

Can Coping Mediate the Relationship Between Stress and Mental Distress in College Students?

A Thesis
Submitted to the Faculty
of the Psychology Department

of

Washburn University

in partial fulfillment of
the requirements for

MASTERS OF ARTS

Psychology Department

By

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February 26, 2018

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May 2018

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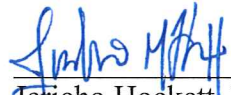
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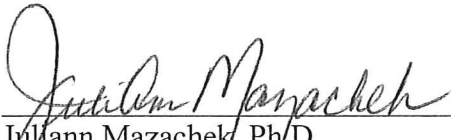
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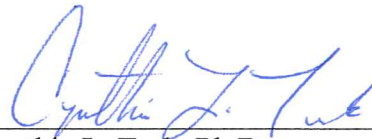
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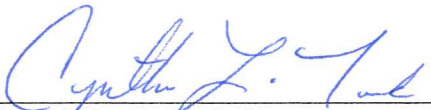


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Abstract

Young adulthood and college are periods of heightened stress, including environmental changes, lost or changing social support, novel and increasing academic pressures, and increased personal responsibility (Brougham et al., 2009; Vaez & LaFlamme, 2008). Students are struggling with the demands of college, and college-related stress has been found to be associated with poor mental health (American College Health Association [ACHA], 2017; Geslani & Gaebelein, 2013; Gupchup, Borrego, & Konduri, 2004; Klainin-Yobas, et al., 2014). Coping plays an important role in how an individual manages stressors. The use of maladaptive coping skills has been associated with depression, anxiety, and poorer grades in college students (Folkman & Lazarus, 1985; Mahmoud et al., 2012; Zuckerman & Gagne, 2003). The current study had participants complete a stress measure, coping use inventory, and mood and anxiety questionnaire. The use of coping was examined as a mediator between stress and mental distress, as measured by anxiety and depression. Preliminary analyses found that stress, depression, and anxiety were significantly positively correlated with maladaptive coping skills (avoidance, self-punishment, and substance use) and significantly negatively correlated with adaptive coping skills (approach and accommodation). As per the mediation model, stress significantly predicted anxiety and depression, as well as coping skills. Coping skills also significantly predicted anxiety and depression. Additionally, coping was found to partially mediate the relationship between stress and anxiety and depression.

Can Coping Mediate the Relationship Between Stress and Mental Distress in College Students?

In the United States, young adulthood is a pivotal period in life, where individuals explore their identity, develop goals, and foster independence (Brougham, Zail, Mendoza, & Miller, 2009; Coccia & Darling, 2016). Many challenges accompany the transition into adulthood. Young adults are expected to manage finances, social relationships, familial relationships, careers, and new roles they had never fulfilled before (Brougham et al., 2009; Coccia & Darling, 2016). Simultaneously, 70% of young adults are choosing to extend their academic careers by pursuing a college education after high school (Symonds, Schwartz, & Ferguson, 2011). Within college, students are challenged with environmental changes, lost or changing social support, novel and increasing academic pressures, and increased personal responsibility (Brougham et al., 2009; Vaez & LaFlamme, 2008).

Research has found an increase in the number of students who are struggling with the demands of college (American College Health Association [ACHA], 2017; Brougham et al., 2009; Mahmoud, Staten, Hall, & Lennie, 2012; Vaez & Laflamme, 2008). A study by the American Psychological Association (APA) found that younger individuals (ages 18-33) reported experiencing the highest stress levels, the most difficulty managing stress, and were more likely to experience symptoms of stress (APA, 2013). College-related stress has been associated with cognitive deficits, poor academic performance, illness, poor health behaviors, a decrease in life satisfaction, and increased rates of depression and anxiety (Brougham et al., 2009). Among college students, studies have found a significant negative correlation between stress and quality of life, and a significant positive correlation between high levels of stress and poor mental and physical health. (Geslani & Gaebelin, 2013; Gupchup, Borrego, & Konduri, 2004; Klainin-Yobas, Keawkerd, Pumpuang, Thunyadee, Thanoi, & He, 2014).

Mental Health

The American College Health Association's National College Health Assessment (ACHA-NCHA) found that 87% of college students surveyed felt overwhelmed (American College Health Association [ACHA], 2017). Data from the ACHA-NCHA II show that students who reported experiencing overwhelming anxiety rose from 49.1% in 2008 to 60.8% in 2017, while reports of being so depressed it was difficult to function rose from 30.6% to 39.1%. In 2008, 6.4% of student reported seriously considering suicide, which increased to 10.3% in 2017 (ACHA, 2008; ACHA, 2017). Indeed, suicide is one of the leading causes of death among individuals aged 15- to 24-years-old and depression is positively associated with suicidal ideation in college students (National Alliance on Mental Illness [NAMI], 2015; Smith, Carter, Karczewski, Pivrunas, Suffoletto, & Munin, 2015). Students who reported diagnosis or treatment of anxiety or depression rose from 6.3% in 2008 to 13.2% in 2017 and both anxiety and depression rates increased independently. In 2017, almost half of students reported that academics had been traumatic or very difficult to handle, followed by finances, intimate relationships, sleep difficulties, and career-related issues.

NAMI (2012) surveyed individuals diagnosed with a mental health condition and who had been enrolled in college within the past 5 years. Among respondents, depression (27%) was the most common diagnosis. Over half (64%) of respondents were no longer attending college due to mental health problems, with depression, bipolar disorder, and posttraumatic stress disorder (PTSD) the primary diagnoses among those respondents. A surprising 73% of respondents reported experiencing a mental health crisis while in college. The top triggers for a mental health crisis were extreme anxiety, panic, or depression about school; difficulty adjusting; feelings of homesickness, loneliness, and isolation; and feeling stressed or overwhelmed. Stigma

was cited as the number one reason that students did not seek help in regards to their mental health. However, the use of coping strategies has been shown to manage the negative effects of stressors, including mental health distress (Billings & Moos, 1984; Brougham et al., 2009).

Stress and Coping

Stress is theorized as a response to conditions that disrupt an individual's ability to adapt and function (Lazarus, 1966). Coping is how an individual responds to a stressor, or the process of managing stressors or demands that an individual considers taxing or exceeds the individual's resources (Folkman, 1982). Research suggests that coping can play an important role in mediating the outcomes of stressful events, including anxiety, depression, and other psychological distress (Endler & Parker, 1990). Researchers Richard Lazarus and Susan Folkman are often credited with developing the contemporary foundation for the conceptualization of stress and coping (Carver & Vargas, 2011; Carver, Scheier, & Weintraub, 1989). The way an individual responds to a stressor is dependent on the characteristics of the individual (Lazarus, 1966).

One such characteristic is cognitive appraisal, or how they cognitively interpret and perceive the stressor, which impacts the way an individual responds to a stressor, which in turn, affect their well-being (Folkman & Lazarus, 1985; Pritchard & Wilson, 2006). There are two types of appraisals: primary and secondary. Primary appraisal refers to the perception of the threat of the stressor, while secondary appraisal refers to the evaluation of how to respond to the stressor (Carver, Scheier, & Weintraub, 1989). Coping can serve several functions related to these appraisals: through coping, an individual can accommodate to stress without being overwhelmed by it, allowing them to protect themselves from threat (Billings & Moos, 1981;

Pearlin & Schooler, 1978). Individuals can also use coping to change the stressor, control the meaning of the stressor, or control the stressor itself (Pearlin & Schooler, 1978).

Adaptive and maladaptive coping. Folkman and Lazarus' (1980) initial conceptualization suggested two types of coping: problem-focused and emotion-focused. Alternate conceptualizations have been proposed, but researchers tend to distinguish variations in coping into these two general categories (Carver, Scheier, & Weintraub, 1989). Problem-focused coping, sometimes called problem-oriented or task-oriented, aims to address the stressor directly. Emotion-focused coping, sometimes called emotion-oriented, aims to manage emotional distress. Neither coping style is inherently maladaptive, but each is more adaptive in certain situations. Problem-focused coping has been found to be more effective in situations in which the individual has control, such as studying for a test (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman, Lazarus, Gruen, & DeLongis, 1986). Emotion-focused coping is more effective in situations in which the individual has little to no control, such as loss and severe negative experiences (Zuckerman & Gagne, 2003).

Coping strategies are related to symptom reporting, in that use of inappropriate coping strategies is associated with higher symptom reporting, while use of appropriate coping strategies is associated with lower symptom reporting (Clark, Bormann, Cropanzano, & James, 1995; Klainin-Yobas et al., 2013; Lazarus & Folkman, 1989). In other studies, use of problem-oriented and task-oriented strategies has been significantly associated with lower levels of anxiety and dysfunction than avoidance and emotion-oriented strategies, which were linked with depression (Billings & Moos, 1984; Endler & Parker, 1990; Klainin-Yobas et al., 2014).

For college students, strategies such as self-help (supporting emotional well-being), approach (problem-solving directed at the stressor), and accommodation (attempting to come to

terms with the stressor), were associated with better outcomes than strategies such as avoidance (orienting oneself away from the stressor) and self-punishment (dwelling on the stressor and blaming oneself; Brougham et al., 2009; Pritchard, Wilson, & Yamnitz, 2007; Zuckerman & Gagne, 2003). The use of maladaptive coping strategies, or situationally inappropriate coping behaviors that are related to negative outcomes, has been associated with depression and anxiety, while the use of emotion-focused coping has been associated with poorer grades (Folkman & Lazarus, 1985; Mahmoud et al., 2012; Zuckerman & Gagne, 2003). Despite the aforementioned undesirable outcomes, no coping strategy is inherently adaptive or maladaptive. The functionality of the coping strategy is dependent on the situation in which the stressor takes place.

Measuring coping. It is apparent that coping is a complex construct and thus developing an adequate way to measure it has often fallen short, despite the efforts of researchers. Zuckerman and Gagne (2003) identified two major problems with measuring coping. First, types of coping are not easily distinguished into distinct scales, and there tends to be overlap. Second, coping is a broad concept, and scales often fail to include all relevant aspects of the coping process. Problem-focused and emotion-focused coping were the focus of the coping measure the Ways of Coping Checklist (WOCC; Folkman & Lazarus, 1980). However, the dyad of problem-focused and emotion-focused coping does not thoroughly tap into all styles of coping.

In the mid-1980s, Folkman, Lazarus, and colleagues (Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman, Lazarus, Gruen, & DeLongis, 1986) reanalyzed the scales of their measure and developed the Ways of Coping Revised (WOC-R). In a college student sample, Folkman et al. (1985) conceptualized that coping could be assessed using eight scales, including one that was problem-focused, six that were

emotion-focused, and one that was a combination of problem- and emotion-focused. Despite the revisions to the scales, multiple studies have failed to find high stability and internal consistency within the scales and many questions remain regarding generalizability, construct validity, convergent validity, and discriminant validity (Scherer & Brodzinski, 1990; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985)

Carver, Scheier, and Weintraub (1989) proposed that the coping styles suggested by previous researchers were too simple. In their development of the COPE, Carver and colleagues developed 13 coping scales. Some of the scales could be conceptualized as problem- or emotion-focused coping, and some did not fit neatly into either category. Despite extensive use, similar theoretical issues plagued the COPE and its shorter successor, the Brief COPE (Carver, 1997; Lyne & Roger, 2000). The factor analysis of the COPE was criticized as creating too many factors that do not properly represent coping, poor reliability, and a high likelihood of error (Lyne & Roger, 2000).

Current Study

Plentiful research has been conducted assessing stress as it pertains to college and college students. In regards to coping, many researchers have assessed how coping plays a role in a variety of areas such as resilience, academic performance, suicidal ideation, physical health, eating habits, and more. Little research is available that speaks to the role of coping as a mediator and assesses how use of coping mediates the effects of stress on mental distress in college students. The current study attempts to fill that gap in the literature.

With the overwhelming amount of stress that college students experience, it is important to understand how students may be affected by stress and how students may cope with stress in a way that may contribute to or reduce negative mental health effects. The purpose of the current

study was to assess the mediating effect of coping on the relationship between stress and mental distress—particularly anxiety and depression—in college students. Consistent with and extending upon past research, it was hypothesized that:

1. there would be a positive relationship between stress and anxiety and depression;
2. students who reported higher uses of avoidance, self-punishment, self-distraction; and substance use would report higher levels of anxiety and depression;
3. students who reported higher uses of self-help, approach, and accommodation would report lower levels of anxiety and depression; and
4. coping would mediate the relationship between stress and mental distress.

Method

Participants

Participants ($N = 208$) were college students attending a mid-sized Midwestern university. Out of 208 participants, 200 provided valid data (39.50% male, 60.50% female, $M_{\text{age}} = 19.85$ years, age range: 18-53 years) after removing individuals who did not consent to participate ($N = 2$), individuals who reported being under 18-years-old ($N = 2$), and individuals who did not report an age ($N = 4$). In the demographics questionnaire (Appendix A), participants were asked to report biological sex and gender identity, in order to assess for potential gender differences. All participants identified as cisgender (same biological sex and gender identity). The gender identity responses for 3 participants who chose “Other” for their gender identity were adjusted to reflect their response for biological sex (male). The adjusted responses include “Attack Helicopter,” “There are only two genders,” and “Only two genders: Male and Female. I am Male.” Table 1 displays the full demographics of the sample.

Measures

Stress. To measure stress, participants completed the 10-item Perceived Stress Scale (PSS; Cohen & Williamson, 1988), which is located in Appendix B. The PSS is a 10-item self-report measure of stress appraisal, which asks participants to respond to items about stress on a 5-point Likert scale (anchored by 0 = “Never,” 4 = “Very Often”). The PSS includes items such as “In the last month, how often have you felt nervous and ‘stressed’?” Scores on the PSS are obtained by reverse scoring items 4, 5, 7, and 8, and then summing responses to all scale items. The range of obtainable scores is 0 to 40, with greater scores indicating higher levels of perceived stress. Higher scores on the PSS have been associated with greater vulnerability to depressive symptoms due to stressful life events (Cohen, 1983). The reported stress level of the current sample was higher (Male $M = 16.80$, $SD = 6.80$; Female $M = 19.99$, $SD = 6.42$) than the normed sample (Male $M = 12.10$, $SD = 5.90$; Female $M = 13.70$, $SD = 6.60$), but remained within one standard deviation (Cohen & Janicki-Deverts, 2012).

According to Cohen and Janicki-Deverts (2012), Cronbach’s alphas for the PSS ranged from .78 to .91 across two samples, indicating good internal consistency. The Cronbach’s alpha for the PSS in the present sample was .88, indicating high internal consistency. In previous research (Roberti, Harrington, & Storch, 2006) the PSS correlated significantly with the State-Trait Anxiety Inventory ($r = .73$), indicating support for convergent validity, and correlated weakly with the Multidimensional Health Locus of Control ($r = -.16$), which displays slight divergent validity.

Coping. In the current study, participants completed Zuckerman and Gagne’s (2003) Revised Cope (R-COPE) and the Self-Distraction and Substance Use scales from Carver’s (1997) Brief COPE. The R-COPE was chosen as it is a relatively newer measure, developed from Carver’s (1989) COPE, and adjusted to accommodate for and eliminate the

aforementioned weaknesses of measuring coping. The Self-Distraction and Substance Use scales from the Brief COPE were added to accommodate for the absence of such items on the R-COPE, as they are especially relevant to college students' experiences. In the literature, coping is referred to both state and trait, with evidence supporting either perspective. The current study focuses more on state-dependent coping by placing emphasis on coping utilized during students' time in college.

The R-COPE is a 40-item self-report measure of coping responses developed from Carver et al.'s (1989) original COPE inventory, and is located in Appendix C. The R-COPE asks participants to respond to statements on a 5-point Likert scale (anchored by 1 = "never use this coping strategy," 5 = "always use this coping strategy"). The R-COPE contains items such as "I brood over my problem nonstop." There are 5 subscales in the R-COPE, each with 8 items that load onto that subscale. Scores on the R-COPE are obtained by summing the responses for each subscale, with greater scores on each subscale (ranging from 8 to 40) indicating higher use of that type of coping.

In Zuckerman and Gagne's (2003) report of the R-COPE's psychometric properties, the reported factor loadings for each subscale were .62 to .91 for Self-Help, .39 to .79 for Approach, .35 to .81 for Accommodation, .42 to .82 for Avoidance, and .33 to .82 for Self-Punishment. The correlations between the subscales ranged from .04 to .52, suggesting that the five subscales measure different aspects of coping, but do modestly overlap. Across three studies, Cronbach's alpha for each subscale ranged from .91 to .94 for Self-Help, .83 to .88 for Approach, .82 to .88 to Accommodation, .74 to .84 for Avoidance, and .81 to .88 for Self-Punishment, indicating good internal consistency (Zuckerman & Gagne, 2003). In the current study, the Cronbach's alpha across all subscales was .85, .90 for Self-Help, .90 for Approach, .86 for Accommodation,

.82 for Avoidance, and .91 for Self-Punishment, indicating high internal consistency. In past research, test-retest reliabilities were small to moderate, ranging from $r_s = .39$ to $.60$.

Correlations between the five R-COPE subscales and depression have been reported to range from $r_s = .15$ to $.53$, while correlations ranged from $r_s = .18$ and $.57$ for the five R-COPE scales and anxiety, indicating that the R-COPE slightly to moderately measures both depressive and anxious symptomatology (Zuckerman & Gagne, 2003). The R-COPE displayed moderate divergent validity in previous studies. Correlations between the five R-COPE subscales and the Realistic Control Belief scale ranged from $.21$ to $.41$, while the correlations with the negative events scale, adapted from the College Students Activity and Events form, ranged from $.02$ to $.24$ (Zuckerman & Gagne, 2003).

The Brief COPE (Carver, 1997) is a self-report measure of situational coping strategies, with the present study particularly interested in strategies related to the measure's Self-Distraction and Substance use subscales, which are located in Appendix D. These subscales ask participants to respond to statements on a 4-point Likert scale (anchored by 0 = "I haven't been doing this at all," 3 = "I've been doing this a lot"). The Self-Distraction subscale contains items such as "I've been turning to work or other activities to take my mind off things," and the Substance Use subscale contains items such as "I've been using alcohol or other drugs to make myself feel better." Scores on these subscales are obtained by summing the responses for each scale. Greater scores on each scale (ranging from 0 to 6) indicates higher use of that type of coping.

According to Carver (1997), the Cronbach's alpha values of the Self-Distraction and Substance Use scales of the Brief COPE were good to excellent, at $.71$ and $.90$ respectively. The Cronbach's alpha for both subscales of the Brief COPE in the present sample was $.49$, indicating

moderate internal consistency, while the alpha for Self-Distraction was .38 and the alpha for Substance Use was .94. The large discrepancy in the internal consistencies between the two subscales suggests that the two subscales measure different constructs, and the two items in the Self-Distraction subscale do not evenly map onto the same construct of self-distraction.

Mental Distress. Mental distress refers to participants' levels of anxiety and depression, as depression and anxiety are the most common mental issues in college students. The current study measures anxiety and depression with the Mood and Anxiety Symptoms Questionnaire Short Form (MASQ-SF, Watson & Clark, 1991), which can be found in Appendix E. The MASQ-SF is a 62-item self-report measure of anxious and depressive symptoms which asks participants to rate their symptoms on a 5-point Likert scale (anchored by 1 = "not at all," 5 = "extremely"). The MASQ-SF contains items such as "was unable to relax" and "felt withdrawn from other people." Scores on the MASQ-SF are obtained by first reverse scoring items 3, 7, 10, 15, 22, 27, 39, 43, 47, 49, 53, 56, 58, and 60, then summing all items to create the total score. Scores on the MASQ-SF can range from 62 to 310, with greater scores indicating greater anxious and depressive symptoms. The MASQ-SF contains 4 subscales: General Distress: Anxious Symptoms (11 items), Anxious Arousal (17 items), General Distress: Depressive Symptoms (12 items), and Anhedonic Depression (22 items). For the current study, the General Distress: Anxious Symptoms and Anxious Arousal subscales were combined to form the Anxiety Composite subscale, while General Distress: Depression and Anhedonic Depression were combined to form the Depression Composite subscale.

Cronbach's alphas across three student samples ranged from .68 to .78 for the two anxiety subscales and .68 to .93 for the two depression subscales, indicating moderate to strong internal consistency (Watson et al., 1995). The Cronbach's alpha for all four subscales of the

MASQ-SF in the present sample was .96, .95 for the Anxiety Composite, and .95 for the Depression Composite, indicating high internal consistency. As anticipated, the correlations between the anxiety and depression subscales were weaker, ranging from .25 to .68. The weak to moderate correlations between the anxiety and depression subscales suggests that anxiety and depression are overlapping constructs within the MASQ. In a student sample, the General Distress: Anxiety and Anxious Arousal subscales correlated .71 and .72 respectively with the Beck Anxiety Inventory, while the General Distress: Depression and Anhedonic Depression subscales correlated .67 and .60 respectively with the Beck Depression Inventory, suggesting moderate convergent validity.

Procedure

The current study was approved by the Institutional Review Board (IRB). Participants were recruited via self-selection from a number of options through introductory psychology classes, in which they received course credit for completion of the study. The survey was administered online through SurveyMonkey.com™. Participants were directed to respond to all items in the context of their time in college. The participants completed the informed consent (Appendix F), the PSS, the RCOPE, the Brief COPE items, the MASQ, the demographics survey, and then the debriefing (Appendix G). As the mediation model is dependent on a time-ordered relationship between variables, the measures were not counterbalanced and were presented in the same order for each participant (Baron & Kenny, 1986; Tate, 2015). Two attention checks were placed one-third and two-thirds through the survey, asking participants to choose a designated response. On average, the current study took participants 9 minutes to complete.

Results

Descriptive statistics and bivariate correlations can be found in Table 2. Results supported hypothesis 1, that there would be direct relationships between stress and anxiety and depression. The results showed that stress was significantly negatively correlated with the adaptive coping subscales (Self-Help, Approach, and Accommodation), significantly positively correlated with the maladaptive coping subscales (Avoidance, Self-Punishment, Self-Distraction, and Substance Use), and significantly positively correlated with anxiety and depression. Coping subscales Avoidance, Self-Punishment, and Substance Use were significantly positively correlated with anxiety and depression, partially supporting hypothesis 2, that students who report higher uses of avoidance, self-punishment, self-distraction, and Substance Use would report higher levels of anxiety and depression. Coping subscales Self-Help, Approach, and Accommodation were significantly negatively correlated with depression, while Approach and Accommodation were significantly negatively correlated with anxiety, partially supporting hypothesis 3, that students who report higher uses of self-help, approach, and accommodation would report lower levels of anxiety and depression.

Independent samples *t*-tests, which can be found in Table 3, were conducted to assess demographic differences on the variables. Results showed that freshmen were significantly less likely to utilize self-help and accommodation than non-freshmen; women experienced significantly higher levels of stress than men, and were significantly more likely than men to use self-help or avoidance¹; and whites were significantly less likely to utilize accommodation and more likely to use substances than non-whites. These differences were controlled for in subsequent analyses, and no other differences were found to be significant.

¹ As participants' self-reports of sex and gender were consistent with each other, only sex differences on the measures were analyzed and reported.

Attention checks, in the form of two items requesting participants choose a specific answer, were utilized to assess how closely participants were paying attention to the survey. An independent samples *t*-test was conducted to assess for differences between participants who answered both attention check items correctly ($N = 131$) and participants who answered one or both of the attention check items incorrectly ($N = 69$). As shown in Table 3, no significant differences were found between the two groups; therefore, no further analyses included the attention check items.

Mediation Analysis

Data analytic strategy. To test hypothesis 4, that coping would mediate the relationship between stress and mental distress, a Baron and Kenny (1986) mediation analysis was conducted. Four sets of hierarchical multiple regressions were conducted (Statistics Solutions, 2013) for each dependent variable, with all categorical variables dummy coded for entry into the model and all continuous variables standardized to *Z*-scores. In Set 1, regressions were conducted to examine whether stress would predict anxiety and depression. For each dependent variable, participants' stress scores were entered in Step 1. In Set 2, regressions were conducted to examine whether stress would predict coping. For each dependent variable, participants' class year, sex, and race were entered in Step 1 to control for their effects; then, participants' scores on each type of coping were entered in Step 2. In Set 3, regressions were conducted to examine whether coping, controlling for stress, would predict anxiety and depression. For each dependent variable, participants' stress scores were entered in Step 1 to control for their effects; then, participants' scores on each type of coping were entered in Step 2. In Set 4, regressions were conducted to examine whether stress, controlling for coping, would predict anxiety and

depression. For each dependent variable, participants' coping scores were entered in Step 1 to control for their effects; then, participants' scores on stress were entered in Step 2.

The mediation model is presented in Figure 1. For mediation to occur, stress must be significantly related to anxiety and depression (Set 1), stress must be significantly related to coping, the hypothesized mediator (Set 2), and coping should remain a significant predictor of anxiety and depression while controlling for the effects of stress (Set 3). Finally, if coping significantly mediates anxiety and depression, stress should no longer significantly predict anxiety and depression when controlling for coping (Set 4). If this condition is met, then mediation has occurred, consistent with the fourth hypothesis that coping would mediate the relationship between stress and mental distress.

Predicting Anxiety. The complete regression results for anxiety are shown in Tables 4 through 7. The first regression found that stress significantly predicted anxiety (Table 4). In the second set of regressions, stress was found to significantly predict all coping subscales (Table 5). The third set of regressions found that coping subscales Avoidance ($\beta = .17, p < .01$) and Substance Use ($\beta = .24, p < .01$) significantly predicted anxiety when controlling for stress ($\beta = .56, p < .01$; Table 6). In the fourth and final set of regressions, stress still accounted for a significant amount of the variance between coping and anxiety ($\beta = .37, p < .01$), suggesting coping partially mediates the relationship between coping and anxiety (Table 7). Results of the Sobel test (Preacher & Leonardelli, 2018) suggest that the partial mediation by Avoidance ($z' = 2.24, p < .05$) and Substance Use ($z' = 3.01, p < .01$) is significant. Tests for multicollinearity across regressions indicated that multicollinearity is not a concern, as VIFs ranged from 1.00 to 2.05, with Tolerance ranging from .49 to .95.

Predicting Depression. The first regression found that stress significantly predicted depression (Table 4). The second set of regressions was the same as described in predicting anxiety, above. The third set of regressions found that coping subscales Self-Help ($\beta = -.15, p < .01$), Accommodation ($\beta = -.11, p < .05$), and Self-Punishment ($\beta = .34, p < .01$) significantly predicted depression when controlling for stress ($\beta = .74, p < .01$; Table 6). In the fourth and final set of regressions, stress again continued to account for a significant amount of the variance between coping and depression ($\beta = .42, p < .01$), suggesting coping partially mediates the relationship between coping and depression (Table 7). Results of the Sobel test suggest that the partial mediation by Self-Help ($z' = 2.37, p < .05$), Accommodation ($z' = 2.24, p < .05$), and Self-Punishment ($z' = 5.65, p < .01$) is significant. Tests for multicollinearity across regressions indicated multicollinearity is not a concern, as VIFs ranged from 1.00 to 2.05, with Tolerance ranging from .49 to .94.

Discussion

The purpose of the current study was to assess how coping mediates the relationship between stress and anxiety and depression in college students. The results partially supported the four hypotheses. As expected per hypothesis 1, stress had a direct relationship with anxiety and depression. Per hypothesis 2, as participants used more avoidance, self-punishment, and substance use as coping strategies, their levels of anxiety and depression increased. Per hypothesis 3, as participants used more approach and accommodation as coping strategies, their anxiety decreased; additionally, as they used more self-help, approach, and accommodation as coping strategies, their depression decreased. There were two types of coping strategies that stood out from the rest. The only variable that self-distraction as a coping strategy was associated with was stress, suggesting it was the “weakest” of the maladaptive coping

strategies, and a unique form of coping compared to the others. Aside from self-distraction, self-help was the only coping strategy that was not associated with anxiety, suggesting that use of self-help neither increases nor decreases anxiety.

The final mediation models can be found in Figures 2 and 3. The mediating effect of coping on the relationship between stress and mental distress was partially supported, suggesting that coping does play a role in the relationship between stress and mental distress. Stress significantly predicted anxiety and depression. When controlling for stress, coping subscales Avoidance and Substance Use significantly predicted anxiety, while coping subscales Self-Help, Accommodation, and Self-Punishment significantly predicted depression. In other words, college students' avoidance and substance use as coping strategies help explain the process by which stress may result in anxiety, while their use of self-help, accommodation, and self-punishment as coping strategies help explain the process by which stress may result in depression.

Assessing these results from a clinical perspective, the connection between use of avoidance, substances, and self-punishment and psychopathology is unsurprising. Fear and avoidance are diagnostic markers of disorders such as Social Anxiety Disorder (SAD), Panic Disorder, and Agoraphobia (American Psychiatric Association, 2013). Avoidance, including strategies such as distraction and rumination, has been found to be positively related to anxiety and is considered a transdiagnostic risk factor for psychopathology, especially social anxiety (Kashdan, Goodman, Machell, Kleiman, Monfort, Ciarrochi, & Nezlek, 2014). Social anxiety has also been found to have a strong association with cannabis use, where up to one-third of individuals with cannabis dependence have SAD, even after controlling for mood, personality, and comorbid diagnoses (Buckner, Zvolensky, Farris, & Hogan, 2014).

Meanwhile, depression is marked by a characteristic negative appraisal of oneself, others, and the world. Negative cognitive style and rumination, repetitively focusing on negative events and the causes of those events, have been found to be risk factors for depression (Lo, Ho, & Hollon, 2010). Consistently, the current study found the Self-Punishment subscale, which includes rumination-like items such as “I relive the problem by dwelling on it all the time,” to be significantly positively related to the Depression Composite.

Further, the connection between use of self-help and accommodation and positive outcomes is also unsurprising. Depression has been found to be connected to self-appraisals and problem-solving (Dixon, 2000). Consistent with the results of the current study, individuals who are ineffective at problem-solving (self-help) are more likely to be depressed (Dixon, 2000). Treatment of depression through cognitive behavioral therapy (CBT), which is a structured psychotherapy that focuses on problem-solving and modifying dysfunctional thinking (Beck, 2011), helps individuals cope with their negative thoughts through cognitive restructuring (CR), which has individuals identify and reframe negative thoughts into more functional thoughts. CR parallels the Accommodation subscale, which includes items such as “I try to see it in a different light, to make it seem more positive.”

Returning to the mediation model, stress was found to significantly predict anxiety and depression beyond the effects of coping, and partially accounted for the variance. The remaining variance suggests there may be additional variables that may help mediate the relationships among stress, coping, and mental distress. Factors such as personality (McCrae & Costa, 1986), resilience (Galatzer-Levy, Burton, & Bonanno, 2012), social network (Galatzer-Levy et al., 2012), and implicit theories (Schroder, Dawood, Yalch, Donnellan, & Moser, 2014) may affect

the relationship between stress, coping, and mental distress. Future research should examine competing additive and mediation models accounting for the possible roles of such variables.

There are limitations to the current study. First, the sample was predominantly 18-year-old, female, freshmen students, which limits the ability of the results to be generalized to college students as a population. Next, the use of self-report measures limits the accuracy of the data collected. As the survey requested students reflect on their entire time as a college student, it is possible students may have forgotten or misremembered their stress, coping, anxiety, or depression from previous semesters. It is also possible non-college stressors such as family, relationships, finances, etc. may have affected stress levels and use of coping in the participants. Also, the current study did not control for the previous diagnoses of anxious or depressive disorders in participants, due to concerns about maintaining an appropriate length for the study. A major limitation for this study is the construct of coping and how to properly measure it. As previously discussed, there are many imperfections in the use of self-report measures to assess use of coping (e.g., overlap among scales, lack of comprehensiveness, issues of validity). Though they were normed on a college student population, it is possible that the subscales utilized may be missing coping skills most applicable to college students, due to the complex nature of coping.

Despite these limitations, the findings of the current study suggest that for college students, certain types of coping are more adaptive than others. Specifically, use of self-help (supporting emotional well-being) and accommodation (coming to terms with the stressor) may be some of the most effective ways for students to manage their stress and prevent anxiety or depression. Colleges and universities may benefit from providing stress management and coping education focused on development of these particular skills to their students. Future research is

needed to identify the most effective ways to teach adaptive coping skills to college students and if such education can impact the demand that students place on college mental health services.

While college-related stress and use of maladaptive coping skills have been found to be associated with poor mental health in college students (Brougham et al., 2009; Folkman & Lazarus, 1985; Mahmoud et al., 2012; Zuckerman & Gagne, 2003), the current study is consistent with previous research suggesting that adaptive coping can manage the negative mental health effects of stress (Billings & Moos, 1984; Brougham et al., 2009). Further research is needed to clarify what types of coping are most adaptive for college-related stress, and how to instill the coping strategies into the college student population. However, the current study illuminates potential opportunities for colleges and universities to support their students through the stressful college experience, and the potential to prevent the development or exacerbation of mental health problems among their students.

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Figures

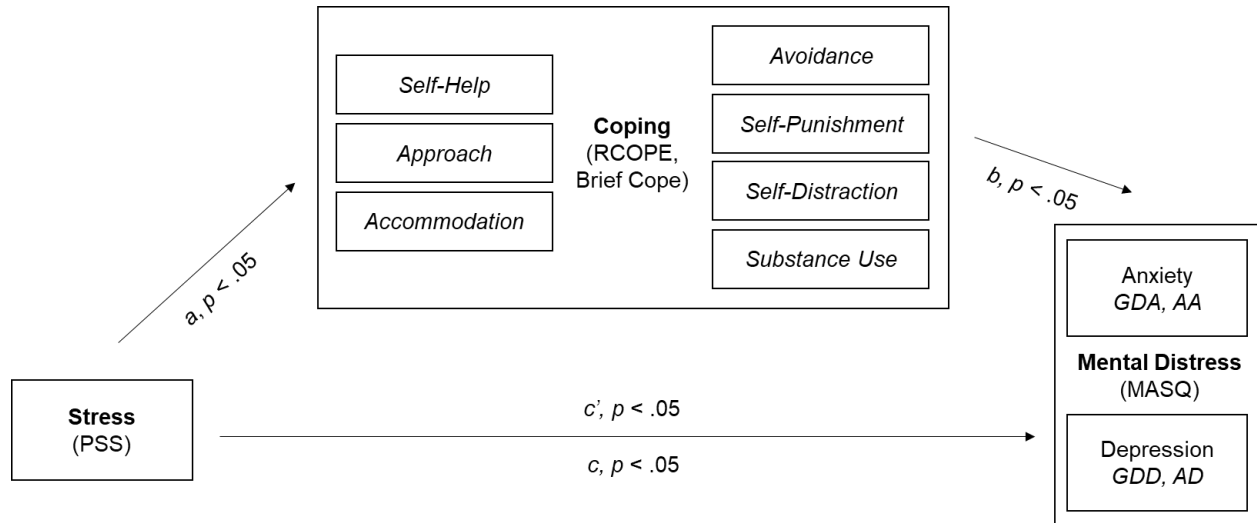


Figure 1. Proposed mediational analysis of the current study. The bold terms are the independent variable (stress), the dependent variable (mental distress), and the mediator (coping). Terms in parentheses are the measures which will be used to assess each variable. Terms that are italicized are the subscales that will be assessed. It is proposed that stress will significantly predict coping (*a*), coping will significantly predict mental distress (*b*), stress will significantly predict mental distress (*c*), and coping will mediate the relationship between stress and mental distress (*c'*).

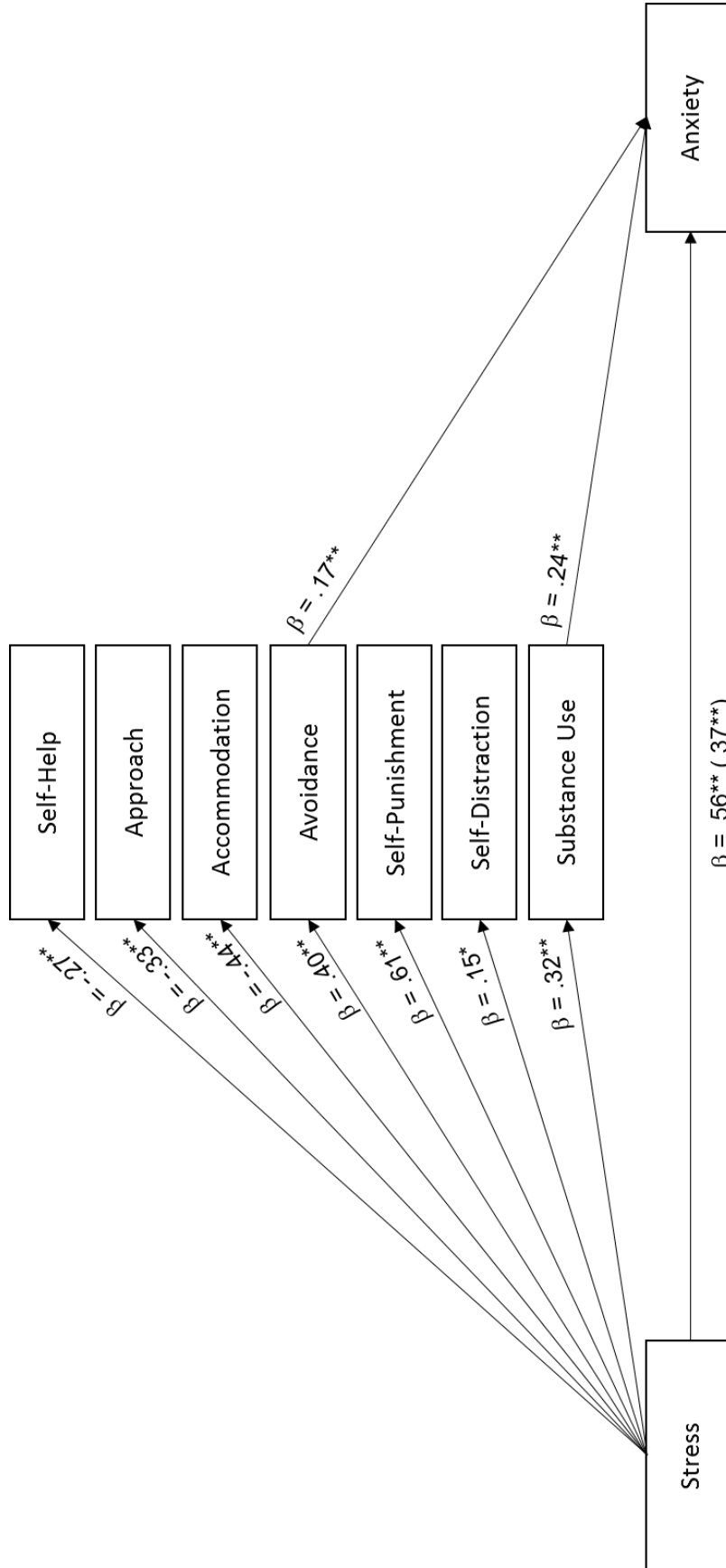


Figure 2. Results of the mediation model for anxiety. Standardized regression coefficients for the relationship between stress and anxiety as mediated by coping. Stress significantly predicts all coping subscales. Subscales Avoidance and Substance Use significantly predict anxiety. The standardized regression coefficient between stress and anxiety, controlling coping, is in parentheses. Coping predicts anxiety when controlling for stress and partially accounts for the variance.

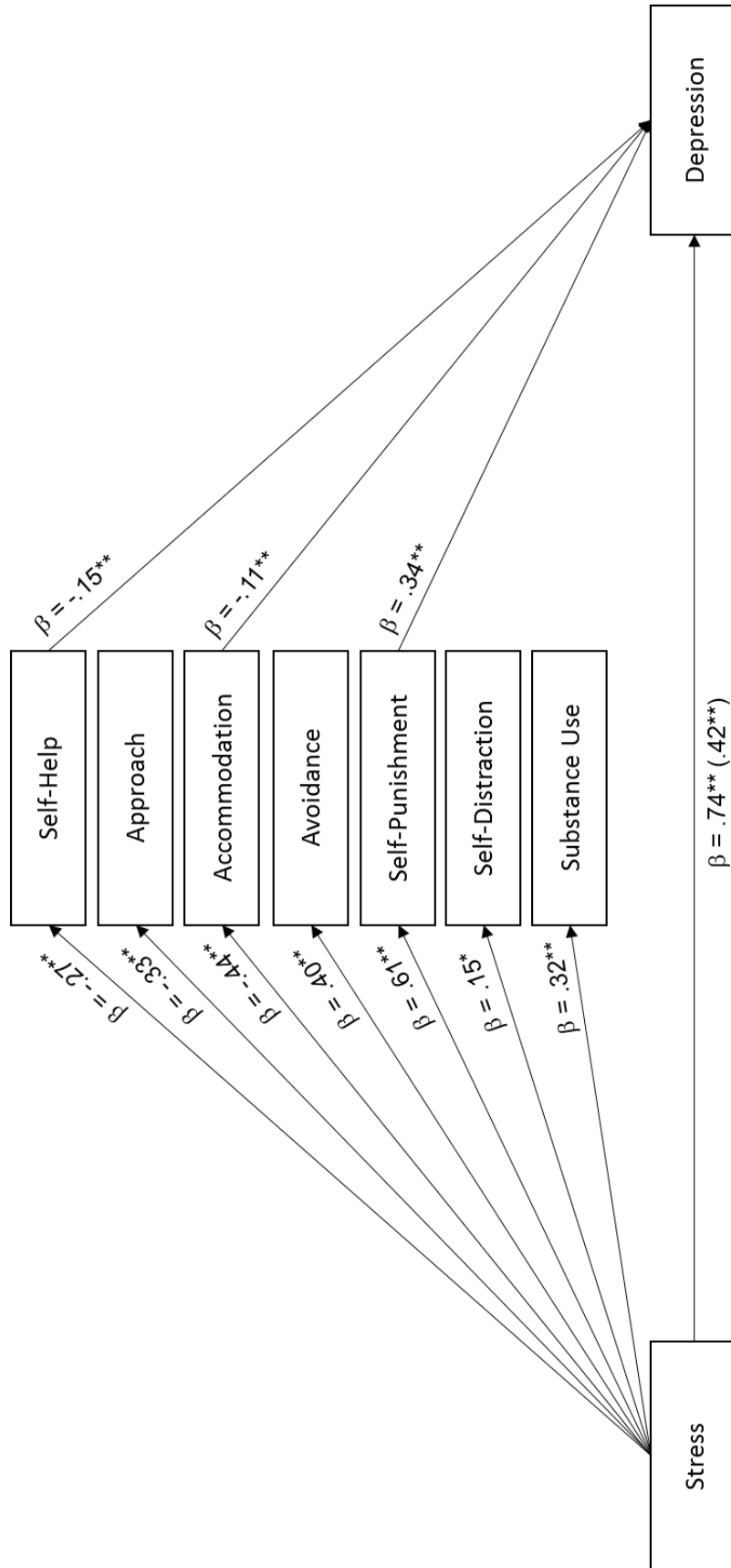


Figure 3. Results of the mediation model for depression. Standardized regression coefficients for the relationship between stress and depression as mediated by coping. Stress significantly predicts all coping subscales. Subscales Self-Help, Accommodation, and Self-Punishment significantly predict depression. The standardized regression coefficient between stress and depression, $\beta = .74^{**}$ (.42^{**}).

Tables

Table 1

Participant Characteristics

Characteristic	N	M	SD	%
Age		19.85	5.21	
18	114			57.0
19	39			19.5
20	18			9.0
21	11			5.5
22	2			1.0
23	4			2.0
24	1			.5
25	1			.5
27	2			1.0
30	1			.5
33	1			.5
36	1			.5
40	1			.5
43	1			.5
53	3			1.5
Class				
Freshman (1 year)	131			65.5
Sophomore (2 years)	45			22.5
Junior (3 years)	19			9.5
Senior (4+ years)	5			2.5
Sex				
Male	79			39.5
Female	121			60.5
Gender				
Male	76			38.0
Female	121			60.5
Other*	3			1.5
Race/Ethnicity				
Latino/Hispanic	10			5.0
White/Caucasian	150			75.0
Black/African American	13			6.5
Native Hawaiian/Other Pacific Islander	2			1.0
Asian	9			4.5
Native Indian/Alaska Native	2			1.0
Middle Eastern/Arabic	1			.5
Other	13			6.5

Note. * Adjusted to male.

Table 2
Descriptive Statistics and Intercorrelations

Variables	Mean	SD	Pearson correlations										
			1	2	3	4	5	6	7	8	9		
1. Stress	18.77	6.71	-										
2. Approach	18.42	6.00	-.21**	-									
3. Approach	21.79	5.31	-.35**	.36**	-								
4. Accommodation	22.97	4.93	-.44**	.28**	.43**	-							
5. Avoidance	13.41	4.32	.44**	.02	-.18**	-.25**	-						
6. Self-Punishment	19.14	6.16	.60**	-.06	-.14	-.25**	.45**	-					
7. Self-Distracton	5.72	1.41	.16*	.11	-.04	-.05	.09	.08	-				
8. Substance Use	2.70	1.45	.28**	-.15*	-.17*	-.10	.21**	.28**	.06	-			
9. Anxiety	50.98	19.75	.56**	-.08	-.20**	-.24**	.42**	.44**	.07	.40**	-		
10. Depression	73.72	22.57	.74**	-.31**	-.34**	-.45**	.41**	.66**	.05	.31**	.64**	-	

Note. * $p < .05$. ** $p < .01$.

Table 3

Results of t-test for Stress, Coping, Anxiety, and Depression by Class, Sex, and Race

Variables	Group						95% CI for		df
	Freshman			Not Freshman			Mean		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	Difference	<i>t</i>	
Stress	18.78	6.8	132	18.63	6.67	70	-1.82, 2.12	.152	200
Self-Help	17.64	5.55	132	20.00	6.44	70	-4.07, -.65	-2.71**	200
Approach	21.46	5.03	132	22.43	5.95	70	-2.53, .60	-1.22	200
Accommodation	22.44	4.87	132	23.91	5.19	70	-2.93, -.02	-2.00*	200
Avoidance	13.37	4.11	131	13.54	4.45	70	-1.41, 1.07	-.27	199
Self-Punishment	18.92	6.35	132	19.61	5.75	70	-2.48, 1.10	-.76	200
Self-Distraction	5.70	1.40	132	5.74	1.42	70	-.46, .36	-.22	200
Substance Use	2.72	1.55	132	2.63	1.24	70	-.33, .51	.43	200
Anxiety	49.92	19.77	132	52.50	19.69	70	-8.34, 3.17	-.89	200
Depression	72.08	22.28	132	76.53	22.75	70	-11.00, 2.09	-1.34	200
	Male			Female					
Stress	16.80	6.80	80	19.99	6.42	122	-5.06, -1.33	-3.38**	200
Self-Help	16.49	5.11	80	19.75	6.14	122	-4.90, -1.63	-3.94**	200
Approach	22.31	5.64	80	21.46	5.19	122	-.67, 2.38	1.11	200
Accommodation	23.19	5.13	80	22.80	4.65	122	-1.03, 1.82	.54	200
Avoidance	12.14	3.70	80	14.29	4.34	121	-3.32, -.99	-3.64**	199
Self-Punishment	18.38	5.93	80	19.68	6.25	122	-3.04, .43	-1.48	200
Self-Distraction	5.61	1.47	80	5.78	1.36	122	-.56, .23	-8.2	200
Substance Use	2.86	1.73	80	2.57	1.23	122	-1.5, .73	1.30	130.55
Anxiety	48.74	17.06	80	52.17	21.26	122	-9.06, 2.16	-1.21	200
Depression	71.69	22.06	80	74.89	22.77	122	-9.58, 3.18	-.99	200
	White			Not White					
Stress	18.69	7.23	152	18.84	5.06	50	-1.98, -1.68	-.16	119.44
Self-Help	18.55	5.834	152	18.18	6.39	50	-1.55, 2.29	.38	200
Approach	21.66	5.28	152	22.20	5.68	50	-2.27, 1.19	-6.1	200
Accommodation	22.55	5.04	152	24.18	4.77	50	-3.23, -.03	-2.01*	200
Avoidance	13.45	4.28	152	13.37	4.09	49	-1.29, 1.46	.13	199
Self-Punishment	19.40	6.16	152	18.44	6.08	50	-1.01, 2.94	.96	200
Self-Distraction	5.65	1.40	152	5.90	1.42	50	-.70, .20	-1.09	200
Substance Use	2.79	1.59	152	2.38	.86	50	.061, .76	2.32*	157.28
Anxiety	51.08	20.27	152	50.00	18.16	50	-5.28, 7.44	.34	200
Depression	73.05	23.22	152	75.36	20.21	50	-9.55, 4.93	-.63	200
	All AC Correct			AC Incorrect					
Self-Help	18.29	5.92	131	18.67	6.12	69	-2.13, 1.38	-.42	198
Approach	21.64	5.20	131	22.07	5.55	69	-1.99, 1.13	-.55	198
Accommodation	23.17	4.84	131	22.58	5.10	69	-.86, 2.04	.80	198
Avoidance	13.30	4.13	131	13.62	4.45	68	-1.57, .93	-.51	197
Self-Punishment	19.33	6.35	131	18.78	5.81	69	-1.27, 2.36	.59	198
Self-Distraction	5.70	1.42	131	5.74	1.39	69	-.45, .38	-.18	198
Substance Use	2.70	1.47	131	2.68	1.43	69	-.41, .45	.10	198
Anxiety	50.75	19.21	131	51.43	20.86	69	-7.07, 6.21	-.23	198
Depression	73.57	24.70	131	74.00	18.01	69	-6.46, 5.61	-.14	178.086

Note. * $p < .05$. ** $p < .01$. AC = Attention Check.

Table 4

Mediation Effects of Coping on the Relationship between Stress and Mental Distress: Set 1, Stress Predicts Anxiety and Depression

Mediation Set (#), Step, and Variable	Anxiety				
	R^2	ΔR^2	B	SE B	β
1. Step 1 Stress	.31	.31**	.56	.06	.56**
	Depression				
Step 1 Stress	.55	.55**	.74	.05	.74**

Note. * $p < .05$. ** $p < .01$

Table 5

Mediation Effects of Coping on the Relationship between Stress and Mental Distress: Set 2, Stress Predicts Coping Controlling for Demographics

Mediation Set (#), Step, and Variable	Self-Help				
	R^2	ΔR^2	B	SE B	β
1. Step 1	.11	.11**			
Class			.44	.14	.21**
Sex			.57	.14	.28**
Race			-.14	.16	-.06
Step 2	.18	.07**			
Stress			-.27	.07	-.27**
			Approach		
Step 1	.02	.02			
Class			.21	.15	.10
Sex			-.12	.15	-.06
Race			.06	.17	.03
Step 2	.12	.10**			
Stress			-.33	.07	-.33**
			Accommodation		
Step 1	.04	.04*			
Class			.31	.15	.15*
Sex			-.03	.14	-.01
Race			.27	.16	.12
Step 2	.23	.19**			
Stress			-.44	.07	-.44**
			Avoidance		
Step 1	.06	.06**			
Class			.05	.15	.02
Sex			.51	.14	.25**
Race			-.02	.16	-.01
Step 2	.22	.15**			
Stress			.40	.07	.40**
			Self-Punishment		
Step 1	.02	.02			
Class			.14	.15	.07
Sex			.21	.14	.10
Race			-.18	.17	-.08
Step 2	.38	.36**			
Stress			.61	.06	.61**

Note. * $p < .05$. ** $p < .01$

Table 5 Continued

Mediation Set (#), Step, and Variable	Self-Distracton				
	R^2	ΔR^2	B	SE B	β
Step 1	.01	.01			
Class			.02	.15	.01
Sex			.13	.15	.06
Race			.17	.17	.08
Step 2	.03	.02*			
Stress			.15	.07	.15*
			Substance Use		
Step 1	.03	.03			
Class			-.02	.15	-.01
Sex			-.21	.14	-.10
Race			-.29	.17	-.12
Step 2	.12	.10**			
Stress			.32	.07	.32**

Note. * $p < .05$. ** $p < .01$

Table 6

Mediation Effects of Coping on the Relationship between Stress and Mental Distress: Set 3, Coping Predicts Anxiety and Depression, Controlling for Stress

Mediation Set (#), Step, and Variable	Anxiety				
	R^2	ΔR^2	B	SE B	β
3. Step 1	.31	.31**			
Stress			.56	.09	.56**
Step 2	.41	.10**			
Self-Help			.03	.06	.03
Approach			-.01	.07	-.01
Accommodation			.01	.07	.01
Avoidance			.17	.07	.17**
Self-Punishment			.08	.07	.08
Self-Distraction			-.02	.06	-.02
Substance Use			.24	.06	.24**
			Depression		
Step 1	.55	.55**			
Stress			.74	.05	.74**
Step 2	.68	.13**			
Self-Help			-.15	.05	-.15**
Approach			-.06	.05	-.06
Accommodation			-.12	.05	-.11*
Avoidance			.04	.05	.04
Self-Punishment			.34	.05	.34**
Self-Distraction			-.03	.04	-.03
Substance Use			.05	.04	.05

Note. * $p < .05$. ** $p < .01$

Table 7

Mediation Effects of Coping on the Relationship between Stress and Mental Distress: Set 4, Stress Predicts Anxiety and Depression, Controlling for Coping

Mediation Set (#), Step, and Variable	Anxiety				
	R^2	ΔR^2	B	SE B	β
4. Step 1	.28	.28**			
Self-Help			.03	.06	.03
Approach			.01	.06	-.01
Accommodation			.01	.07	.01
Avoidance			.17	.07	.17**
Self-Punishment			.08	.07	.08
Self-Distraction			-.02	.06	-.02
Substance Use			2.4	.06	.24**
Step 2	.41	.13**			
Stress			.37	.08	.37**
			Depression		
Step 1	.57	.57**			
Self-Help			-.19	.05	-.19**
Approach			-.12	.05	-.12*
Accommodation			-.20	.06	-.19**
Avoidance			.10	.05	.10
Self-Punishment			.53	.05	.53**
Self-Distraction			.02	.05	.02
Substance Use			.07	.05	.07
Step 2	.67	.11**			
Stress			.42	.06	.42**

Note. * $p < .05$. ** $p < .01$

Appendix A

Demographics Questionnaire

Please choose which options fit you best.

1. Age
2. Class
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
3. Biological Sex
 - a. Male
 - b. Female
 - c. Other
4. Gender Identity
 - a. Male
 - b. Female
 - c. Transgender
 - d. Gender nonconforming
 - e. Other
5. Race
 - a. Latino/Hispanic
 - b. White/Caucasian
 - c. Black/African American
 - d. Native Hawaiian/Other Pacific Islander

- e. Asian
- f. Native Indian/Alaska Native
- g. Middle Eastern/Arabic
- h. Other (please specify)

Appendix B

Perceived Stress Survey

The questions in this scale ask you about your feelings and thoughts during your time in college. In each case, you will be asked to indicate by selecting how often you felt or thought a certain way.

0 = Never	1 = Almost Never	2 = Sometimes	3 = Fairly Often	4 = Very Often
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1. How often have you been upset because of something that happened unexpectedly?
2. How often have you felt that you were unable to control the important things in your life?
3. How often have you felt nervous and “stressed”?
4. How often have you felt confident about your ability to handle your personal problems?
5. How often have you felt that things were going your way?
6. How often have you found that you could not cope with all the things that you had to do?
7. How often have you been able to control irritations in your life?
8. How often have you felt that you were on top of things?
9. How often have you been angered because of things that were out of your control?
10. How often have you felt difficulties were piling up so high that you could not overcome them?

Appendix C

Revised-COPE

These items deal with ways you've been coping with the stress in your life since you have been in college. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

I usually don't do this at all			I normally do this a lot
1	2	3	4

1. I take time to express my emotions
2. I let my emotions show
3. I try to let out my feelings
4. I allow myself to show how I feel about things
5. I discuss my feelings with someone
6. I try to get emotional support from friends or relatives
7. I talk to someone about how I feel
8. I talk to someone to find out more about the situation
9. I concentrate my efforts on doing something about it
10. I take additional action to try to get rid of the problem
11. I take direct action to get around the problem

12. I do what has to be done, one step at a time
13. I make a plan of action
14. I try to come up with a strategy about what to do
15. I think hard about what steps to take
16. I try hard to prevent other things from interfering with my efforts at dealing with this
17. I try to be optimistic in spite of what happened
18. I work on feeling positive no matter what
19. I work on staying positive even when things look bad
20. I get used to the idea that it happened
21. I accept the reality of the fact that it happened
22. I try to see it in a different light, to make it seem more positive
23. I look for something good in what is happening
24. I try to identify something else I care about
25. I say to myself "this isn't real"
26. I refuse to believe that it has happened
27. I pretend that it hasn't really happened
28. I admit to myself that I can't deal with it, and quit trying
29. I give up the attempt to get what I want
30. I blame someone or something for what happened to me
31. I accuse someone of causing my misfortune
32. I try to forget the whole thing
33. I blame myself
34. I realize I brought the problem on myself

35. I criticize or lecture myself
36. I see that I am at the root of the problem
37. I just think about my problem constantly
38. I return in my head again and again to what is troubling me
39. I relive the problem by dwelling on it all the time
40. I brood over my problem nonstop

Appendix D

Brief COPE Items

These items deal with ways you've been coping with the stress in your life since you have been in college. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1 = I haven't been doing this at all	2 = I've been doing this a little bit	3 = I've been doing this a medium amount	4 = I've been doing this a lot
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1. I've been turning to work or other activities to take my mind off things.
2. I've been using alcohol or other drugs to make myself feel better.
3. I've been using alcohol or other drugs to help me get through it.
4. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.

Appendix E

Mood and Anxiety Symptoms Questionnaire - Short form

Below is a list of feelings, sensations, problems, and experiences that people sometimes have.

Read each item and then mark the appropriate choice in the space next to that item. Use the choice that best describes how much you have felt or experienced things in this way during your time in college, including today. Use this scale when answering:

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	extremely

1. Felt sad
2. Startled easily
3. Felt cheerful
4. Felt afraid
5. Felt discouraged
6. Hands were shaky
7. Felt optimistic
8. Had diarrhea
9. Felt worthless
10. Felt really happy
11. Felt nervous
12. Felt depressed
13. Was short of breath
14. Felt uneasy

15. Was proud of myself
16. Had a lump in my throat
17. Felt faint
18. Felt unattractive
19. Had hot or cold spells
20. Had an upset stomach
21. Felt like a failure
22. Felt like I was having a lot of fun
23. Blamed myself for a lot of things
24. Hands were cold or sweaty
25. Felt withdrawn from other people
26. Felt keyed up, "on edge"
27. Felt like I had a lot of energy
28. Was trembling or shaking
29. Felt inferior to others
30. Had trouble swallowing
31. Felt like crying
32. Was unable to relax
33. Felt really slowed down
34. Was disappointed in myself
35. Felt nauseous
36. Felt hopeless

37. Felt dizzy or lightheaded
38. Felt sluggish or tired
39. Felt really “up” or lively
40. Had pain in my chest
41. Felt really bored
42. Felt like I was choking
43. Looked forward to things with enjoyment
44. Muscles twitched or trembled
45. Felt pessimistic about the future
46. Had a very dry mouth
47. Felt like I had a lot of interesting things to do
48. Was afraid I was going to die
49. Felt like I had accomplished a lot
50. Felt like it took extra effort to get started
51. Felt like nothing was very enjoyable
52. Heart was racing or pounding
53. Felt like I had a lot to look forward to
54. Felt numbness or tingling in my body
55. Felt tense or “high-strung”
56. Felt hopeful about the future
57. Felt like there wasn’t anything interesting or fun to do
58. Seemed to move quickly and easily

59. Muscles were tense or sore

60. Felt really good about myself

61. Thought about death or suicide

62. Had to urinate frequently

Appendix F

Informed Consent

The Department of Psychology supports the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, without penalty.

TIME: It is expected that this study will take you around 30-45 minutes to complete.

PURPOSE: The purpose of this study is to assess how coping affects the relationship between stress and mental health. You will then be given a variety of surveys focusing on stress, coping, and mental health. Most questions will be answered by selecting the response that best reflects your experience. You will then be asked to fill out a demographics questionnaire that asks questions about you, like your age and class.

RISKS: There are minimal risks to you as a participant. However, it is possible that this research will evoke feelings of sadness, fear, or worry as the questions probe you to remember and acknowledge these feelings. Information will be provided at the conclusion of the survey to help you if you find yourself feeling disturbed by these feelings.

PRIVACY: Your name and information will not be connected to your responses and your answers can in no way be traced back to you. The data will be analyzed in aggregate, where individual responses do not matter. Instead, themes across responses will be sought. The results of this study may be presented at professional meetings and/or published.

Your participation is appreciated, but strictly voluntary. Do not hesitate to ask any questions about the study. Your cooperation is appreciated.

For questions regarding this survey, or for a copy of this consent, please contact:

Tessa Graf, B.A.
Washburn University Psychology Department
Henderson 211
1700 SW College Ave.
Topeka, Kansas, 666621
tessa.graf@washburn.edu

Do you consent to participate in this research?

Yes No

Appendix G

Debriefing

Thank you for participating in this survey.

The purpose of this survey was to gather information about your stress, coping skills, and mental health. While the questions presented in this survey were not intended to cause distress, it is possible that some of the topics may bring up distressing thoughts or feelings. If you have any such feelings, please see the following resources:

Washburn University Resources:

Psychological Services Clinic: Henderson 111, 785-670-1750

Counseling Services: Morgan Hall 140, 785-670-1470

Student Health Services: Morgan Hall 140, 785-670-1470

Community Resources:

Stormont-Vail Behavioral Health Services: 785-270-4600

Valeo Behavioral Health Care: 785-234-3300 (24 hours)

National Resources:

National Suicide Prevention Lifeline: 1-800-273-8255 (24 hours)

Crisis Text Line: Text "HOME" to 741741 (24 hours)

Veterans Crisis Line: 1-800-273-8255

If you have any questions, comments, or concerns, please feel free to contact the researcher, Tessa Graf (tessa.graf@washburn.edu) or the faculty supervisor, Jericho Hockett (jericho.hockett@washburn.edu, 785-670-1964).

Thank you again for your time and participation.