results from the current study did not support either mindfulness or R/S as moderating factors for the relationship between ACEs and internalizing symptoms. However, exploratory mediation suggested mindfulness was a mediator for this relationship. This study, while it did not demonstrate the buffering capacity of study variables, provides information about the implications of ACEs in a Northeast Tennessee sample. Future research should examine new variables as potential protective factors for this relationship and more detailed information about the mediating effect of mindfulness.

*Keywords:* mindfulness, religiosity, spirituality, adverse childhood experiences

## **Introduction**

The Adverse Childhood Experiences (ACE) study demonstrated many of the increased risks associated with traumatic events in childhood including alcoholism, depression, smoking, ischemic heart disease, liver disease, stroke, and more (Felitti et al., 1998). One of the most heavily studied topics in relation to ACEs is the increased risk of internalizing symptoms and disorders, including anxiety and depression. Many studies have demonstrated the association between anxiety and ACEs (Mersky, Topitzes, & Reynolds, 2013; Nelson, Simons, & Logan, 2018; Sareen et al., 2013). The relationship between depression and ACEs is even more heavily studied than anxiety, with studies demonstrating a dose-response relationship between ACEs and depressive disorders (Chapman et al., 2004), a graded relationship between ACEs and depression in college students (Kim, 2017), and an increased odds ratio of having depressive symptoms between those with and without ACEs for each added ACE (Remigio-Baker, Hayes, & Reyes-Salvail, 2014). Due to this frequently reported relationship between traumatic experiences in childhood and future negative mental health outcomes, research into protective factors is necessary.

Two factors that may be beneficial in buffering the relationship between ACEs and negative outcomes later in life are mindfulness and religiosity/spirituality. Research has shown that dispositional, or trait, mindfulness moderated or weakened the association between ACEs and health outcomes such as having multiple health conditions, poor health behaviors, and poor health-related quality of life (Whitaker et al., 2014). Religiosity and spirituality have been found to be related to many psychological outcomes such as psychological well-being (Yoon & Lee, 2006), greater treatment response for depression (Kim, Huh, & Chae, 2015), and lower levels of stress and higher overall psychological health (Reutter & Bigatti, 2014). Therefore, the purpose

of this study is to determine whether the relationship between ACEs and internalizing symptoms is moderated (i.e., weakened) by mindfulness, and whether this protective effect is influenced by one's personal religiosity/spirituality.

#### *Adverse Childhood Experiences (ACEs)*

The Adverse Childhood Experiences (ACE) study is a seminal study that raised mainstream awareness about how adverse experiences in childhood influence one's physical and mental health across the lifespan (Felitti et al., 1998). Prior to the ACEs study, the literature on childhood adversity predominately focused on how abuse affected the long-term well-being of children (Moeller, Bachmann, & Moeller, 1993; Polusny & Follette, 1995), and the ACE study sought to expand the knowledge of how various adverse events beyond abuse influence children throughout their lives. Patients at the Kaiser Permanente's San Diego Health Appraisal Clinic were recruited after having medical evaluations conducted at the Clinic between mid-1995 and the beginning of 1996. Participants were mailed an ACE questionnaire to complete one week after the medical visit, with a total of 9,508 responses received. The questionnaire included 7 categories: physical, psychological, and sexual abuse; substance abuse in the household; mental illness in the household; the mother or stepmother treated in a violent manner; and if a member of the household went to prison. When the data were gathered and analyzed, the researchers found that there was a significant dose-response relationship between how many adverse events respondents experienced and each of the ten risk factors measured that are associated with the leading causes of death in the U.S. (e.g., smoking, physical inactivity, drug abuse). In other words, as the number of ACEs went up, so did the risk for maladaptive outcomes. Additionally, the researchers found a dose-response relationship between the number of ACEs and various disease conditions including ischemic heart disease, cancer, skeletal fractures, chronic lung

disease, etc. Those who had experienced four or more ACEs had a much higher risk than those with no ACEs for alcoholism, depression, smoking, ischemic heart disease, liver disease, stroke, and more (Felitti et al., 1998).

This study sparked an explosion of further research to determine how exactly ACEs are defined and influence the life course of children. In 2014, a concept analysis was conducted to further define what constitutes an ACE across literature about the topic (Kalmakis & Chandler, 2014). After a thorough review of 128 articles between the years of 1970 and 2013, the researchers concluded that an ACE was any sort of event in childhood that occurred in the family or social environment and caused “harm or distress” and that negatively influenced the health and development of the child, whether physical, psychological, or both (Kalmakis & Chandler, 2014, p. 1489).

As research has continued about ACEs, so has our knowledge of how ACEs are believed to affect one’s well-being across the lifespan. One of the largest ways in which the influences of ACEs manifest is thought to occur is through emotional and mental health issues. In a recent study, data pulled from the original Kaiser research showed a relationship between an individual’s ACE score and drinking in adulthood, drug use, a depressed affect, attempted suicide, and other mental health problems (Merrick et al., 2017). Additionally, ACEs have a graded relationship with depressive episodes, both recent and over the course of one’s life, even decades after the traumatic event (Chapman et al., 2004). Another study found that a person’s risk of suicide is increased 2- to 5-fold by any individual ACE, and an ACE score of 7 or higher increased the likelihood of a suicide attempt during childhood/adolescence 51-fold and adult suicide attempts 30-fold (Dube et al., 2001).

A number of health issues have also been linked to ACEs such as smoking and lung cancer (D. Brown et al., 2010), Chronic Obstructive Pulmonary Disease (Anda et al., 2008), Ischemic Heart Disease (M. Dong, 2004), liver disease (Maxia Dong, Dube, Felitti, Giles, & Anda, 2003), alcohol abuse (Dube, Anda, Felitti, Edwards, & Croft, 2002), drug abuse (Dube et al., 2003), and more. In another study in which data were pulled from the original ACE research at Kaiser, researchers found that those with 6 or more ACEs died on average about 20 years earlier than those with no ACEs (D. Brown et al., 2009). Much of the previous literature has shown how ACEs are associated with negative outcomes on the mind and body, especially in terms of future mental health.

#### *ACEs and Internalizing Symptoms*

Much of the literature surrounding ACEs involves the relationship between the exposure to these events and mental health outcomes. Research has shown that there are significant, graded associations between mental health outcomes and levels of ACE exposure (Mersky et al., 2013). Some of the most researched mental health outcomes from these events are internalizing symptoms and disorders such as anxiety and depression. Anxiety disorders are very common in the United States and include a broad range of disorders. According to a sample of primary care clinic data, 19.5% of participants had at least one anxiety disorder, 8.6% had post-traumatic stress disorder, 7.6% had generalized anxiety disorder, and 6.2% had social anxiety disorder (Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007). The rates for these disorders are even higher when individuals have traumatic experiences in childhood. In a study examining a sample of military personnel, ACEs were significantly associated with past year mood or anxiety disorders among men and women, even after adjusting for the effects of deployment-related traumatic exposures (Sareen et al., 2013). Similarly, ACEs were associated with more anxiety in



a sample of 9-19 year old children with chronic pain (Nelson et al., 2018) and groups with multiple ACEs are more likely to report frequent anxiety than those with no ACEs (Mersky et al., 2013).

Depression and depressive symptoms are also highly researched topics in relation to ACEs. In the United States, these issues are even more common than anxiety disorders. According to one study, the lifetime prevalence of depressive disorders is 23% (Chapman et al., 2004). University students are at an even greater risk, with one systematic review ( $n = 24$  studies) finding that the prevalence rates for university students ranged from 10-85% (weighted mean prevalence of 30.6%) (Ibrahim, Kelly, Adams, & Glazebrook, 2013). Individuals who have ACEs are at an even higher risk as the odds ratio of having depressive symptoms increases with each added ACE (Remigio-Baker et al., 2014). Additionally, certain categories of ACEs (household dysfunction, physical abuse, verbal abuse, and sexual abuse) are positively associated with current depressive symptoms (Remigio-Baker et al., 2014). In another study, a strong, dose-response relationship was discovered between the probability of lifetime and recent depressive disorders and an individual's ACE score (Chapman et al., 2004). According to a study of Korean college students the relationship between ACEs and depression is graded; specifically as ACE scores increased, the probability of reporting depressive issues increased up to 6 times (Kim, 2017). Similarly, another study found that compared to a group that endorsed no ACEs, all multiple-ACE groups were more likely to report frequent depressive symptoms (Mersky et al., 2013). Due to the high prevalence of negative mental health outcomes for those with ACEs, often internalizing symptoms, it is important to consider certain protective factors to help buffer these outcomes.

*Mindfulness*

Mindfulness is a difficult psychological concept to define as it has many different applications and components across research and practice. Even though the definitions of this construct vary in exact operationalization and application across the literature, there are several common themes that arise. Mindfulness is often described as a state of consciousness in which an individual engages in “enhanced attention to and awareness of current experience or present reality” (K. Brown & Ryan, 2003, p. 822). This practice can involve focusing on stimuli or experiences inside or outside of the body, often with the goal of drawing attention away from negative factors or to regulate emotions or behavior. Often, mindfulness is associated with being “awake” to how one is functioning or feeling in that it draws the individual away from automatic behaviors and instead focuses on thinking through feelings, emotions, and behaviors (K. Brown & Ryan, 2003).

Research has established a link between one’s trait mindfulness and their psychological well-being and ability to cope with symptoms. In a week-long study in which participants recorded their stressors, overall appraisals, coping, and positive and negative affect each day, mindfulness was found to be related to lower daily negative affect and lower stress appraisals. This study also suggests that dispositional trait mindfulness may be associated with the use of mindful coping strategies (higher acceptance and less self-blame) (Finkelstein-Fox, Park, & Riley, 2018). Mindfulness has also been shown to be related to coping competence and general subjective happiness (Akin & Akin, 2015) as well as fewer PTSD symptoms, depressive symptoms, physical symptoms, and alcohol problems for firefighters (Smith et al., 2011). Overall, mindfulness is related to positive psychological health and well-being outcomes, and therefore may be a potential positive factor in relation to childhood trauma.

*Adverse Childhood Experiences and Mindfulness*

There has been very limited research into the relationship between ACEs and mindfulness. Of the literature that does exist, there are three main types of studies that exist: 1. Those that examine mindfulness as a mediator between ACEs and an outcome; 2. Those that examine mindfulness as a moderator of the link between ACEs and an outcome; or 3. Mindfulness-based intervention studies for individual with a history of ACEs.

Regarding research on mindfulness as a mediating factor between ACEs and outcomes, one study found that three of the five mindfulness facets (i.e., Describing, Acting with Awareness, and Non-judging) were partial mediators for the relationship between increased lifetime and childhood trauma exposure and higher severity for the trauma-related symptoms. In other words, higher levels of ACEs/trauma were associated with lower levels of these mindfulness facets. These mindfulness facets, in turn, had a negative relationship with trauma symptoms, so lower levels of mindfulness were associated with greater trauma symptoms. The Observing aspect of mindfulness was also a significant mediator of lifetime trauma exposure and increased trauma-related symptoms; however, in this model greater Observing was associated with higher trauma symptoms (Boughner, Thornley, Kharlas, & Frewen, 2016). Of note, in that study, the authors reported bivariate correlations between childhood trauma exposure and mindfulness facets that ranged from  $r = -.15$  ( $p < .01$ ) to  $r = .007$  (ns,  $p > .05$ ) (Boughner et al., 2016). Another study found that mindfulness mediated the association between ACEs and future alcohol use. Specifically, individuals with more ACEs endorsed lower levels of acting with awareness and nonjudgement (two of the features of trait mindfulness), which in turn, was associated with higher alcohol use and alcohol-related consequences (Brett, Espeleta, Lopez, Leavens, & Leffingwell, 2018). Further, in this study, the authors reported bivariate correlations

between childhood trauma exposure and mindfulness facets that ranged from  $r = -.17$  ( $p < 0.01$ ) to  $r = .05$  (ns,  $p > .05$ ) (Brett et al., 2018). The same study also found a significant correlation between childhood trauma exposure and a total score of mindfulness across the facets ( $r = -0.129$ ,  $p < 0.01$ ) (Brett et al., 2018). Regarding mindfulness as a moderator, one study found that dispositional mindfulness moderated (i.e., weakened) the link between ACEs and health outcomes (i.e., having multiple health conditions, poor health behaviors, poor health-related quality of life) (Whitaker et al., 2014). Finally, a literature review that investigated interventions used for adult survivors of ACEs found that the use of mindfulness-based therapies ( $n = 5$  studies) were effective at promoting positive outcomes in the face of past ACEs (e.g., emotional clarity, emotional regulation) and decreasing negative outcomes (e.g., anxiety symptoms, depression symptoms, emotional suppression) (Korotana, Dobson, Pusch, & Josephson, 2016).

### *Religiosity and Spirituality*

One additional factor that could serve as a protective factor against adversity in childhood is one's religious or spiritual practices. Religiosity and spirituality (R/S) are highly variable concepts in terms of definition and measurement within the literature on the topic (Kub & Solari-Twadell, 2013). Generally, the concept of spirituality is considered to be a more private phenomenon that is typically not related to participation in a formal religion. This practice can involve prayer, meditation, etc. but is usually involved with an individual's personal thoughts and actions (Good & Willoughby, 2008). Those who have a moderate-high level of experience with spirituality without a strong level of religious practice have a high level of trait mindfulness, suggesting that mindfulness may be a "gateway" to spiritual practice more so than religiosity (Cobb, Kor, & Miller, 2015). Conversely, religiosity is thought to be a practice that is related to being a part of an organized religion or religious group and involves behaviors such as attending

formal church services, participating in religious rituals, etc. Even though religiosity and spirituality are often researched as independent and distinct constructs, they are highly correlated (Good & Willoughby, 2008) and often used synonymously throughout the literature. As such, the review below will use the term that was used in the respective study and will offer the authors' definition of R/S when possible.

R/S have been shown to predict many positive effects regarding individuals' psychological health and well-being. In one study, both religiousness, determined by the Religious Meaning System Questionnaire, and spirituality, measured by the Self-description Questionnaire of Spirituality, had direct and indirect effects on coping, and those who had higher levels of R/S had a tendency to have a stronger overall meaning of life (Krok, 2015). Similarly, another study found that religiousness and spirituality, measured using the Brief Multidimensional Measures of Religiousness/Spirituality were positively correlated with psychological well-being, such that higher use of religious/spiritual coping skills were associated with greater life satisfaction (Yoon & Lee, 2006). Additionally, in a study examining R/S of adolescents in grades 11 and 12, personal R/S (defined by three variables: perceptions of and experience with the sacred, wondering about spiritual issues, and frequency of prayer) was associated with positive adjustment in terms of higher intrapersonal well-being, positive relationships with parents, and more positive academic orientation (Good & Willoughby, 2014). R/S are especially studied in terms of their relationship to depressive disorders. For example, one study found that higher levels of personal importance of religion and spirituality at baseline were associated with greater treatment response for depression treatment (measured using Clinical Global Impression-Improvement Scale) (Kim et al., 2015). In a systematic review of 80 studies examining the relationship between religion and depression, the effects were mixed. While

people who had high levels of involvement in religion, intrinsic motivation from religion, and religious salience were at a lowered risk of depressive symptoms and disorders, some religions were found to increase risk for these issues (McCullough & Larson, 1999).

Though numerous studies have established a relationship between R/S and some positive mental health outcomes, the literature is mixed regarding whether R/S serves as a mediating (i.e., mechanistic) or moderating (i.e., buffering) variable on the link between risk factors and later outcomes. For example, one study found that religiosity, measured using the Religious Commitment Inventory (RCI), and spirituality, measured using the Daily Spiritual Experiences Scale, were positively correlated with psychological health. Further, this study tested a moderated mediation model in which spirituality was tested as a mediator of the relation between perceived stress and psychological health and religiosity was tested as a moderator of the strength of the relation between spirituality and psychological health (Reutter & Bigatti, 2014). Results indicated that spirituality functioned as a partial mediator between stress and psychological health, but that religiosity did not significantly moderate this mediating effect. Longitudinal research over this topic is sparse, but does suggest that being involved in religion may have a protective role in the appearance and persistence of depressive symptoms and disorders (McCullough & Larson, 1999). However, another study found that religious or spiritual practices did not moderate the relationship between negative events in one's life and depressive symptoms (Visser, 2009). Because R/S is related to positive mental health outcomes, specifically in lowering levels of depression symptoms and depressive disorders, it may be a potential buffer for the development of ACEs into future internalizing symptoms.

*Present Study Aims and Hypotheses*

From examining the literature, it is clear that there is a relationship between ACEs and negative outcomes later in life, including internalizing symptoms and disorders. It has also been shown that, while small, there is a relationship between ACEs and mindfulness and mindfulness-based therapy helps those who have had childhood trauma exposure. Due to this information, it may be possible that mindfulness serves as a moderating factor between ACEs and anxiety/depression. Further, the research suggests that religiosity and/or spirituality has a protective effect for those who have experienced ACEs. Therefore, the moderating effect of mindfulness may be stronger for those with higher levels of R/S.

The primary research questions and hypotheses are: (1) Is there a relationship between ACEs and future internalizing symptoms (i.e., depression and anxiety)? (H1) It is hypothesized that there is a relationship between ACEs and internalizing symptoms such that the more ACEs one has, the more internalizing symptoms they have later in life; (2) Does mindfulness moderate, or lessen, the relationship between ACEs and internalizing symptoms (i.e., depression and anxiety)? (H2) It is hypothesized that mindfulness will weaken (or moderate) the relationship between ACEs and internalizing symptoms; (3) Does R/S moderate, or lessen, the relationship between ACEs and internalizing symptoms (H3) It is hypothesized that R/S will weaken (or moderate) the relationship between ACEs and internalizing symptoms. (4) Does an individual's mindfulness impact the moderating effect of R/S on the link between ACEs and internalizing symptoms? (H4) It is hypothesized that mindfulness will influence this moderating effect (i.e., moderated moderation), such that the protective effect of R/S will be greatest at high levels of mindfulness.

## **Methods**

### *Participants*

The participants for this study consisted of a sample of undergraduate and graduate students at East Tennessee State University ( $N = 769$ ). Most of this sample consists of undergraduate students (99.1%), but there were a few that stated they were currently at the graduate level (0.9%). The age of the participants varied from 18-55 ( $M = 20.43$ ,  $SD = 4.51$ ). The gender make-up of the sample was mostly female, with 70.9% ( $n = 543$ ) identifying as female, 28.1% ( $n = 215$ ) identifying as male, 0.3% identifying as transgender, and 0.5% who identify as genderqueer. The participants were 80.1% ( $n = 616$ ) white, 10.7% ( $n = 82$ ) black, 3.4% Latino/a or Hispanic ( $n = 26$ ), 3% ( $n = 23$ ) Asian or Pacific Islander, 1.3% ( $n = 10$ ) Native American/Alaskan Native, and 2.3% ( $n = 18$ ) who indicated that they identify as another ethnicity. There were a wide array of religious preferences identified in this sample, with 43.9% who indicated they are Protestant, 10.2% Agnostic, 9.9% Catholic, 0.5% who are spiritual and not religious, 5% Atheist, 2.4% Muslim, and <1% Hindu, Buddhist, Wiccan, Jewish, Mormon, Shinto, and Taoist. About 15% of participants indicated they were a part of a different religion not listed.

### *Procedures*

Participants for this study were recruited using an online survey platform at ETSU called SONA. The platform exists to provide a way for university researchers to pull self-report data from students across the university. To participate in research on this platform, students created an account that assigned them an ID number to ensure they remain anonymous throughout the research process. Those who participated in these studies may have received extra credit in ETSU courses in order to incentivize being a research participant. The data for this thesis was



pulled from a study on this platform called the REACH (Religion, Emotions, and Current Health) Project. Informed consent for the study was obtained online before the participants began the study, which took about 90 minutes to complete in total. All study procedures were approved by the Institutional Review Board.

### *Measures*

#### Retrospective

##### **Adverse Childhood Experience (ACE) Questionnaire**

To assess childhood traumatic events, the Adverse Childhood Experiences (ACE) Questionnaire was used (Felitti et al., 1998). In this study, we used the 10-item version of the survey to assess negative experiences that may have occurred in the past that was adapted from the original 7-item measure. The survey encompasses many kinds of traumatic events including: physical, emotional, and sexual abuse; neglect; substance abuse in the household; mental illness in the household; the mother or stepmother treated in a violent manner; divorce/separation; and if a member of the household is incarcerated. Endorsing a yes on the survey is equal to one point, meaning respondents can score up to 10 points. This survey has demonstrated high internal consistency (Cronbach's  $\alpha = .88$ ) and has been used in many studies to assess childhood trauma (Dube et al., 2002; Merrick et al., 2017). The ACE questionnaire demonstrated good internal consistency for the current sample ( $\alpha = .81$ ).

#### Current

##### **Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS)**

The Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS; Fetzer Institute, 1999) is a 38-item measure (with 2 items within an appendix) that encompasses many aspects of religiosity and spirituality. The instrument contains 12 domains of religiosity and

spirituality and has demonstrated reliability and validity when used (Fetzer Institute, 1999). For the current study, we focused on the domains of daily spiritual experiences, forgiveness, private religious practices, religious and spiritual coping, commitment, and overall self-ranking. To examine these factors, a composite score was determined using a similar technique to Tartaro and colleagues (2005) in which the items from specific domains (listed above) were summed and used as a continuous variable when running analyses (Tartaro, Luecken, & Gunn, 2005). The domains used within this study have demonstrated reliabilities from  $r = .54$  to  $r = .91$  (Fetzer Institute, 1999). The composite score of religiosity/spirituality showed good internal consistency for the current sample ( $\alpha = .94$ ).

#### **Five Facet Mindfulness Questionnaire (FFMQ)**

To assess trait mindfulness in this study, we used the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The questionnaire is composed of 39 Likert scale questions scored from 1 (“never or very rarely true”) to 5 (“very often or always true”). This instrument is composed of five factors: observing, acting with awareness, non-judging of inner experience, non-reactivity to inner experience, and describing. In the current study, a total score of mindfulness was found by summing scores across the subscales. This questionnaire has demonstrated validity in measuring the construct of mindfulness (Baer et al., 2008). The FFMQ demonstrated good internal consistency for the current sample ( $\alpha = .85$ ).

#### **Generalized Anxiety Disorder Questionnaire (GAD-7)**

We used the generalized anxiety disorder questionnaire (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) to examine current symptoms of anxiety. The GAD-7 is a 7-item measure that uses a Likert scale from 0 (“not at all”) to 3 (“nearly every day”) to assess how

often participants experience anxiety symptoms such as nervousness, trouble relaxing, feeling afraid, etc. The measure is shown to be reliable and valid (Spitzer et al., 2006). The GAD-7 demonstrated good internal consistency for the current sample ( $\alpha = .94$ ).

### **Center for Epidemiological Studies Depression Scale Revised (CESD-R-20)**

To assess depressive symptoms, we used the Center for Epidemiological Studies Depression Scale Revised (CESD-R-20; Radloff, 1977). This measure is composed of 20-items that are scored on a Likert scale for how often (“rarely or none of the time or less than 1 day”, “some or a little of the time or 1-2 days”, “occasionally or a moderate amount of time or 3-4 days”, “most or all of the time or 5-7 days”) they experience symptoms of depression such as sadness, anhedonia, suicidal ideation, etc. Scores on this measure range from 0-60. This measure has demonstrated good internal consistency ( $\alpha = .92$ ), convergent validity, and divergent validity (Van Dam & Earleywine, 2011). The CESD-R-20 demonstrated good internal consistency for the current sample ( $\alpha = .93$ ).

## **Results**

Pearson’s bivariate correlations indicated that study variables were associated with each other in the expected direction (see Table 1 for correlation results and descriptive statistics). As hypothesized (H1), ACEs had a significant positive correlation with both anxiety symptoms ( $r = .352, p < .01$ ) and depression symptoms ( $r = .336, p < .01$ ). Additionally, ACEs were associated with lower levels of mindfulness ( $r = -.170, p < .01$ ) and lower levels of religiosity/spirituality ( $r = -.195, p < .01$ ). Further, as expected due to common co-occurrence, anxiety and depression symptoms were significantly positively related to each other ( $r = .813, p < .01$ ).

Moderation models for this study were conducted in SPSS using the Hayes Process Macro. We ran two simple moderation models for each moderator, one with anxiety symptoms

as the outcome and one with depression symptoms as the outcome. First, we conducted analyses of the simple moderation model using mindfulness as a moderator, see Figure 1. Both models using the two outcomes, anxiety and depression, had a significant total effect,  $F(3,502) = 78.10$ ,  $R^2 = .32$ ,  $p < .001$  and  $F(3,498) = 105.15$ ,  $R^2 = .39$ ,  $p < .001$  respectively. The direct effects of mindfulness on anxiety ( $B = -.19$ ,  $SE = .02$ ,  $t = -9.71$ ,  $p < .001$ ) and depression ( $B = -.45$ ,  $SE = .04$ ,  $t = -11.72$ ,  $p < .001$ ) were also significant. This suggests that mindfulness is a significant predictor of both anxiety and depression later in life. On the other hand, ACEs were not a significant predictor of either anxiety ( $B = -.16$ ,  $SE = .77$ ,  $t = -.21$ ,  $p = .8312$ ) or depression ( $B = -.47$ ,  $SE = 1.49$ ,  $t = -.32$ ,  $p = .7527$ ) symptoms, indicating ACEs are not significant predictors of internalizing symptoms in this model. Additionally, the interaction term of ACEs x mindfulness was not significant for either anxiety ( $B = .01$ ,  $SE = .01$ ,  $t = 1.10$ ,  $p = .27$ , 95% CI [-.01, .02]) or depression ( $B = .02$ ,  $SE = .01$ ,  $t = 1.22$ ,  $p = .22$ , 95% CI [-.01, .04]). Therefore, mindfulness was not found to be a significant moderator for the relation between ACEs and internalizing symptoms.

To test hypothesis 3 involving R/S as a moderator, we also conducted a simple moderation analysis, see Figure 2. Similar to our results for mindfulness as a moderator, both models involving the outcomes of anxiety ( $F(3,452) = 23.07$ ,  $R^2 = .13$ ,  $p < .001$ ) and depression ( $F(3,451) = 23.75$ ,  $R^2 = .14$ ,  $p < .001$ ) were significant overall. The direct effect of ACEs on anxiety ( $B = .93$ ,  $SE = .39$ ,  $t = 2.42$ ,  $p = .0159$ ) and depression ( $B = 1.82$ ,  $SE = .79$ ,  $t = 2.31$ ,  $p = .0212$ ) were also significant. This indicates that adversity in childhood predicts future internalizing symptoms. The direct effects of R/S on anxiety ( $B = -.03$ ,  $SE = .02$ ,  $t = -1.74$ ,  $p = .0829$ ) and depression ( $B = -.07$ ,  $SE = .03$ ,  $t = -1.96$ ,  $p = .0504$ ) were not significant, indicating R/S are not significant predictors of internalizing symptoms. The interaction term of ACEs and

R/S was not significant for either anxiety ( $B = -.00$ ,  $SE = .01$ ,  $t = -.06$ ,  $p = .95$ , 95% CI  $[-.01, .01]$ ) or depression ( $B = .00$ ,  $SE = .01$ ,  $t = .06$ ,  $p = .95$ , 95% CI  $[-.02, .02]$ ). These results suggest that R/S was not a significant moderator, or buffer, for the relationship between ACEs and future internalizing symptoms.

Because hypothesis 2 and 3 involving simple moderation of mindfulness and R/S were not supported, we did not run a moderated moderation model as a part of our analyses (see Figure 3). However, as stated above, when we ran our mindfulness moderation models, ACEs became a nonsignificant predictor for internalizing symptoms. When mindfulness was not in the models and R/S was in the models instead, ACEs were a significant predictor of anxiety and depression. This is an interesting finding due to the fact that the interaction terms in all models were not significant. These findings suggested that mindfulness may instead be a potential mediator of this relationship. To test this, we ran exploratory mediation to find out more about the relationship (see Figure 4). The total effects of the models for anxiety ( $F(2, 503) = 116.49$ ,  $R^2 = .56$ ,  $p < .001$ ) and depression ( $F(2, 499) = 156.84$ ,  $R^2 = .39$ ,  $p < .001$ ) were both significant. In both models, the direct effect (c path) of ACEs on anxiety ( $B = .68$ ,  $SE = .10$ ,  $t = 6.64$ ,  $p < .001$ ) and depression ( $B = 1.33$ ,  $SE = .2$ ,  $t = 6.65$ ,  $p < .001$ ) was significant. These results suggest that ACEs are a significant predictor of the development of internalizing symptoms. The path from mindfulness to internalizing symptoms (b path) was also significant for both anxiety ( $B = -.18$ ,  $SE = .01$ ,  $t = -12.41$ ,  $p < .001$ ) and depression ( $B = -.41$ ,  $SE = .03$ ,  $t = -15.08$ ,  $p < .001$ ). These results suggest that mindfulness is a significant predictor of internalizing symptoms, but in that mindfulness predicts lower levels of internalizing symptoms or vice versa. Additionally, the indirect effect of ACEs on internalizing symptoms through mindfulness (c' path) was also significant for both anxiety ( $B = .68$ ,  $SE = .05$ , 95% CI  $[.12, .32]$ ) and depression ( $B = .50$ ,  $SE =$

.12, 95% CI [.26, .73]), demonstrated by the 95% confidence interval not including zero. These results suggest mindfulness is one way in which levels of internalizing symptoms in adulthood are influenced by childhood adversity.

## **Discussion**

Adverse childhood experiences are stressful events that occur early in life that have many negative effects on the future physical and mental health of an individual. Much of the current literature examines how internalizing symptoms are associated with ACEs. The goal of the current study was to determine whether there are protecting factors that may be involved in this relationship. Specifically, this study explored whether religiosity/spirituality and mindfulness were able to help weaken the relationship between stressors in early life and future symptoms of anxiety and depression. However, the overall findings of this study did *not* indicate that mindfulness or R/S were moderators for the association between ACEs and future internalizing symptoms. However, the results from this study do indicate that there is a relationship between childhood adversity and symptoms of anxiety and depression in adulthood, which is consistent with the literature on the subject (Chapman et al., 2004; Kim, 2017; Mersky et al., 2013; Nelson et al., 2018; Remigio-Baker et al., 2014; Sareen et al., 2013).

Interestingly, the results indicate that ACEs are negatively correlated with both R/S and mindfulness, indicating there is some form of relationship present between these variables. Our findings also suggest that there is a negative relationship between mental health symptoms and trait mindfulness, in that higher levels of mindfulness are associated with lower levels of anxiety and depression or vice versa. This is consistent with previous research that indicates mindfulness has positive effects on mental health, specifically regarding internalizing symptoms (Finkelstein-Fox et al., 2018; Korotana et al., 2016; Smith et al., 2011). Additionally, R/S are

significantly negatively associated with symptoms of anxiety and depression such that higher levels of R/S are associated with lower levels of internalizing symptoms or the opposite. This is also consistent with the literature surrounding R/S as R/S is found to be positively related to psychological health (Reutter & Bigatti, 2014) and negatively associated with depression (Kim et al., 2015; McCullough & Larson, 1999). Mindfulness and R/S may be an outlet in which individuals can find relief from these symptoms in a positive way. Additionally, religion may provide a support system for individuals that helps them manage their symptoms.

Results from the moderation analyses involved in the current study were not significant, meaning that neither R/S nor mindfulness were effective at weakening the relationship between ACEs and future internalizing symptoms. However, even though the buffering effects were insignificant, there is still evidence of a relationship between these variables as evidenced by the correlation results. Additionally, there may be protective aspects of these constructs that are not captured by the measures used in this study. R/S and mindfulness are very variable and personal constructs, so they are very difficult to operationalize within a scientific study. Therefore, further research could expand on these definitions of these constructs in order to provide a more comprehensive analysis. Lastly, when looking at R/S, we used a current measure, meaning we examined how religious or spiritual the participants are at this point in their life. It may be possible that past R/S or R/S during the time of an individual's adversity may be what influences their future outcomes.

#### *Limitations and Future Directions*

As a whole, this study provides information regarding the effects of childhood adversity for college students in the Northeast region of Tennessee. Overall, ACEs were associated with anxiety and depression symptoms in adulthood. Findings also suggest that mindfulness and R/S

were not protective factors for this relationship. In other words, how mindful or religious/spiritual one is may not protect against the development of internalizing symptoms in adulthood. However, as with any study, there are certain limitations that must be considered. First, the sample involved in this study was extremely specific, and therefore results are difficult to generalize. For example, the majority of the sample consists of undergraduate students (99.1%), young adults (average age of 20.43), and participants who identify as female (n = 543, 70.9%) and Caucasian (n = 616, 80.1%). Additionally, most of the participants indicated that they are Protestant (43.9%). Therefore, further research that examines the relationships between the study variables with a more diverse sample would be beneficial. Another demographic finding of our study was that the average ACE score of participants was two. It may be possible that individuals with high scores on the ACE questionnaire, who are most at risk for future negative outcomes, are not very prevalent in this sample. This may play a role in the results, and future research should be more representative. As a part of this study, we also conducted exploratory mediation analysis which was statistically significant. Because this was exploratory, we did not do any follow-up analyses about this relationship. As such, further research should examine additional mechanisms that may help to explain the pathway from ACEs to mindfulness to internalizing symptoms.

Additionally, because the current study involved college students, we had to use a retrospective measure in order to examine childhood experiences. This technique has its limitations, as an individual's viewpoint may interfere with how they recall their experiences in childhood. Further, individuals who are experiencing symptoms of anxiety and/or depression may view their past as more negative than those without these symptoms. Memory also plays a role in this technique, as individuals may not even remember if they have had certain



experiences. In order to help alleviate this issue, further research could use a longitudinal technique in order to follow how this adversity affects individuals in the future.

Lastly, in the current study, we used the Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS). This measure is composed of 12 domains of R/S and is often used within research to look at specific aspects of R/S and as such there is no total score. However, we wanted a comprehensive measurement of overall R/S and therefore wanted to use a composite score for this measurement. Therefore, we used a technique similar to Tataro and colleagues (2005) in which items from key dimensions were summed and used as a continuous variable in analysis. Even though this score demonstrated good internal consistency ( $\alpha = .94$ ), there may be protective aspects of R/S that are not included in the composite score, which therefore may influence the results. Further research is necessary to help determine a more comprehensive and validated measure of R/S.

### **Final Conclusions and Implications**

The purpose of the current study was to examine potential protective factors for internalizing symptoms associated with ACEs, R/S, and mindfulness. Even though the results from this study did indicate that there is a relationship between ACEs and future symptoms of anxiety and depression, we did not find support that R/S or mindfulness served as protective factors in our sample. However, our results did suggest that mindfulness is a mediating factor for the relationship between ACEs and internalizing symptoms. This means that, even though it does not protect against these symptoms, an individual's mindfulness is possibly a part of the mechanism of this relationship. Additionally, we did see that ACEs are significantly negatively associated with both mindfulness and R/S, which suggests that there is a relationship present between these factors. The current study provided important information for the future

implications of childhood adversity for college students in Northeast Tennessee. Even though the study variables were not shown to be significant moderating factors for this relationship, future research is imperative to determine other factors that help protect against future mental health outcomes of ACEs. These potential factors have crucial implications in interventions and therapy treatments for survivors of ACEs.

Table 1  
*Correlations and Descriptive Statistics*

Variable	1	2	3	4	5
ACEs	1	-	-	-	-
FFMQ	-.170**	1	-	-	-
BMMRS	-.195**	.131**	1	-	-
GAD-7	.352**	-.508**	-.163**	1	-
CESD	.336**	-.572**	-.162**	.813**	1
<i>N</i>	591	562	584	622	604
<i>M</i>	2.00	121.83	70.98	7.75	40.36
<i>SD</i>	2.33	16.86	21.97	6.41	13.08
$\alpha$	.806	.853	.935	.937	.925
<i>Min.</i>	0	68	23	0	20
<i>Max.</i>	10	172	121	21	78

*Note.* \*\* $p < .01$ . ACEs (Adverse Childhood Experiences Questionnaire); FFMQ (Five Facet Mindfulness Questionnaire); BMMRS (Brief Multidimensional Measurement of Religiosity and Spirituality); GAD-7 (Generalized Anxiety Disorder Questionnaire); CESD (Center for Epidemiological Studies Depression Scale Revised). Min and Max. indicate actual range of measure in the current sample. M is used to indicate mean and SD is used to indicate standard deviation.

Table 2

*Moderation Results Model A – Outcome of Depression*

Predictor	$\beta$	$p$	95% CI	
ACEs	-.47	.75	-3.41,	2.47
Mindfulness	-.45	< .001*	-.52,	-.37
ACEs x Mindfulness	.02	.22	-.01,	.04

*Note.* ACEs (Adverse Childhood Experiences)

Table 3

*Moderation Results Model A – Outcome of Anxiety*

Predictor	$\beta$	$p$	95% CI
ACEs	-.16	.83	-1.68, 1.35
Mindfulness	-.19	< .001*	-.23, -.15
ACEs x Mindfulness	.01	.27	-.01, -.02

*Note.* ACEs (Adverse Childhood Experiences)

Table 4

*Moderation Results Model B – Outcome of Depression*

Predictor	$\beta$	$p$	95% CI	
ACEs	1.82	.02*	.27,	3.36
R/S	-.07	.05	-.14,	.00
ACEs x R/S	.00	.95	-.02,	.02

*Note.* ACEs (Adverse Childhood Experiences); R/S (Religiosity/Spirituality)

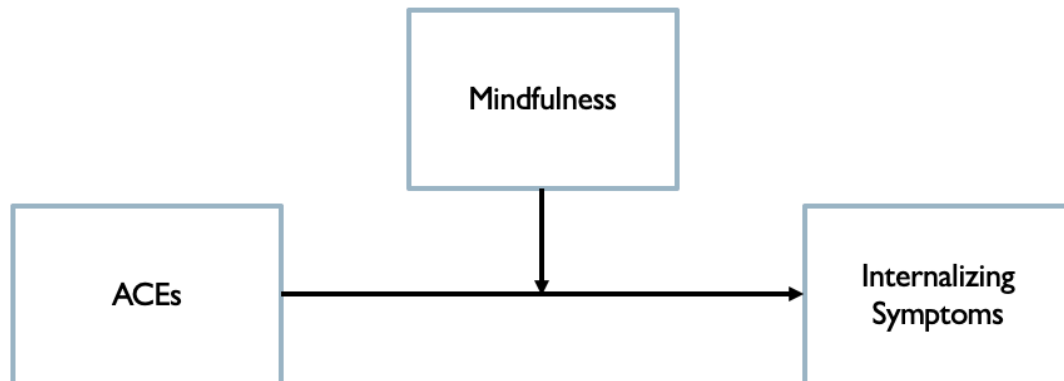
Table 5

*Moderation Results Model B – Outcome of Anxiety*

Predictor	$\beta$	$p$	95% CI	
ACEs	.93	.02*	.18,	1.69
R/S	-.03	.08	-.07,	.00
ACEs x R/S	-.00	.95	-.01,	.01

*Note.* ACEs (Adverse Childhood Experiences); R/S (Religiosity/Spirituality)

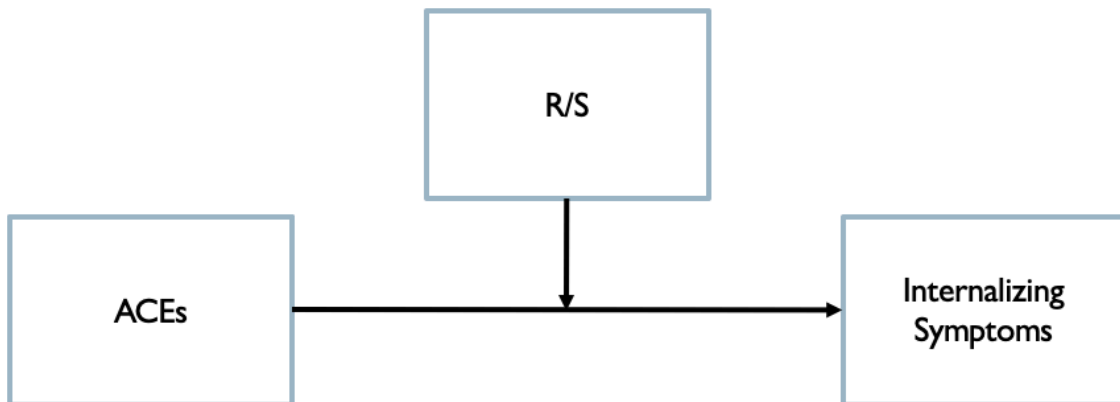
Figure 1 (Model A)  
*Simple Moderation of Mindfulness*



*Note.* ACEs (Adverse Childhood Experiences)

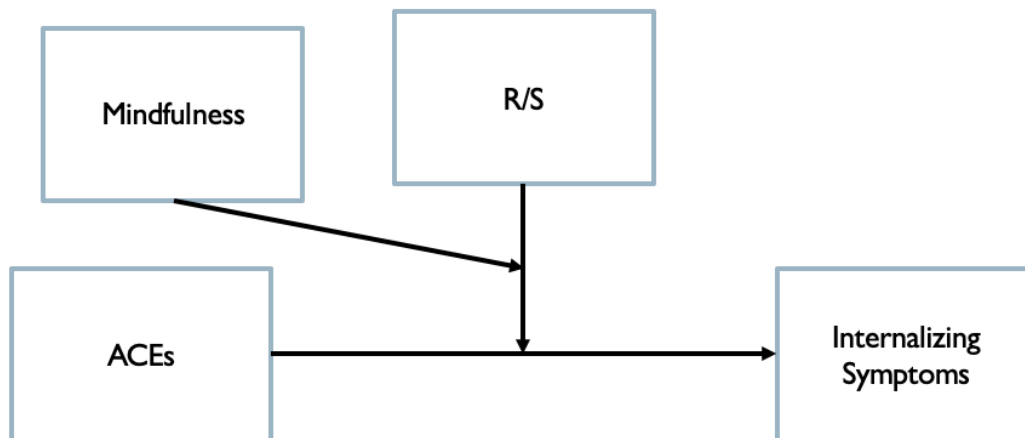


Figure 2 (Model B)  
*Simple Moderation of R/S*



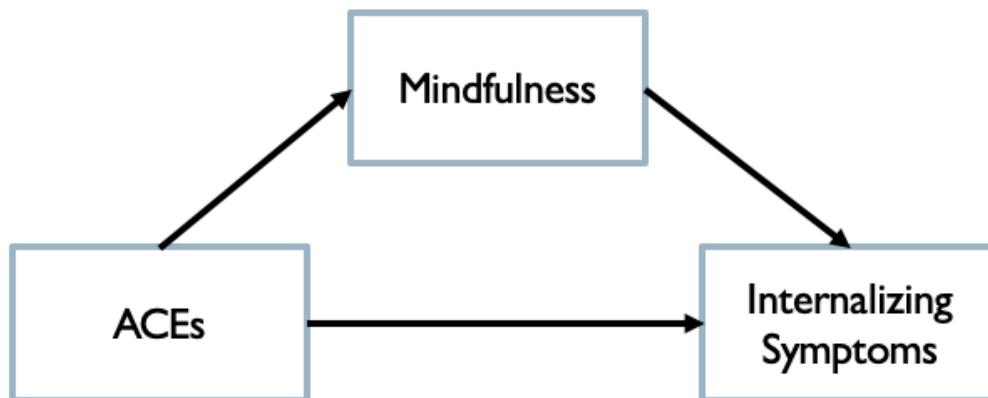
*Note.* ACEs (Adverse Childhood Experiences); R/S (Religiosity/Spirituality)

Figure 3 (Model C)  
*Moderated Moderation Model*



*Note.* ACEs (Adverse Childhood Experiences); R/S (Religiosity/Spirituality)

Figure 4 (Model D)  
*Simple Mediation Model*



*Note.* ACEs (Adverse Childhood Experiences)

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