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# The Effects of Religious Coping and Drinking to Cope on the Relationship Between Depressive Symptoms and Alcohol-Related Problems

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**THE EFFECTS OF RELIGIOUS COPING AND DRINKING TO  
COPE ON THE RELATIONSHIP BETWEEN DEPRESSIVE  
SYMPTOMS AND ALCOHOL-RELATED PROBLEMS**

by

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A Thesis Submitted to the Faculty of  
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## ABSTRACT

### THE EFFECTS OF RELIGIOUS COPING AND DRINKING TO COPE ON THE RELATIONSHIP BETWEEN DEPRESSIVE SYMPTOMS AND ALCOHOL-RELATED PROBLEMS

Adrian J. Bravo  
Old Dominion University, 2014  
Director: Dr. James M. Henson

The present research examined the moderating effect of religious coping (positive or negative) on the relationship between depressive symptoms and alcohol-related problems. Furthermore, the current study examined the moderating effects of positive and negative religious coping in the context of the confirmed mediation of drinking to cope on depression and alcohol related problems (i.e., moderated-mediation). The study consisted of 294 religious undergraduate student drinkers from a large southeastern university. The majority of participants identified themselves as Christian ( $n = 257, 87.4\%$ ), were female ( $n = 218, 74.1\%$ ), and reported a mean age of 21.85 ( $SD = 5.57$ ) years. Participants completed measures of depressive symptoms, alcohol use, alcohol-related problems, drinking to cope, and religious coping. The present study found partial support for the Maladaptive Coping Hypothesis among religious college student drinkers. In particular, negative religious coping moderated the relationship between depressive symptoms and alcohol-related problems. In addition, negative religious coping affects another maladaptive coping strategy (i.e., drinking to cope) by moderating the mediating effects of drinking to cope on the relationship between depressive symptoms and alcohol-related problems. However, positive religious coping was unrelated to all major study variables. The implication of this study may be important for future interventions to tap into

improving coping strategies for religious individuals who report high levels of depressive symptoms.

*Keywords:* religious coping, drinking to cope, depression, alcohol-related problems

Esta tesis está dedicada a mi familia y para los que me han ayudado a lo largo de mi carrera académica.

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## CHAPTER I

### INTRODUCTION

Heavy drinking among college students is a recognized public health concern that has remained consistent over the past two decades (Hingson, Zha, & Weitzman, 2009). Heavy drinking is associated with negative life consequences that vary in frequency and severity, ranging from mild negative outcomes, such as being late for class, to more severe consequences, such as interpersonal aggression and sexual victimization (Perkins, 2002). In addition to alcohol misuse, researchers have found surprisingly high rates of psychological distress, particularly depression among college students (Bayram & Bilgel, 2008; Eisenberg, Gollust, Golberstein, & Hefner, 2007). Not surprisingly, college students who experience poor mental health and depression are more likely than their counterparts to report more problematic drinking-related outcomes and alcohol abuse (Weitzman, 2004). In addition, research has indicated that drinking to cope mediates the relationship between depression and alcohol-related problems (Gaher, Simons, Jacobs, Meyer, & Johnson-Jimenez, 2006; Schuckit, Smith, & Chacko, 2006). However, previous studies were not conducted using religious college populations. Thus, this research will extend of knowledge by confirming the mediating relationship of depressive symptoms, drinking to cope, and alcohol-related problems among religious student drinkers.

In addition, although the relationship between depression and alcohol problems has been established (Armeli, Conner, Cullum, & Tennen, 2010; Gonzalez, Bradizza, & Collins, 2009), no one has examined if this relationship weakens as individuals turn to religion as a coping mechanism. Because of the research demonstrating that religion can

be used as an effective coping mechanism (Ano & Vasconcelles, 2005; Pargament, 2011), this research examined the moderating effect of religious coping on the relationship between depressive symptoms and alcohol-related problems. I expected weaker relationships between depression and drinking to cope among those who used high levels of positive religious coping. Conversely, I expected stronger relationships between depression and drinking to cope among those who used high levels of negative religious coping. Finally, I examined the moderating effects of positive and negative religious coping in the context of the confirmed mediation of drinking to cope on depression and alcohol related problems (i.e., moderated-mediation). Specifically, I examined how the mediating effects of drinking to cope weaken or strengthen as individuals engage in more positive religious coping or negative religious coping.

### **College Binge Drinking and Alcohol-related problems**

In the United States, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines binge drinking as a pattern of drinking that brings a person's blood alcohol concentration (BAC) to 0.08 grams percent or above (NIAAA, 2004). Research has estimated that this typically happens for men when they consume five or more drinks, or for women when they consume four or more drinks, in about two hours (NIAAA, 2004).

In a recent national survey on drug use and health by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2011), researchers found that young adults aged 18 to 22 who were enrolled full time in college were more likely than their peers who were not enrolled full time (i.e., part-time college students and persons not currently enrolled in college) to use alcohol in the past month and to drink heavily.

Among full-time college students in 2010, 63.3 percent were current drinkers, 42.2 percent were binge drinkers, and 15.6 percent were heavy drinkers (SAMHSA, 2011). This prevalence of binge drinking among college students has led to a plethora of research on the link between binge drinking and alcohol-related problems.

Researchers have demonstrated that college students who binge drink face distinct consequences. Previous research has identified “damage to self” and “damage to others” as two distinct categories for alcohol-related problems (Perkins, 2002). With regards to “damage to self,” there are several potential consequences: academic impairment, blackouts, personal injuries, physical illnesses, unintended and unprotected sexual activity, suicide, sexual coercion and acquaintance rape victimization, legal repercussions, impaired athletic performance, and impaired driving. In regards to “damage to others,” there are several other potential consequences: property damage and vandalism, noise disturbances, fights and interpersonal violence, hate-related incidents, and sexual violence (Perkins, 2002). All of these potential consequences have been linked to college binge drinking (Perkins, 2002).

According to the NIAAA (2013), these consequences are prevalent among college students. Building off previous research (Hingson et al., 2009; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002; Wechsler et al., 2002), the NIAAA found startling annual rates of death, assault, sexual abuse, and health problems. More specifically, each year about 1,825 students die of alcohol-related injuries, more than 69,000 students who been drinking are assaulted, about 25% of college students report academic consequences of their drinking, and more than 150,000 students develop and alcohol-related health problems (NIAAA, 2013). Further, these rates have been increasing since 1998 (Hingson

et al., 2009), and alcohol-related problems are further enhanced by depressive symptoms (Weitzman, 2004).

### **Depressive Symptoms**

According to the National Institute of Mental Health (NIMH, 2011), depression may be described as a condition of general emotional dejection and withdrawal or sadness greater and more prolonged than that warranted by any objective reason. There are three main types of depression: major depressive disorder (combination of symptoms that interfere with a person's ability to work, sleep, study, eat, and enjoy once pleasurable activities), dysthymic disorder (longer-term, 2 years or longer, symptoms that may not be severe enough to disable a person, but can prevent normal functioning or feeling well), and minor depression (having symptoms for 2 weeks or longer that do not meet full criteria for major depression; NIMH, 2011). According to the *Diagnostic and Statistical Manual of Mental Disorders* (4<sup>th</sup> ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000), there are nine distinct symptoms of depression that include: dysphoria (sadness), anhedonia (loss of interest), appetite, sleep, thinking/concentrating, worthlessness (guilt), fatigue (tired), agitation (movement), and suicidal ideation. All of these symptoms have been shown to be widespread among college students (Kushner & Sher, 1993).

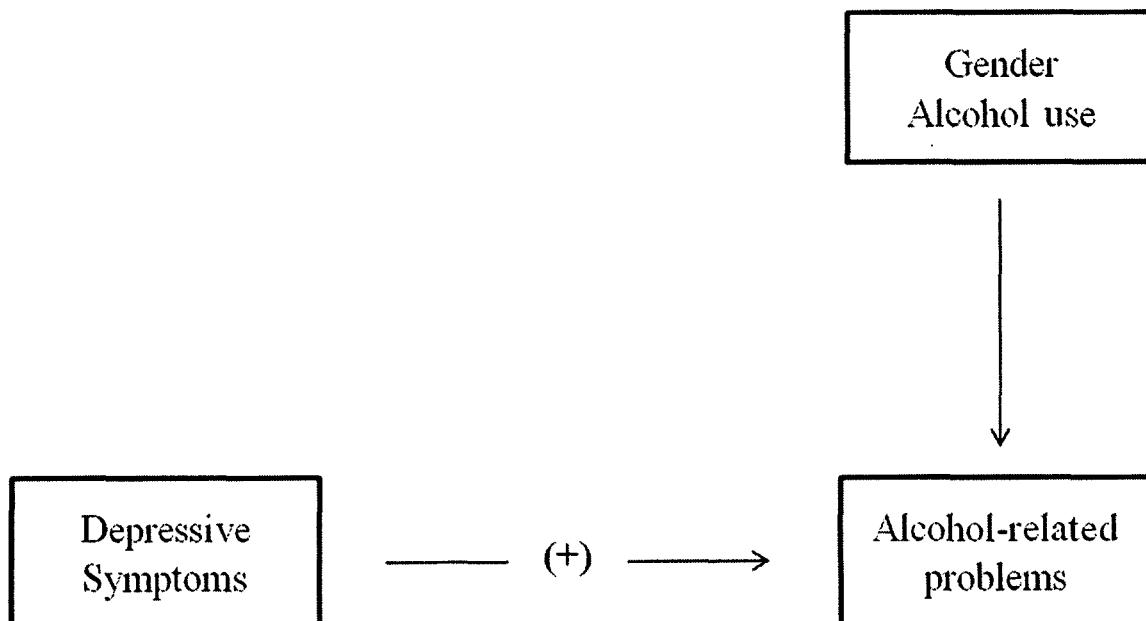
Recent research has indicated that depression is still common among college students, with estimates that up to 27% of students suffer from moderate or high levels of depression and up to 13.8% have symptoms consistent with a diagnosis of a major depressive disorder (Bayram & Bilgel, 2008; Eisenberg, Gollust, Golberstein, & Hefner,

2007). In fact, depression is the leading psychiatric disorder on college campuses (Orr et al., 2008).

### **Depressive Symptoms and Alcohol-related problems**

College students who experience poor mental health and depression are more likely than their counterparts to report problematic drinking-related outcomes (Camatta & Nagoshi, 1995). Weitzman (2004) used archival data to examine poor mental health (e.g., depression) and its association with alcohol consumption, abuse, and harm. Of the 27,409 students surveyed across 119 colleges, the prevalence of diagnosable clinical depression was 5.01%. Among drinkers, students with depression were more likely to experience several drinking-related harms compared to non-depressed peers, specifically with regards to falling behind in work, unsafe sex, overdosing, and having more than five alcohol-related problems (Weitzman, 2004). More recent studies have found similar findings that higher levels of depressive symptoms are associated with increased alcohol-related problems (Armeli et al., 2010; Gonzalez et al., 2009). Dennhardt and Murphy (2011) further found that among both European-American and African-American students, symptoms of depression were associated with more total alcohol related-problems. Moreover, with regards to gender, researchers found that the association between psychological distress and negative drinking consequences was stronger among men than women (Geisner, Larimer, & Neighbors, 2004). Thus, based on these findings:

Hypothesis 1: I hypothesized a positive relationship between depressive symptoms and alcohol-related problems when controlling for gender and alcohol use (see Figure 1).



*Figure 1.* Relationship model between depressive symptoms and alcohol-related problems.

### **Coping Theory**

Coping Theory argues that “coping consists of cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resource of the person” (Folkman & Lazarus, 1988, p. 310). Thus, when stressors are present and if they are perceived as threatening or challenging, people apply coping strategies to conserve or transform their most significant values (Folkman, 1984). Research on coping theory has led to a clearer understanding of the many different types of coping (Carver, Scheier, & Weintraub, 1989). Furthermore, different forms of coping are associated to different effects on mental health and behaviors (Boujut, Bruchon-Schweitzer, & Dombrowski, 2012; Li, Cooper, Bradley, Shulman, & Livingston, 2012).

**Alcohol as a coping mechanism.** Drinking motives refer to the need or psychological function that drinking fulfills (Baer, 2002). Based on the research by Cox and Klinger (1988, 1990), Cooper (1994) developed a four-factor model of drinking

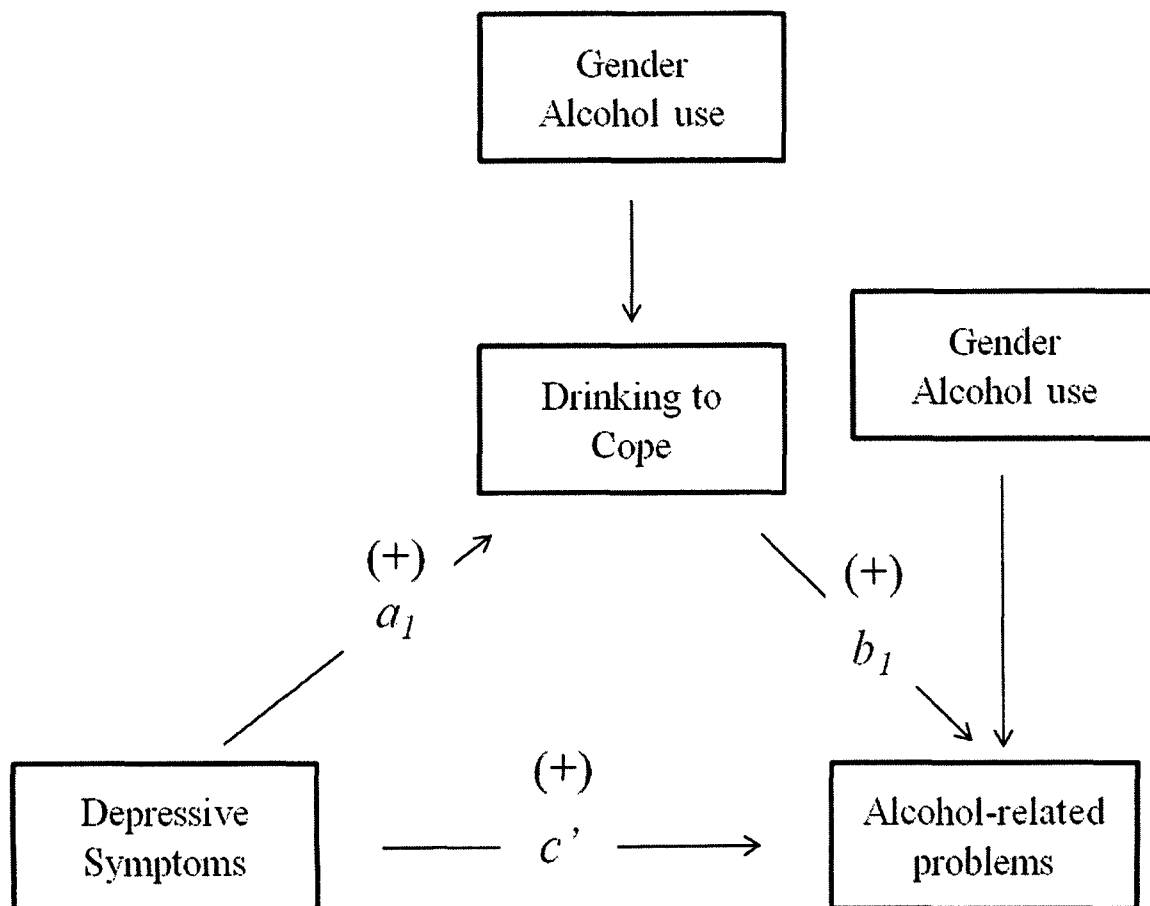


motives: coping, conformity, enhancement, and social; however, only coping motives are relevant to the current research. Coping motives involve drinking to avoid the experience of negative affective states, such as depression or anxiety (Cooper, 1994). According to Stewart and Devine (2000), students who drink to avoid or reduce negative emotions tend to have more depressed mood and may use alcohol as a method to reduce dysphoria. Research has indicated that drinking to cope has been associated with increased alcohol use (Abbey, Smith, & Scott, 1993) and alcohol-related problems (Grunberg, Moore, Anderson-Connolly, & Greenberg, 1999). Furthermore, research has indicated that drinking to cope is more likely associated with alcohol-related problems than any other drinking motive (Carey & Correia, 1997). Accordingly, research has examined drinking to cope as a mediator of the relationship between depressive symptoms and alcohol-related problems.

Many studies have found that drinking to cope mediates the relationship between negative affect and alcohol use (Cooper, Frone, Russell, & Mudar, 1995; Holahan, Moos, Holahan, Cronkite, & Randall, 2003; Read, Wood, Kahler, Maddock, & Palfai, 2003). Of the few studies that examined depression and alcohol-related problems, drinking to cope mediated the relationship between depression and alcohol-related problems, though these studies focused on non-college samples (Gaher et al., 2006; Peirce, Frone, Russell, & Cooper, 1994). Though the relationship between negative affect, drinking to cope, and alcohol use has been thoroughly studied, few studies have examined drinking to cope as a mediator of depressive symptoms and alcohol-related problems, especially among college populations.

In a study by Schuckit et al. (2006), the researchers conducted a prospective study that evaluated depressive symptoms (episodes) and the development of alcohol-related problems while examining drinking to cope as a possible mediator. The data for the study was generated over three stages (age 20, 10 years later, and 15 years later) from 430 males. Schuckit et al. found that drinking to cope did mediate the relationship between depressive symptoms at 10 years and alcohol-related problems at 15 years ( $z = 2.09, p < 0.04$ ). Furthermore, in a cross-sectional study, Gonzalez, Bradizza, and Collins, (2009) found that drinking to cope was a mediating variable linking depression with alcohol-related problems among college students. Thus, based off previous findings (Gonzalez, Bradizza, & Collins, 2009; Schuckit et al., 2006), but using religious college student drinkers:

Hypothesis 2: I hypothesize that drinking to cope would mediate the relationship between depressive symptoms and alcohol-related problems while controlling for gender and alcohol use (see Figure 2; path  $a_1, b_1$ ).



*Figure 2.* Mediation model between depressive symptoms, alcohol-related problems, and drinking coping motive.

**Religion as a coping mechanism.** Based on Coping Theory (Folkman & Lazarus, 1988), Pargament (1997) developed Religious Coping Theory, which places an emphasis on the “sacred” as a significant human motivation, value, and concern. The theory makes multiple predictions regarding how people understand and deal with life stressors. However, for purposes of this research only one prediction is of focus: some people use positive or negative religious coping methods to handle life stressors (Abu-Raiya, Pargament, & Mahoney, 2011). Based off this predication, Pargament, Smith, Koenig, and Perez (1998) created the positive/negative religious coping framework that identifies

and categorizes spiritually-based cognitive, behavioral, and interpersonal responses to stressors as either positive or negative.

According to Pargament et al. (1998), positive religious coping is an expression of a sense of spirituality, a secure relationship with God, a belief that there is meaning to be found in life, and a sense of spiritual connectedness with others. In contrast, negative religious coping is an expression of a less secure relationship with God, an ominous view of the world, and a religious struggle in search of significance (Pargament et al., 1998). Positive religious coping strategies include benevolent religious reappraisals of stressors, seeking spiritual connection, and seeking spiritual support from others, whereas negative religious coping strategies include punishing God, demonic appraisals, and questioning God's power (Carpenter, Laney, & Mezulis, 2012).

Research has examined the relationship between positive and negative coping strategies across a variety of mental health outcomes. A meta-analysis by Ano and Vasconcelles (2005) revealed that both positive and negative religious coping were significantly associated with psychological adjustment. Positive religious coping was associated with both increased positive adjustment ( $Zr = .33$ ) and decreased negative adjustment ( $Zr = -.12$ ), whereas negative religious coping was significantly associated with increase negative adjustment only ( $Zr = -.22$ ; Ano & Vasconcelles, 2005). These effect sizes indicate that a moderate positive relationship exists between positive adjustment and positive religious coping, a modest negative relationship exists between positive religious coping and negative adjustment. Last, there is a modest positive relationship between negative religious coping and negative adjustment. Thus, the theory suggests that positive coping strategies relate to better health outcomes and psychological

well-being, whereas negative religious coping strategies relate to poorer outcomes. However, there is a lack of research on the moderating effects of religious coping on health and mental behaviors.

**Religious Coping as a Moderator.** In a recent study by Carpenter et al. (2012), the moderation effects of positive and negative religious coping were examined with a focus on the stress-depression relationship on adolescents. They found that negative religious coping did exacerbate the relationship, such that youth reporting high use of negative religious coping strategies reported more depressive symptoms when faced with stress compared to youth with less use of negative religious coping strategies. Positive religious coping was only marginally significant as a buffer of stress on depression (Carpenter et al., 2012). With regards to alcohol use, Stoltzfus and Farkas (2012) tested positive religious coping as a moderator between daily hassles stress and alcohol misuse among female college students. They found that positive religious coping was significantly related to lower rates of alcohol use. In addition, they found that positive religious coping styles did in fact buffer the two types of relationships of daily hassle stresses (academic alienation and romantic problems) on alcohol use (Stoltzfus & Farkas, 2012), such that the relationship between stress and alcohol use was weaker among those high in positive religious coping.

### **Maladaptive Coping Hypothesis**

Recently, the Maladaptive Coping Hypothesis has been proposed as a potential theory to explain the moderating effects of religious coping. The Maladaptive Coping Hypothesis (Leventhal et al., 2010) was originated to explain how tobacco use may moderate the relationship between depression and obesity. According to Leventhal and

colleagues, the maladaptive coping explanation argues that the link between emotional functioning (depression) and obesity is because individuals engage in unhealthy eating behavior (e.g., binge eating) to cope with their depression, which leads to obesity. The researchers found that tobacco use indicators moderated the relationship, such that those individuals with more tobacco use had substantially weaker or no relationship between depression and obesity compared to individuals with less tobacco use. Based on these findings, the authors suggest that engaging in an alternative coping strategy (i.e., tobacco use) may provide an alternative strategy to maladaptive eating (Leventhal et al., 2010). This theory has recently been applied to religious coping.

In a study by Pirutinsky, Rosmarin, and Holt (2012), the researchers examined whether religious coping (both positive and negative) moderated the relationship between depression and obesity. The researchers hypothesized that positive religious coping (adaptive coping strategy) would buffer the relationship because it may provide an alternative strategy to maladaptive eating. Furthermore, they hypothesized that negative religious coping would synergize the relationship because it is another maladaptive coping strategy and its effects would not truly buffer maladaptive eating. The researchers found that positive religious coping did in fact buffer the relationship, such that among those high in positive coping, emotional functioning (depression) was unrelated to obesity, whereas those low in positive coping exhibited relationships between emotional functioning and clinical levels of obesity. However, there was no significant findings with regards to negative religious coping, that is negative religious coping did not have a moderating effect on the relationship between emotional functioning and obesity (Pirutinsky et al., 2012). Their findings supported the Maladaptive Coping Hypothesis in

that alternative coping strategies may moderate the relationship between emotional functioning and obesity. Thus, based on these findings and the Maladaptive Coping Hypothesis:

Hypothesis 3: Religious coping would moderate the relationship between depressive symptoms and alcohol-related problems when controlling for gender and alcohol use.

3a: Positive religious coping would buffer the relationship between depressive symptoms and alcohol-related problems, such that for those high in positive religious coping, depressive symptoms would be unrelated to alcohol-related problems. In contrast, those low in positive religious coping would exhibit a stronger positive relationship between depressive symptoms and alcohol-related problems (see Figure 3).

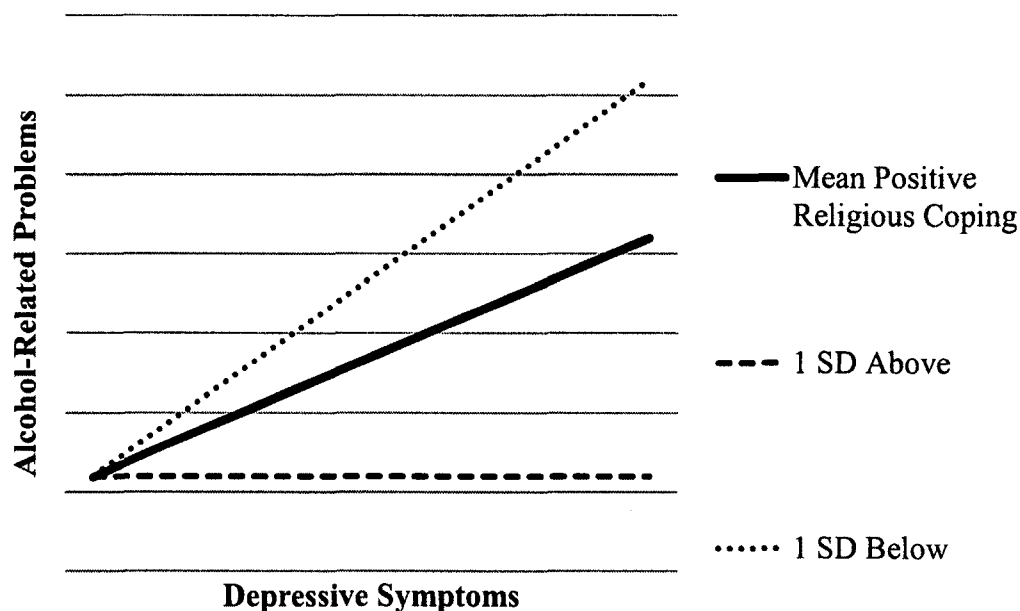
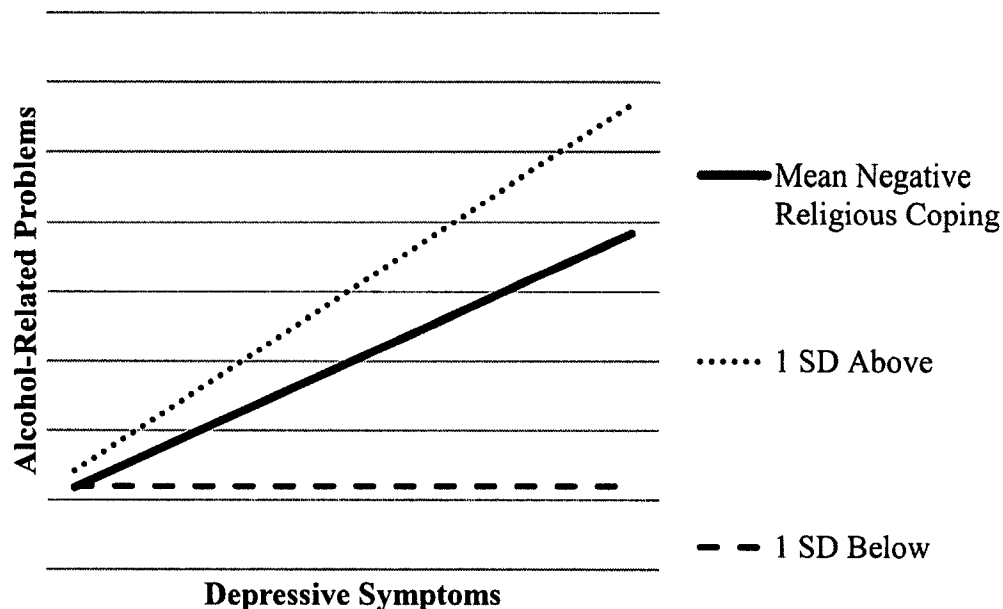


Figure 3. Predicted moderator effects of positive religious coping on the association between depressive symptoms and alcohol-related problems.

3b: Negative religious coping would exacerbate the relationship between depressive symptoms and alcohol-related problems, such that for those high in negative religious coping, increased depressive symptoms will be related to increased alcohol-related problems. In contrast, among those who are low in negative religious coping, depressive symptoms will be unrelated to alcohol-related problems (see Figure 4).



*Figure 4.* Predicted moderator effects of negative religious coping on the association between depressive symptoms and alcohol-related problems.

**Moderated Mediation.** Although moderating hypotheses have been supported in these studies, there is one potential flaw with their design. Both studies posit that their alternative coping strategy (tobacco use or religious coping) moderates the depression to obesity link because it is an alternative to the maladaptive coping strategy, maladaptive



eating; however, maladaptive eating behaviors were never included in the design or statistical analysis. A superior design and test would demonstrate that the maladaptive coping strategy mediation weakens as the more adaptive coping strategy is used. To test this, one would use a moderation-mediation analyses that examined the moderating effect of the alternative coping strategy on the path between emotional functioning (depression) and maladaptive eating. Previous research has indicated that positive religious coping is considered an adaptive coping strategy, whereas drinking to cope is a maladaptive coping strategy (Moore, Biegel, & McMahon, 2011). Thus, I believe that positive religious coping will correlate with better health outcomes because it weakens the relationships with drinking to cope (i.e., a maladaptive coping mechanism).

Comparably, negative religious coping should exacerbate this relationship. Previous research has indicated that religious struggle between a deity and the individual correlates to negative mental and health outcomes (Exline, Yali, & Lobel, 1999; Pargament, Zinnbauer, Scott, Butter, Zerowin, & Stanik, 2003). Consequently, given that negative religious coping is related to increased distress (Ano & Vasconcelles, 2005; Smith, McCullough, & Poll, 2003), it may exacerbate the symptoms of depression causing individuals to have further need of additional coping mechanisms. Thus, I believe that negative religious coping (i.e., a maladaptive coping strategy) would correlate with negative health outcome, and the increased distress would increase the amount of drinking to cope among those dealing with depression. Thus, based on these findings and the Maladaptive Coping Hypothesis:

Hypothesis 4: Religious coping would moderate the mediation between depressive symptoms, drinking to cope, and alcohol-related problems.

Specifically, religious coping would moderate the path between depressive symptoms and drinking to cope when controlling for gender and alcohol use.

4a: Positive religious coping will buffer the mediation effect of drinking to cope, depressive symptoms and alcohol-related problems, such that for those high in positive religious coping, the mediation would be weaker. In contrast, for those low in positive religious coping, the mediation (i.e., depressive symptoms → drinking to cope → alcohol-related problems) would be stronger (see Figure 5).

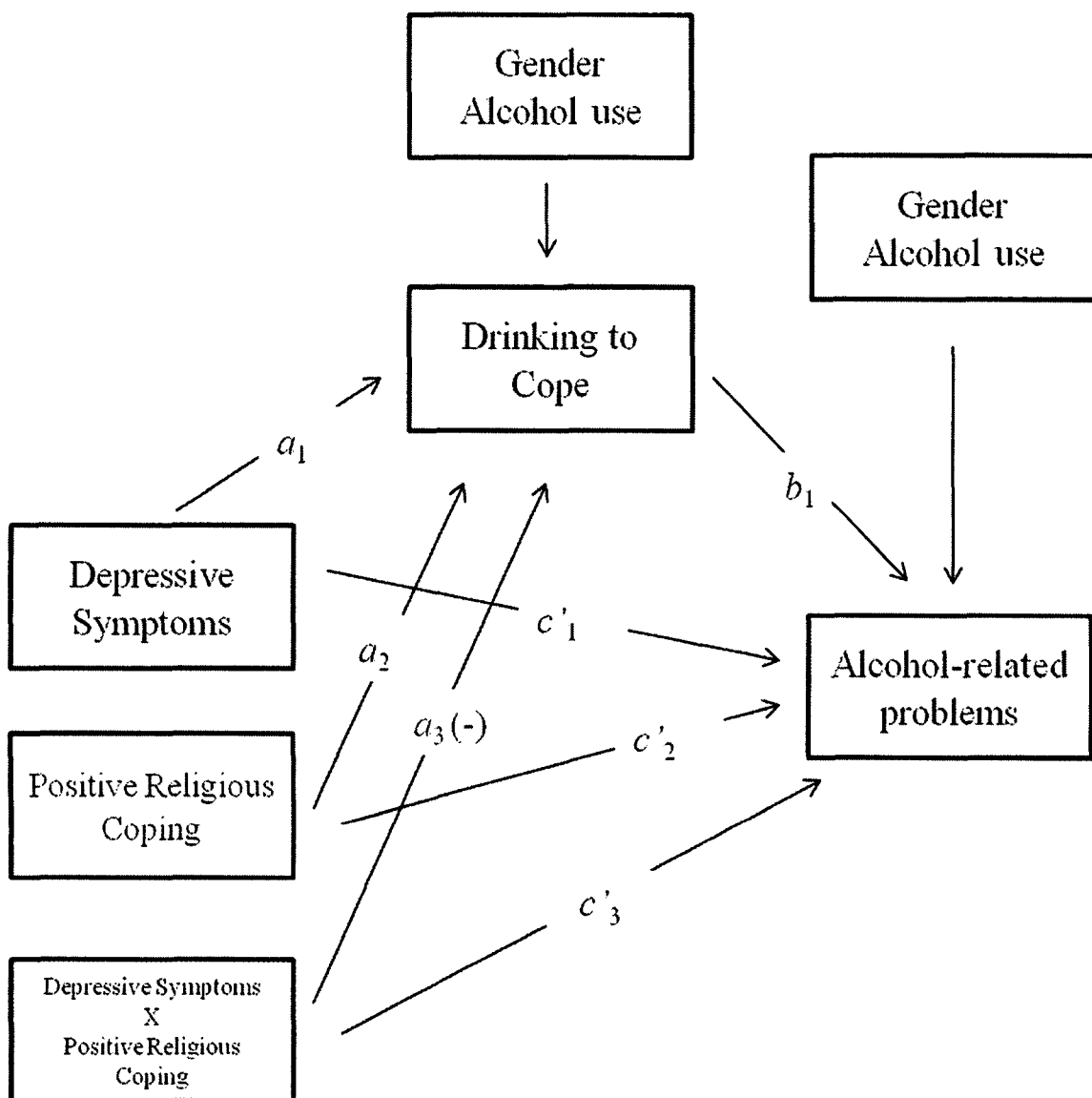


Figure 5. Moderated-mediation model between depressive symptoms, alcohol-related problems, drinking to cope and positive religious coping.

4b: Negative religious coping would exacerbate the mediation effect of drinking to cope, depressive symptoms and alcohol-related problems, such that for those high in negative religious coping, the mediation would be stronger. In contrast, for those low in negative religious coping, the mediation (i.e., depressive symptoms → drinking to cope → alcohol-related problems) would be weaker (see Figure 6).

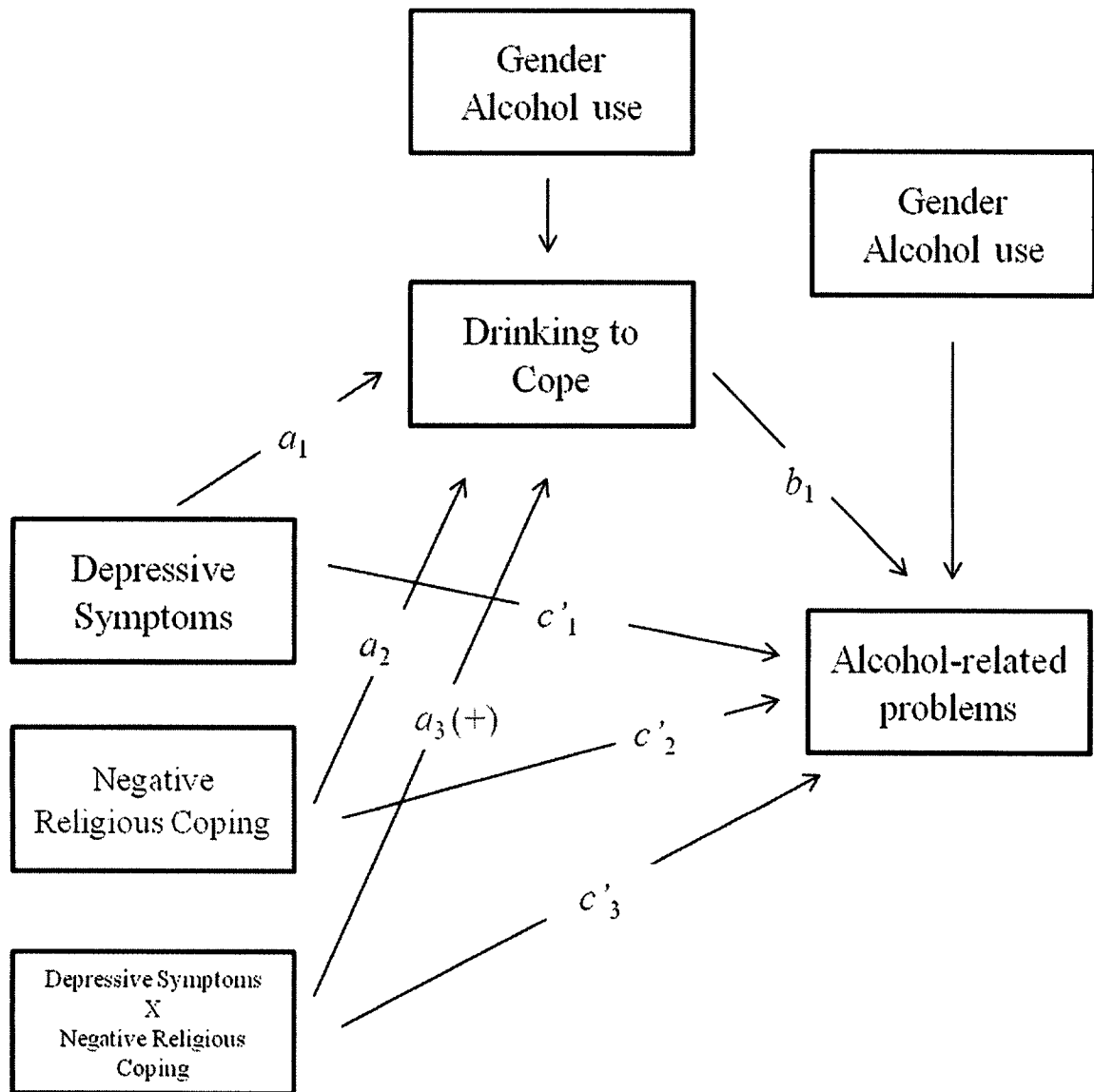


Figure 6. Moderated-mediation model between depressive symptoms, alcohol-related problems, drinking to cope and negative religious coping.

## **Current Study**

The purpose of this study is to expand upon the Maladaptive Coping Hypothesis by: 1) testing the theory with regards to religious coping as a moderator of the relationship between depressive symptoms and alcohol-related problems in a college student sample, and 2) statistically analyzing the moderating effect of religious coping as an alternative coping strategy to drinking to cope. Specifically, I first examined the relationship between depression and alcohol-related problems (Hypothesis 1). Second, I will replicate the mediating relationship between drinking to cope, depressive symptoms and alcohol-related problems (Hypothesis 2) in a religious college population. Third, I will confirm the moderating effects of both types of religious coping on the relationship between depressive symptoms and alcohol-related problems (Hypothesis 3). Finally, I will validate the impact religious coping has as an alternative coping strategy to drinking to cope (Hypothesis 4) in an effort to investigate one mechanism by which religiosity may achieve better alcohol use outcomes.

## CHAPTER II

### METHOD

#### Participants and Procedure

Participants were undergraduate students recruited from a Psychology Department participant pool at a large, southeastern university in the United States. This study selected students who identified themselves as religious drinkers ( $n = 294$ ) from a larger sample ( $n = 776$ ). For this present study, religious individuals were determined by two questions: “Please indicate what best describes your religious belief” and “What best describes your religious affiliation?” Any participant that reported either being atheist or agnostic to either question was excluded from analyses. From those religious students ( $n = 607$ ), only data from students that consumed at least one drink per typical week in the previous month were included in the final analysis ( $n = 294$ ). Among religious drinkers, the majority of participants identified themselves as Christian ( $n = 257$ , 87.4%), were female ( $n = 218$ , 74.1%), and reported a mean age of 21.85 ( $SD = 5.57$ ) years. With regards to race/ ethnicity, most individuals identified as being either White, non-Hispanic ( $n = 136$ , 46.3%), or African-American ( $n = 94$ , 32.0%). Furthermore, there was an even distribution of participants with regards to class standing: freshman ( $n = 89$ , 30.3%), sophomore ( $n = 65$ , 22.1%), junior ( $n = 61$ , 20.7%), and senior ( $n = 75$ , 25.5%). Demographic information is summarized in Table 1.

Table 1  
*Demographics.*

Gender	n (%)
Male	76 (25.9)
Female	218 (74.1)
Age	n (%)
<i>M</i>	21.85 (5.57)
18	57 (20.80)
19	65 (22.1)
20	42 (14.3)
21	35 (11.9)
22	30 (10.2)
23+	62 (21.09)
Missing	3 (1.0)
Race/Ethnicity	n (%)
American Indian/Alaska Native	4 (1.4)
Asian	9 (3.1)
Black/African American	94 (32.0)
Native Hawaiian/Pacific Islander	4 (1.4)
White, non-Hispanic   White	136 (46.3)
Hispanic/Latino	14 (4.8)
Mixed	28 (9.5)
Other	5 (1.5)
Religious Denomination	n (%)
Christianity	267 (90.8)
Islam	8 (2.7)
Buddhism	1 (0.3)
Hinduism	1 (0.3)
Assemblies of God	6 (1.0)
Other	15 (5.1)
Missing	2 (0.7)
Class Standing	n (%)
Freshman	89 (30.3)
Sophomore	65 (22.1)
Junior	61 (20.7)
Senior	75 (25.5)
Grad Student	2 (0.7)
Missing	2 (0.7)
Marital Status	n (%)
Never married	258 (87.8)
Married	21 (7.1)
Separated	2 (0.7)
Divorced	10 (3.4)
Widowed	1 (0.3)
Missing	2 (0.7)



Students volunteered to participate in the current study via an online research pool website associated with the university. To be eligible, participants must have been currently enrolled in any psychology course and been at least 18 years old. The study was conducted online using Inquisite Survey software. Participants were presented with a notification statement on screen that informed them of their right to withdraw participation during the course of the study and that all questions were voluntary. Participants were also given researcher contact information for use if they encountered further questions or concerns. Once the participant had completed reading the notification statement, they clicked “next” to provide consent. After providing informed consent, participants completed a battery of surveys regarding personal religious beliefs and behaviors, estimated to take an hour to complete. Participants received research credit for completing the study. The study was approved by the institutional review board at the respective institution.

### **Measures**

**Depressive symptoms.** The participants completed the Center for Epidemiologic Studies Depression-Revised Scale (CESD-R; Eaton, Muntaner, Smith, Tien, & Ybarra, 2004). The CESD-R assesses participants’ depressive symptoms that closely reflect the DSM-IV criteria for depression. The CESD-R is a self-report measure that consists of 20 items (see Appendix A). The participants were provided with instructions stating, “Below is a list of the way you might have felt or behaved. Please tell me how often you have felt this way during the past two weeks” (Eaton et al., 2004; p. 33).

The CESD-R has a 4-point Likert type scale with each response corresponding to the frequency of a depressive symptom over the past two weeks. The participants

responded for each particular question with: 0 = *not at all or less than 1 day*, 1 = *1–2 days*, 2 = *3–4 days*, 3 = *5–7 days or nearly every day for 2 weeks*. As advised by Van Dam and Earleywine (2011), we collapsed the ‘5-7 days’ and ‘nearly every day...’ into the same value. The questionnaire contains nine subscales: sadness, (e.g., I felt depressed); loss of interest, (e.g., nothing made me happy); appetite, (e.g., my appetite was poor); sleep, (e.g., my sleep was restless); thinking/concentration, (e.g., I had trouble keeping my mind on what I was doing); guilt, (e.g., I felt like a bad person); tired, (e.g., I could not get going); movement, (e.g., I felt fidgety); and suicidal ideation, (e.g., I wished I were dead).

The CESD-R has excellent reliability, with Cronbach’s alpha coefficients ranging from .87 to .98 (Eaton et al., 2004). Convergent validity has been demonstrated by correlations with the original Center for Epidemiologic Studies Depression Scale (Radloff, 1977) ranging from  $r = .88$  to  $r = .93$  (Eaton et al., 2004). According to Van Dam and Earleywine (2011) in a study that explored the psychometric properties of the CESD-R, the researchers concluded that the measure exhibited good psychometric properties and that the CESD-R is an accurate and valid measure of depression. Convergent validity and divergent validity has been demonstrated by significant correlations with the State-Trait Inventory for Cognitive and Somatic Anxiety (Ree, French, MacLeod, & Locke, 2008),  $r = .65$ , the Schizotypal Personality Questionnaire-Brief (Raine & Benishay, 1995)  $r = .42$ , and the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988)  $r = .65$  for positive affect and  $r = -.26$  for negative affect (Van Dam & Earleywine, 2011). For the present study, the total CESD-R score was calculated as an average of responses to all 20 items ( $\alpha = .90$ ).

**Alcohol consumption.** Alcohol consumption was measured with a modified version of the Daily Drinking Questionnaire (DDQ; Collins, Park, Marlatt, 1985). The DDQ assesses alcohol consumption using a Monday through Sunday grid that assesses daily alcohol consumption (see Appendix B). For the present research, alcohol consumption on a typical drinking week within the past month was assessed. The participants were asked to think about their drinking behaviors during the last month (i.e., past 30 days). The instructions for the DDQ state, “We ask you to fill in the following grid with the typical number of standard drinks you consume each day of the week. Enter a '0' to indicate days on which you did not drink” (Collins et al., 1985). For the present study, a composite score for alcohol consumption was created by dividing each participant’s number of drinks per typical week of drinking ( $M = 8.50$ ) by their number of drinking occasions per typical week of drinking (identified by days when at least one drink was reported;  $M = 2.40$ ). Thus, in a typical drinking day students reported consuming on average at least 3.25 drinks. The composite score was used to control for alcohol consumption with regards to the analyses.

**Alcohol-related problems.** The participants completed the 30-day version of the Brief-Young Adult Alcohol Consequences Questionnaire (B-YAACQ; Kahler, Strong, & Read, 2005). The B-YAACQ assesses negative alcohol consequences over the past 30 days among college students. The B-YAACQ is a self-report measure that consists of 24 items that are answered either yes or no (see Appendix C). The participants were provided with instructions stating, “Please indicate if you experienced any of the following problems within the past month (i.e., past 30 days)” (Kahler et al., 2005). The questionnaire assesses various alcohol-related problems: regretted experiences, (e.g., My

drinking has gotten me into sexual situations I later regretted); highly risky experiences, (e.g., I have woken up in an unexpected place after heaving drinking); impaired functioning, (e.g., I have felt badly about myself because of my drinking); social impairment, (e.g., I have neglected my obligations to family, work, or school because of my drinking); significant longer-term physical consequences of drinking, (e.g., I have been overweight because of drinking); and indications of significant physiological dependence, (e.g., I have felt like I needed a drink after I'd gotten up). The total B-YAACQ score is calculated as a sum of all responses to all 24 questions, with higher scores indicating more severe alcohol-related problems (Kahler et al., 2005).

The 30-day version of the B-YAACQ has excellent reliability with internal consistency of the B-YAACQ was high at baseline ( $\alpha = .84$ ) and 6 weeks ( $\alpha = .89$ ), with no items detracting from Cronbach's alpha (Kahler, Hustad, Barnett, Strong, & Borsari, 2008). Convergent validity has been demonstrated by correlations with original Young Adult Alcohol Consequences Questionnaire (Read, Kahler, Strong, & Colder, 2006),  $r = .95$  (Kahler et al., 2005). The B-YAACQ was also highly correlated with the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989)  $r = .78$  (Kahler et al., 2005). For the present study, the total B-YAACQ score was calculated as a sum of responses to all 24 questions ( $\alpha = .89$ ).

**Drinking Coping Motives.** Motives for drinking were assessed using the Drinking Motives Questionnaire-Revised (DMQ-R; Cooper, 1994). The DMQ-R is a self-report measure that consist of 20 items and uses a Likert-type, 5-point scale ranging from 1 (*never/almost never*) to 5 (*almost always/always*) (see Appendix D). The measure assesses reasons for drinking within four domains: social, conformity, enhancement and

coping. However, for purposes of this study only the coping subscale was used, (e.g., to cheer up when you are in a bad mood). The participants were provided with instructions stating, "Now I am going to read a list of reasons people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink for each of the following reasons?" (Cooper, 1994).

The DMQ-R has well-established psychometric properties (Cooper, 1994). In a study assessing its psychometric properties across three countries, the researchers found good internal consistency with Cronbach's alpha above .8 for each drinking motive dimension in each country (Kuntsche, Stewart, & Cooper, 2008). Furthermore, the factor structure of the DMQ-R has been shown to be invariant across ethnic groups (Cooper, 1994); linguistic regions (Kuntsche, Knibbe, Gmel, & Engels, 2006), as well as across countries (Kuntsche et al., 2008). For the present study, the Drinking to Cope subscale score was calculated as an average of responses to all five questions ( $\alpha = .86$ ).

**Religious Coping.** Religious coping was measured using the Brief RCOPE (Pargament et al., 1998). The Brief RCOPE is a self-report measure that consists of 14 items that assesses positive and negative coping strategies and uses a Likert-type, 5-point scale ranging from 1 (*not at all*) to 5 (*a great deal*) (see Appendix E). The participants were instructed to indicate how typically they use the coping response when faced with stressful or negative events. The positive subscale consists of seven items reflecting seven coping strategies, such as collaborative religious coping, (e.g., tried to put my plans into action together with God). The negative subscale consists of seven items reflecting seven coping strategies, such as demonic reappraisals, (e.g., decided the devil made this happen).

The Brief RCOPE has demonstrated high internal consistency estimates among a college population for positive religious coping scale ( $\alpha = .90$ ; Pargament et al., 1998). Pargament, Feuille, and Burdzy (2011) conducted a meta-analysis of the psychometrics of the measure and found the measure has demonstrated good predictive validity, incremental validity, and concurrent validity since its creation roughly 15 years ago. For the present study, responses were averaged to create a composite score for positive religious coping ( $\alpha = .96$ ) and negative religious coping ( $\alpha = .91$ ).

**Demographics.** Demographic information for the participants was collected through a simple demographic questionnaire created by the researcher (see Appendix F). The participants gave information about their age, race, ethnicity, religious affiliation and denomination, gender, class standing, and marital status. The questionnaire was administered at the end of the survey to reduce any potential bias.

### **Data Analysis Plan**

Before analyses were conducted, data were cleaned and statistical assumptions were addressed. The mediation model as well as both moderated-mediation models were analyzed using Mplus 7.11 (Muthén & Muthén, 1998-2012). For all three models, the total, direct, and indirect effects of each predictor variable on alcohol-related problems were examined using bias-corrected bootstrapped estimates (Efron & Tibshirani, 1993) based on 10,000 bootstrapped samples, which provides a powerful test of mediation and moderated-mediation (Fritz & MacKinnon, 2007; Preacher, Rucker, & Hayes, 2007) and is robust to small departures from normality (Erceg-Hurn & Mirosevich, 2008). Parameters were estimated using maximum likelihood estimation, and missing data were handled using full information maximum likelihood, which is more efficient and has less

bias than alternative procedures (Enders, 2001; Enders & Bandalos, 2001). Gender (-.5 = male, .5 = female) and alcohol use (grand-mean centered) were modeled as control variables throughout all analyses. Statistical significance was determined by 95% bias-corrected bootstrapped confidence intervals that do not contain zero.

## CHAPTER III

### RESULTS

#### **Descriptive Statistics and Bivariate Correlations**

The descriptive statistics and correlations for the variables included in the path model are reported in Table 2. Depressive symptoms had a weak positive correlation with negative religious coping ( $r = .17$ ), a moderate positive correlation with drinking to cope ( $r = .38$ ), and a weak positive correlation with alcohol-related problems ( $r = .17$ ). Positive religious coping had a weak positive correlation with negative religious coping ( $r = .14$ ) and a weak negative correlation with alcohol use ( $r = -.19$ ). Negative religious coping had a weak positive correlation with drinking to cope ( $r = .16$ ) and a weak positive correlation with alcohol-related problems ( $r = .17$ ). Drinking to cope had a moderate positive correlation with alcohol-related problems ( $r = .40$ ) and a weak correlation with alcohol use ( $r = .27$ ). Additional non-significant correlations are noted in Table 2.



Table 2  
*Descriptive Statistics and Bivariate Correlations*

	1	2	3	4	5	6	M	SD
1. Depressive Symptoms <sup>1</sup>							0.74	0.53
2. Positive Religious Coping <sup>2</sup>	.016						3.11	1.30
3. Negative Religious Coping <sup>2</sup>	.174**	.139*					1.65	0.81
4. Drinking to Cope <sup>3</sup>	.381**	.039	.162**				1.97	0.95
5. Alcohol-related problems <sup>4</sup>	.170**	.010	.177**	.400**			5.49	4.97
6. Gender	.012	-.016	-.034	-.046	-.025		0.24	0.44
7. Alcohol use <sup>5</sup>	-.015	-.186**	.032	.269**	.399**	-.210**	3.25	2.16

Note. Gender was code -.5=men, .5=women. \*  $p < .05$ , \*\*  $p < .01$ . 1 = Center for Epidemiologic Studies Depression-Revised Scale (CESD-R); 2 = Brief RCOPE; 3 = Drinking Motives Questionnaire-Revised (DMQ-R); 4 = Brief-Young Adult Alcohol Consequences Questionnaire (B-YAACQ); and 5 = Daily Drinking Questionnaire (DDQ).

**Depressive Symptoms and Alcohol-related problems**

Hypothesis 1 predicted a positive relationship between depressive symptoms and alcohol-related problems. Consistent with Hypothesis 1, depressive symptoms had significant positive relationship on alcohol-related problems controlling for gender and alcohol consumption,  $\beta = .176$ ,  $t(291) = 3.33$ ,  $p = .001$ ,  $R^2 = .04$ .

**Drinking to Cope as a Mediator**

Hypothesis 2 proposed that drinking to cope would mediate the relationship between depressive symptoms and alcohol-related problems. For the mediation model, depressive symptoms was modeled as the most distal predictor of alcohol-related problems with drinking to cope as the more proximal predictor, allowing to test for mediation (see Figure 7).

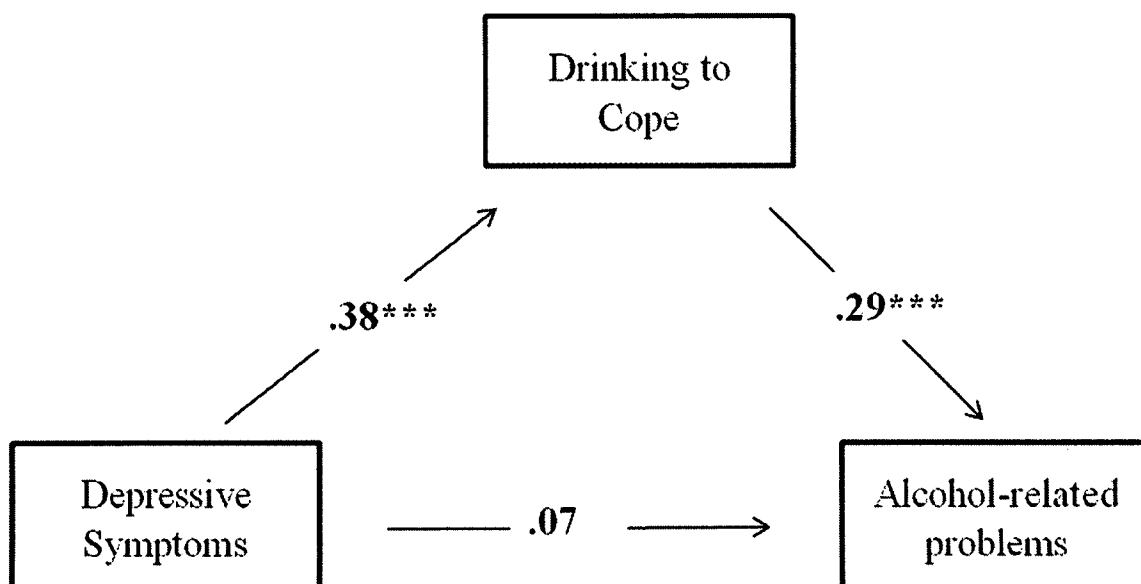


Figure 7. Depicts standardized relationships in the mediation model ( $n = 294$ ). Gender did not significantly predict to drinking to cope ( $\beta = .01$ ) and alcohol-related problems ( $\beta = .06$ ). Alcohol use did significantly predict to drinking to cope ( $\beta = .28$ ) and alcohol-related problems ( $\beta = .33$ ). These paths are not shown in the figure for reasons of parsimony. \*\*\*  $p < .001$ .

Introducing drinking to cope into the model while controlling for gender and alcohol consumption mediated the relationship between depressive symptoms and alcohol-related problems, such that depressive symptoms and alcohol-related problems were no longer significant,  $\beta = .07$ , 95% CI [-.05, .17]. However, depressive symptoms did significantly predicted drinking to cope,  $\beta = .384$ , 95% CI [.49, .89], and drinking to cope significantly predicted to alcohol-related problems,  $\beta = .287$ , 95% CI [.87, 2.15]. Thus, consistent with Hypothesis 2 (see Figure 7), drinking to cope mediated the associations between depressive symptoms and alcohol-related problems (indirect  $\beta = .110$ , 95% CI [.05, .17]). With regards to covariate effects, gender did not significantly predict to drinking to cope,  $\beta = .01$ , 95% CI [-.22, .25], and alcohol-related problems,  $\beta = .06$ , 95% CI [-.57, 1.90]. In contrast, alcohol use did significantly predict to drinking to cope,  $\beta = .28$ , 95% CI [.48, 1.26], and alcohol-related problems,  $\beta = .33$ , 95% CI [3.50, 7.55].

### **Religious Coping as a moderator**

Hypothesis 3 suggested that religious coping would moderate the relationship between depressive symptoms and alcohol-related problems. Specifically, positive religious coping would buffer the relationship and negative religious coping would enhance the relationship between depressive symptoms and alcohol-related problems. Two moderation analyses using stepwise regression were conducted to examine the influence of religious coping on the relationship between depressive symptoms and alcohol-related problems. Moderation was tested using multiple regression model as outlined by Baron and Kenny (1986). In each analysis the moderator (religious coping) as well as the predictor (depressive symptoms) was centered to reduce multicollinearity. Main effects (i.e., depressive symptoms, religious coping) and the interaction between depressive symptoms and either positive or negative religious coping was entered into the regression model. Gender and alcohol consumption were entered as covariates. Gender did not significantly predict to alcohol-related problems,  $\beta = .06$ ,  $t(291) = 1.12$ ,  $p = .264$ . In contrast, alcohol use did significantly predict to alcohol-related problems,  $\beta = .41$ ,  $t(291) = 7.50$ ,  $p < .001$ .

For positive religious coping, analyses indicated that increased depressive symptoms was associated with increased alcohol-related problems,  $\beta = .176$ ,  $t(288) = 3.33$ ,  $p = .001$ ,  $R^2 = .04$ . In contrast, positive religious coping was unrelated to alcohol-related problems,  $\beta = .091$ ,  $t(288) = 3.33$ ,  $p = .097$ ,  $R^2 = .01$ . The interaction between depressive symptoms and positive religious coping was also not significant,  $\beta = -.04$ ,  $t(288) = -.78$ ,  $p = .437$ ,  $R^2 = .00$ . Thus, positive religious coping did not moderate the relationship between depressive symptoms and alcohol-related problems (see Table 3).

Table 3  
*Summary of Positive Religious Coping as a Moderator*

Step	Variable	$\beta$	<i>B</i>	<i>SE (B)</i>	$R^2$	$\Delta R^2$
1					.163	-
	Gender	.06	0.70	0.62		
	Alcohol Use	.41***	6.64	0.88		
2					.204	.041**
	Depressive Symptoms	.18**	1.65	0.49		
	Positive Religious Coping	.09	0.34	0.20		
	Depressive Symptoms X Positive religious coping	-.05	-0.40	0.42		

*Note.* All predictor variables are centered. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

For negative religious coping, analyses indicated that increased depressive symptoms was associated with increased alcohol-related problems,  $\beta = .176$ ,  $t(288) = 3.33$ ,  $p = .001$ ,  $R^2 = .04$ . Moreover, negative religious coping was associated with increased alcohol-related problems,  $\beta = 1.666$ ,  $t(288) = 3.14$ ,  $p = .002$ ,  $R^2 = .03$ . The interaction between depressive symptoms and negative religious coping was also significant,  $\beta = .11$ ,  $t(288) = 2.14$ ,  $p = .033$ ,  $R^2 = .02$ . Thus, suggesting that the effect of depressive symptoms on alcohol-related problems depends on the level of negative religious coping (see Table 4).

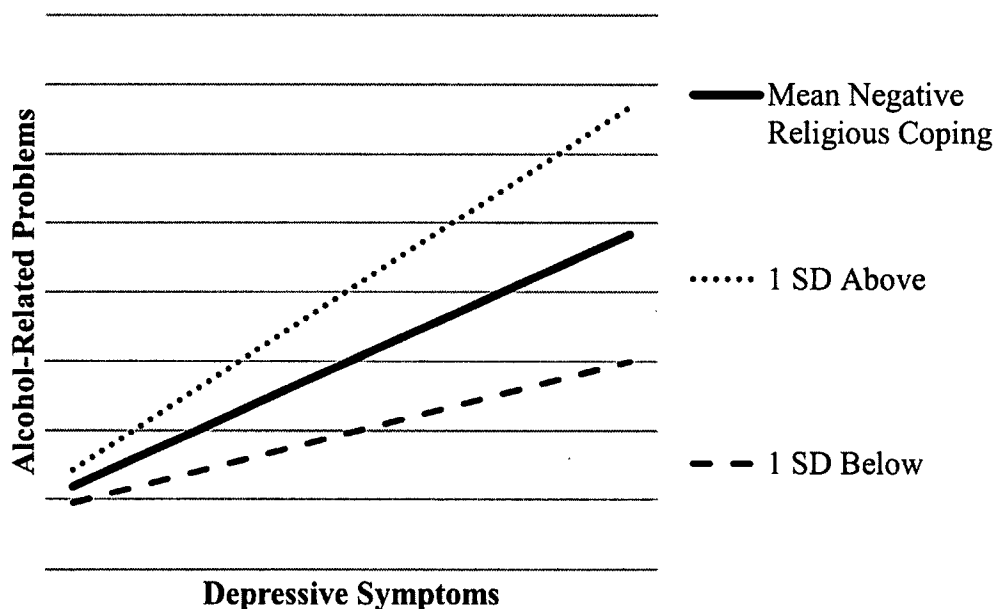
Table 4  
*Summary of Negative Religious Coping as a Moderator*

Step	Variable	$\beta$	$B$	$SE(B)$	$R^2$	$\Delta R^2$
1					.163	-
	Gender	.06	0.70	0.62		
	Alcohol Use	.41***	6.64	0.88		
2					.217	.055***
	Depressive Symptoms	.18**	1.33	0.50		
	Negative Religious Coping	.17**	0.80	0.33		
	Depressive Symptoms X Negative religious coping	.11*	0.72	0.54		

*Note.* All predictor variables are centered. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Simple slopes for the association between depressive symptoms and alcohol-related problems were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of negative religious coping (see Figure 8). Analyses indicated that for moderate levels of negative religious coping, depressive symptoms was positively related to increased alcohol-related problems,  $B = 1.33$ ,  $SE_b = .502$ ,  $t(288) = 2.65$ ,  $p = .009$ . For high levels of negative religious coping, depressive symptoms also significantly predicted to increased alcohol-related problems, but this relationship was stronger than for moderate levels,  $B = 1.91$ ,  $SE_b = .617$ ,  $t(288) = 3.10$ ,  $p = .002$ . Furthermore, at low levels of negative religious coping depressive symptoms was unrelated to alcohol-related problems  $B = 0.75$ ,  $SE_b = .707$ ,  $t(288) = 1.06$ ,  $p = .292$ . This suggests that as religious student drinkers engage in more negative religious coping, the relationship between depressive symptoms and alcohol-related problems becomes stronger. Comparably, as religious student drinkers engage in less negative religious

coping the relationship between depressive symptoms and alcohol-related problems becomes weaker.



*Figure 8.* Negative Religious Coping as a moderator of the association between depressive symptoms and alcohol-related problems.

### Moderated-Mediation

Hypothesis 4 proposed that religious coping would moderate the mediation between drinking to cope, depressive symptoms, and alcohol-related problems. Specifically, religious coping would moderate the path between depressive symptoms and drinking to cope. Two moderated-mediated analyses were conducted to examine the influence of religious coping on the mediation relationship between depressive symptoms, drinking to cope, and alcohol-related problems, while controlling for gender and alcohol consumption. With regards to covariate effects, gender did not significantly predict to drinking to cope,  $\beta = .02$ , 95% CI [-0.22, .27], and alcohol-related problems,  $\beta =$

.06, 95% CI [-.49, 1.80]. In contrast, alcohol use did significantly predict drinking to cope,  $\beta = .24$ , 95% CI [.05, .17], and alcohol-related problems,  $\beta = .34$ , 95% CI [.51, 1.03].

With regards to the positive religious coping moderated-mediation model, depressive symptoms was modeled as the most distal predictor of alcohol-related problems, followed by positive religious coping, and an interaction between positive religious coping and depression, while drinking to cope was the most proximal predictor (see Figure 9). Within this model, analyses revealed no significant relationship between depressive symptoms and alcohol-related problems,  $\beta = -.008$ , 95% CI [-4.31, 3.86]. However, depressive symptoms did significantly predicted drinking to cope,  $\beta = .275$ , 95% CI [.99, .2.76], and drinking to cope significantly predicted alcohol-related problems,  $\beta = .309$ , 95% CI [.99, 2.26]. Thus, as expected by these direct effects, drinking to cope mediated the associations between depressive symptoms and alcohol-related problems (indirect  $\beta = .085$ , 95% CI [.03, .14]).

With regards to the moderation, the positive religious coping interaction term did not significantly moderate the relationship between depressive symptoms and drinking to cope,  $\beta = -.045$ , 95% CI [-1.45, .83]. Furthermore, because this moderation was not significant, the moderated-mediation was also not significant (indirect  $\beta = -.014$ , 95% CI [-.06, .03]). These non-significant findings are not surprising considering positive religious coping did not moderate the relationship between depressive symptoms and alcohol-related problems nor was it correlated with alcohol-related problems.



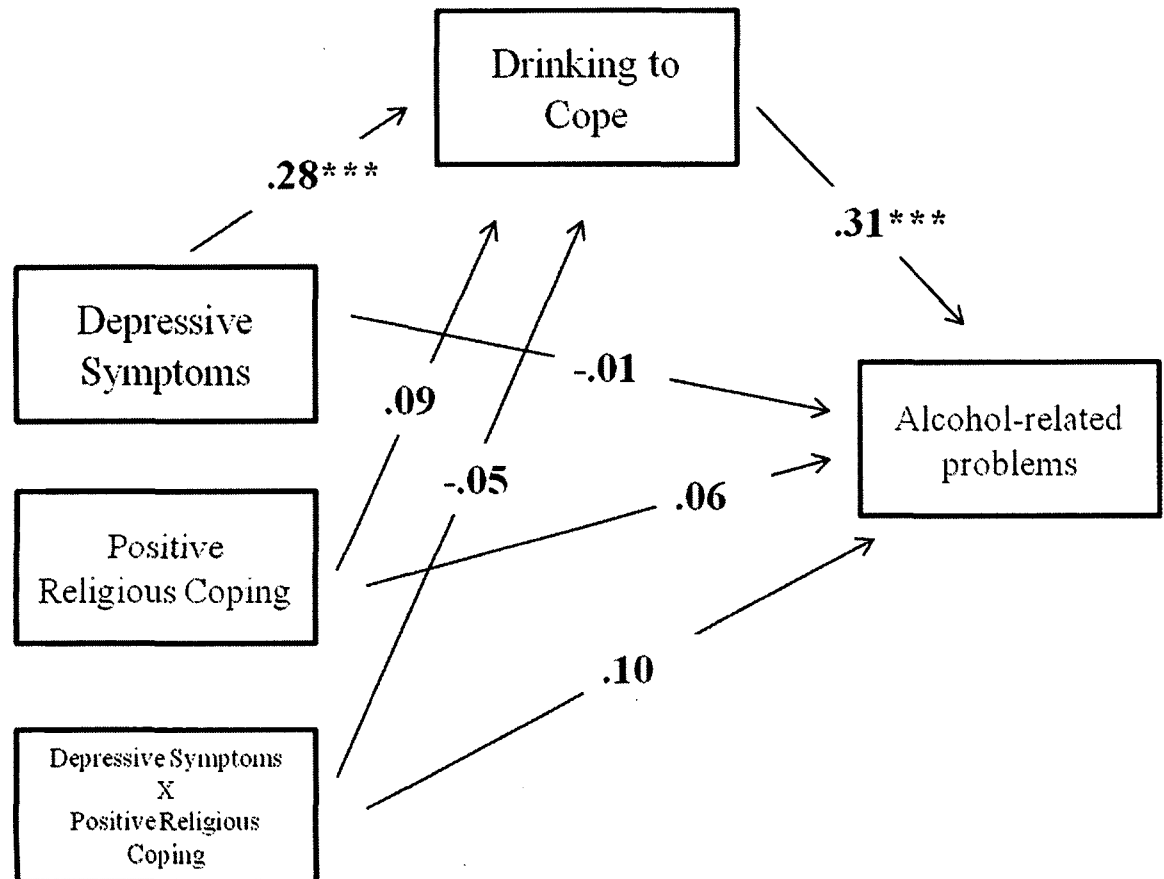


Figure 9. Depicts standardized relationships in the moderated-mediation model ( $n = 294$ ). Gender did not significantly predict to drinking to cope ( $\beta = .01$ ) and alcohol-related problems ( $\beta = .06$ ). Alcohol use did significantly predict to drinking to cope ( $\beta = .28$ ) and alcohol-related problems ( $\beta = .33$ ). These paths are not shown in the figure for reasons of parsimony. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

For the negative religious coping moderated-mediation model, depressive symptoms was modeled as the most distal predictor of alcohol-related problems, followed by negative religious coping, and an interaction between negative religious coping and depression, whereas drinking to cope was the most proximal predictor (see Figure 10). Within this model, analyses revealed no significant relationship between depressive symptoms and alcohol-related problems,  $\beta = .001$ , 95% CI [-4.18, 4.11]. However, depressive symptoms did significantly predicted drinking to cope,  $\beta = .259$ , 95% CI [.90, .2.62], and drinking to cope significantly predicted to alcohol-related problems,  $\beta = .304$ , 95% CI [.97, 2.22]. Thus, as expected by these direct effects, drinking to cope mediated the associations between depressive symptoms and alcohol-related problems (indirect  $\beta = .079$ , 95% CI [.03, .13]).

With regards to the moderated-mediation, analyses indicated that higher depressive symptoms were associated with higher drinking to cope,  $\beta = .259$ , 95% CI [.90, 2.66]. Moreover, negative religious coping was associated with increased drinking to cope,  $\beta = .135$ , 95% CI [.02, .31]. In addition, negative religious coping did significantly moderated the relationship between depressive symptoms and drinking to cope,  $\beta = .144$ , 95% CI [.01, 1.64]. This suggests that the effect of depressive symptoms on drinking to cope depends on the level of negative religious coping. Furthermore, because this moderation was significant, the moderated-mediation was also significant (indirect  $\beta = .044$ , 95% CI [.00, .09]).

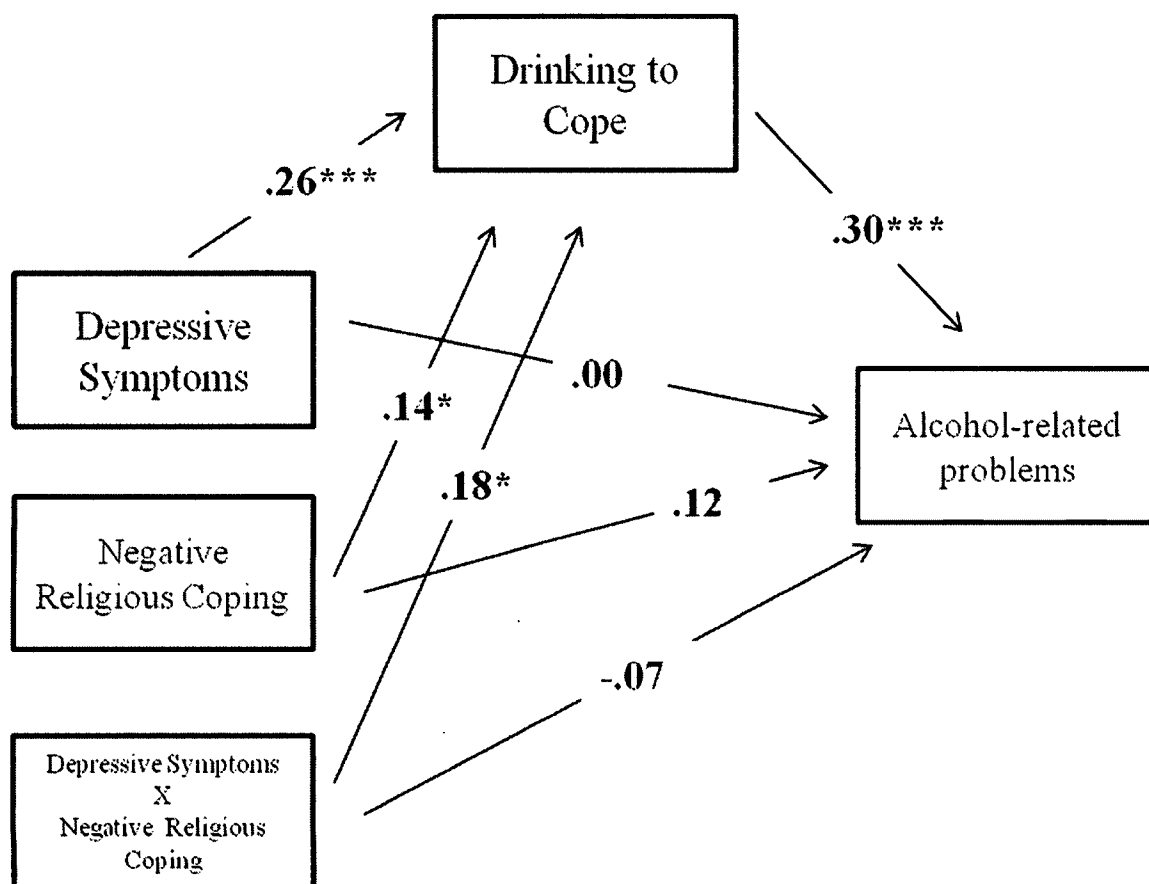


Figure 10. Depicts standardized relationships in the moderated-mediation model ( $n = 294$ ). Gender did not significantly predict to drinking to cope ( $\beta = .01$ ) and alcohol-related problems ( $\beta = .06$ ). Alcohol use did significantly predict to drinking to cope ( $\beta = .28$ ) and alcohol-related problems ( $\beta = .34$ ). These paths are not shown in the figure for reasons of parsimony. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## CHAPTER IV

### DISCUSSION

The present study sought to expand upon the Maladaptive Coping Hypothesis by testing the theory with regards to religious coping as a moderator of the relationship between depressive symptoms and alcohol-related problems in a college student population. In addition, I analyzed the moderating effect of religious coping as an alternative coping strategy to drinking to cope in an effort to investigate one mechanism by which religiosity may achieve better alcohol use outcomes.

#### **Drinking as a Coping Mechanism**

As seen in previous research, depressive symptoms significantly predicted higher levels of alcohol-related problems when controlling for gender and alcohol use. Thus, among religious student drinkers, in general the more depressive symptoms a student reports the more alcohol-related problems they reported having, which gives support to Hypothesis 1. This finding is consistent with previous research indicating that higher depressive symptoms is a risk factor for alcohol use and alcohol-related problems (Dennhardt & Murphy, 2011; Foster, Caravelis, & Kopak, 2014).

In support of Hypothesis 2, analyses revealed that drinking to cope explained the relationship between depressive symptoms and alcohol-related problems when controlling for gender and alcohol use. Individuals with greater depressive symptoms appear to engage in more drinking to cope, which in turn increases the likelihood of alcohol-related problems; these findings are consistent with previous research (Armeli et al., 2014; Schuckit et al., 2006). The current research also lends credence to the notion that drinking to cope is a maladaptive coping mechanism (Cooper, Russell, & George,

1998). Specifically, for students experiencing depression, engaging in drinking to cope as a coping mechanism is associated with an increase in another health issue (i.e., alcohol-related problems). These findings indicate that drinking to cope is a key component that could be targeted to reduce the relationship between depressive symptoms and alcohol-related problems.

### **Maladaptive Coping Hypothesis**

**Positive Religious Coping as a Moderator.** With regards to positive religious coping, this study found no support for the Maladaptive Coping Hypothesis, Hypothesis 3a, and 4a. Positive religious coping did not significantly moderate the relationship between depressive symptoms and alcohol-related problems. In fact, positive religious coping was not correlated with alcohol-related problems, suggesting that it is not a useful predictor of alcohol-related problems in this population. These findings do not lend support towards Maladaptive Coping Hypothesis, which argues that an adaptive coping strategy may replace a maladaptive coping strategy and produce better outcomes (Leventhal et al., 2010; Pirutinsky, 2012). The moderation mediation hypothesis (Hypothesis 4a) was also found to be non-significant. This finding is not surprising considering positive religious coping was not related to depressive symptoms and alcohol-related problems. Thus, during this developmental period, students may not consistently engage in positive religious coping.

These findings indicate that positive religious coping is not an adequate coping mechanism for religious student drinkers experiencing high levels of depressive symptoms. Furthermore, there was a no significant correlation between positive religious coping and depressive symptoms and the relationship was slightly positive. Thus,

religious student drinkers experiencing high levels of depressive symptoms should engage in a different adaptive coping strategy that may lead to more positive mental and physical health, such as Behavioral Action Behaviors (Armento, McNulty, & Hopko, 2012; Hopko, Lejuez, Ruggiero, & Eifer, 2003).

**Negative Religious Coping as a Moderator.** Comparably, with regards to negative religious coping, this study did find support for the Maladaptive Coping Hypothesis, Hypothesis 3b and 4b. Specifically, I found that negative religious coping did significantly moderate the relationship between depressive symptoms and alcohol-related problems. Negative religious coping exacerbated the relationship between depressive symptoms and alcohol-related problems, such that for those high in negative religious coping, higher depressive symptoms were related to higher alcohol-related problems. In contrast, among those who are low in negative religious coping, depressive symptoms were unrelated to alcohol-related problems. Furthermore, the moderation mediation model (Hypothesis 4b) was also found to be significant. Specifically, negative religious coping exacerbated the relationship between depressive symptoms and drinking to cope, such that for those high in negative religious coping, higher depressive symptoms were related to increased levels of drinking to cope. In contrast, among those who are low in negative religious coping, depressive symptoms were weakly related to drinking to cope. These findings suggest that negative religious coping may enhance drinking to cope as a mediator, which is consistent with the Maladaptive Coping Hypothesis.

These findings are of interest, considering negative religious coping was not an established moderator of psychological well-being and health outcomes in a previous

study (Pirutinsky et al., 2012). These findings lend support to negative religious coping being a maladaptive coping style that has negative outcomes on depressive symptoms and alcohol-related problems. Furthermore, these findings are consistent with the notion that engaging in negative religious coping is associated with higher depressive symptoms (Ano & Vasconcelles, 2005; Lee, Nezu, & Nezu, 2014). These findings also shed light on fostering better coping mechanisms for religious students who have greater depressive symptoms. Thus, to reduce the negative effects of depression, religious leaders and health professionals who work with religious students should be aware of ways to adopt adaptive coping strategies to help reduce depressive symptoms and to prevent further health problems (i.e., alcohol-related problems).

These findings also garner further support for the Maladaptive Coping Hypothesis by statistically analyzing that an alternative coping mechanism does indeed affect a maladaptive coping strategy. Specifically, these findings statistically supports the notion that a maladaptive coping strategy (i.e., negative religious coping) affects a relationship (i.e., depressive symptoms and alcohol-related problems) because it somehow “replaces or enhances” a maladaptive coping strategy (i.e., drinking to cope; Leventhal et al., 2010; Pirutinsky et al., 2012). For the present study, negative religious coping actually enhances the use of the maladaptive coping strategy drinking to cope. This finding may be due to religious struggles between a deity and the individual, which correlates to negative mental and health outcomes (Exline, Yali, & Lobel, 1999; Pargament, Zinnbauer, Scott, Butter, Zerowin, & Stanik, 2003). Consequently, given that negative religious coping is related to increased distress (Ano & Vasconcelles, 2005; Pirutinsky, Rosmarin, Pargament, & Midlarsky, 2011; Smith et al., 2003), negative religious coping

may exacerbate the symptoms of depression causing individuals to have further need of additional coping mechanisms, in this case drinking to cope. Although caution should be taken in overemphasizing the importance of these findings due to relatively weak direct and indirect effect sizes.

### **Strengths and Limitations**

The present study had numerous strengths. The modeling approach was guided by both theory (Leventhal et al., 2010) and prior empirical research has tested the effects of religious coping as a moderator to mental health and health relationships (Pirutinsky et al., 2012). Compared to most experimental/longitudinal studies, I had a large sample size that provided sufficient statistical power to detect moderated-mediated effects. The sample was both a strength and a limitation. By recruiting religious college students were able to expand previous empirical findings (i.e., drinking to cope as a mediator) and the Maladaptive Coping Hypothesis to an overlooked population. However, given some unique characteristics of this college sample (i.e., restricted age range, education level, and Christian denomination), it is possible that these results may not generalize to other populations.

The main limitation of the study is the cross-sectional nature of the data, which means the causal relationship between depressive symptoms and alcohol-related problems cannot be inferred. This finding is an issue considering the possible bi-directionality between depressive symptoms and alcohol-related problems. However, my modeling approach was guided by previous research indicating that depressive symptoms predicts to greater alcohol-related problems because of an increase in drinking to cope (Schuckit et al., 2006). Finally, all measures were assessed using continuous self-report



measures. Therefore, it is unknown to what extent these findings are biased by retrospective self-report biases (e.g., recall bias for alcohol, Ekholm, 2004), or to what extent these findings would be similar to those in which clinical diagnoses were made.

### **Future Directions**

Based on the limitations discussed above, it is evident that longitudinal/experimental studies that comprehensively examine the impact drinking to cope and religious coping have on mental health (i.e., depressive symptoms) and health problems (i.e., alcohol-related problems). With regards to drinking to cope, depressive symptoms, and alcohol-related problems, longitudinal studies should be conducted to examine whether these constructs cyclically influence each other over time. In particular, testing if being depressed leads to drinking to cope which leads to alcohol-related problems which leads to higher depressive symptoms and to more drinking to cope and so forth.

The current study suggests negative religious coping as a construct that enhances drinking to cope among individuals who have greater levels of depressive symptoms, which in turn predicts to increased levels of alcohol-related problems. This research also expands upon the literature by demonstrating that engaging in one maladaptive coping strategy may actually enhance the use of another maladaptive coping strategy because the first coping strategy may worsen poor mental health. Future studies should examine more of these relationships to see if there is a link between engaging in a coping mechanism that worsens the issue and thus encourages individuals to engage in another coping mechanism, such as rumination.

Another important area for future research is the exploration of various mechanisms that predict to more negative religious coping among religious college students. For example, future studies should examine religious orientations (i.e., intrinsic, extrinsic, and quest) as possible predictors of the use of negative religious coping. For the present study, belief in a personal God was actually found to be moderate ( $M = 4.6$ ,  $SD = 2.25$ ) on a 7-point Likert scale. The item stated, "To what extent do you believe in a personal God?" Based on this average, there was no skew in how individuals responded in their personal beliefs of a personal God. However, this average seems low considering all the participants ( $n = 294$ ) acknowledged that they believed in a God or a higher being. Thus, there may be differences in believing in God or a higher being and having a close relationship with God or that being. Future studies should also examine the effects of negative religious coping among other populations, perhaps ones with higher or lower beliefs of a personal God. This would help expand the Maladaptive Coping Hypothesis to other domains and would help expand the knowledge of the effects of negative religious coping on various psychological outcomes.

### **Conclusion**

The present study found partial support for the Maladaptive Coping Hypothesis among religious college student drinkers. In particular, negative religious coping moderated the relationship between depressive symptoms and alcohol-related problems. I also stastically found support that negative religious coping affects another maladaptive coping strategy (i.e., drinking to cope) and moderates the meditating effects of drinking to cope on the relationship between depressive symptoms and alcohol-related problems. However, positive religious coping was unrelated to major study variables.

Furthermore, the present study confirmed the impact of drinking to cope as a mediator to depressive symptoms and alcohol-related problems among religious college student drinkers. The implication of this study may be important for future interventions to tap into improving coping strategies for religious individuals experiencing high levels of depressive symptoms. In particular, ways to avoid engaging in negative religious coping, which may enhance the depressive symptoms as well as enhance the relationship between depressive symptoms and drinking to cope. More research needs to be conducted to analyze what other coping strategies may act as a buffer or enhancer to these negative effects. Gaining a better understanding of the impact religious coping has on religious college student drinkers through increasing or decreasing drinking to cope is critical for interventions aiming to decrease poor mental health and alcohol-related problems among religious college students.

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**APPENDIX A****DEPRESSIVE SYMPTOMS MEASURE****CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION-REVISED SCALE**

Participants use the following response scale:

- 0 = Not at all or Less than 1 day
- 1 = 1-2 Days
- 2 = 3-4 Days
- 3 = 5-7 Days
- 3 = Nearly Every day for 2 weeks

**Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past two weeks.**

1. My appetite was poor.
2. I could not shake off the blues.
3. I had trouble keeping my mind on what I was doing.
4. I felt depressed.
5. My sleep was restless
6. I felt sad.
7. I could not get going.
8. Nothing made me happy.
9. I felt like a bad person.
10. I lost interest in my usual activities.
11. I slept much more than usual.
12. I felt like I was moving too slowly.
13. I felt fidgety.
14. I wished I were dead.
15. I wanted to hurt myself.
16. I was tired all the time.
17. I did not like myself.
18. I lost a lot of weight without trying to.
19. I had a lot of trouble getting to sleep.
20. I could not focus on the important things.



## APPENDIX B

### ALCOHOL CONSUMPTION MEASURE

#### DAILY DRINKING QUESTIONANIRE

IN THE CALENDAR BELOW, PLEASE FILL-IN YOUR DRINKING RATE AND TIME DRINKING DURING A TYPICAL WEEK IN THE LAST 30 DAYS.

First, think of a *typical week* in the last *30 days you*. (Where did you live? What were your regular weekly activities? Where you working or going to school? Etc.) Try to remember as accurately as you can, *how much* and for *how long* you *typically drank* in a week during that one month period?

For each day of the week in the calendar below, fill in the **number of standard drinks typically consumed on that day** in the upper box and the **typical number of hours you drank that day** in the lower box. Enter a '0' to indicate days on which you did not drink.

Day of Week	Number of Drinks	Number of Hours Drinking
Monday	—	—
Tuesday	—	—
Wednesday	—	—
Thursday	—	—
Friday	—	—
Saturday	—	—
Sunday	—	—

**APPENDIX C****ALCOHOL-RELATED PROBLEMS MEASURE****Brief-Young Adult Alcohol Consequences Questionnaire**

**Please indicate if you experienced any of the following problems within the past month (i.e., past 30 days).**

Participants use the following response scale

{Choose all that apply}

( ) Yes

1. While drinking, I have said or done embarrassing things.
2. I have had a hangover (headache, sick stomach) the morning after I had been drinking.
3. I have felt very sick to my stomach or thrown up after drinking.
4. I often have ended up drinking on nights when I had planned not to drink.
5. I have taken foolish risks when I have been drinking.
6. I have passed out from drinking.
7. I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.
8. When drinking, I have done impulsive things that I regretted later.
9. I've not been able to remember large stretches of time while drinking heavily.
10. I have driven a car when I knew I had too much to drink to drive safely.
11. I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking.
12. My drinking has gotten me into sexual situations I later regretted.
13. I have become very rude, obnoxious or insulting after drinking.
14. I have often found it difficult to limit how much I drink.
15. I have woken up in an unexpected place after heavy drinking.
16. I have felt badly about myself because of my drinking.
17. I have had less energy or felt tired because of my drinking.
18. The quality of my work or schoolwork has suffered because of my drinking.
19. I have spent too much time drinking.
20. I have neglected my obligations to family, work, or school because of drinking.
21. My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents, or other near relatives.
22. I have been overweight because of drinking.
23. My physical appearance has been harmed by my drinking.
24. I have felt like I needed a drink after I'd gotten up (that is, before breakfast).

## APPENDIX D

### DRINKING COPING MOTIVES MEASURE

#### DRINKING MOTIVES QUESTIONNAIRE- REVISED

Listed below are 20 reasons people might be inclined to drink alcoholic beverages. Using the five-point scale below, decide how frequently your own drinking is motivated by each of the reasons listed.

- 1 = Never/Almost Never
- 2 = Some of the time
- 3 = Half of the time
- 4 = Most of the time
- 5 = Almost Always/Always

#### YOU DRINK...

1. To forget your worries.
2. Because your friends pressure you to drink.
3. Because it helps you enjoy a party.
4. Because it helps you when you feel depressed or nervous.
5. To be sociable.
6. To cheer up when you are in a bad mood.
7. Because you like the feeling.
8. So that others won't kid you about *not* drinking.
9. Because it's exciting.
10. To get high.
11. Because it makes social gatherings more fun.
12. To fit in with a group you like.
13. Because it gives you a pleasant feeling.
14. Because it improves parties and celebrations.
15. Because you feel more self-confident and sure of yourself.
16. To celebrate a special occasion with friends.
17. To forget about your problems.
18. Because it's fun.
19. To be liked.
20. So you won't feel left out.

**APPENDIX E**  
**RELIGIOUS COPING MEASURE**  
**BRIEF RCOPE**

**Using the five-point scale below, decide how frequently you use the coping response presented when faced with stressful or negative events.**

- 1 = Not at all
- 2 = Some of the time
- 3 = Half of the time
- 4 = Most of the time
- 5 = A great deal

***Positive coping subscale items***

- 1. Looked for a stronger connection with God.
- 2. Sought God's love and care.
- 3. Sought help from God in letting go of my anger.
- 4. Tried to put my plans into action together with God.
- 5. Tried to see how God might be trying to strengthen me in this situation.
- 6. Asked forgiveness for my sins.
- 7. Focused on religion to stop worrying about my problems.

***Negative coping subscale items***

- 1. Wondered whether God had abandoned me.
- 2. Felt punished by God for my lack of devotion.
- 3. Wondered what I did for God to punish me.
- 4. Questioned God's love for me.
- 5. Wondered whether my church has abandoned me.
- 6. Decided the devil made this happen.
- 7. Questioned the power of God.





## VITA

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### Publications

- Pearson, M. R., Brown, D. B., **Bravo, A. J.**, & Witkiewitz, K. (2014). Staying in the moment and finding purpose: The associations of trait mindfulness, decentering, and purpose in life with depressive symptoms, anxiety symptoms, and alcohol-related problems. *Mindfulness*. doi: 10.1007/s12671-014-0300-8

### Conference Presentations

#### *Paper Presentations*

- Brown, D. B., Pearson, M. R., **Bravo, A. J.**, & Witkiewitz, K. (February, 2014). *Staying in the moment and finding purpose: The effects of trait mindfulness*. Paper presented at the second annual Collaborative Perspectives on Addiction Conference, Atlanta, GA.

#### *Poster Presentations*

- **Bravo, A. J.**, & Pearson, M. R. (accepted). *Quest religiosity and depressive symptoms among Hispanic college students: Purpose in life as a mediator*. Poster to be presented at the 2014 biennial NLPAC Conferencia, Albuquerque, NM.
- **Bravo, A. J.**, Kite, B., & Henson, J. M. (May, 2013). *Depressive Symptoms and alcohol related problems: Intrinsic Religiosity as a Buffer*. Poster presented for presentation at the 25<sup>th</sup> annual APS Annual Convention, Washington D.C.
- **Bravo, A.**, Dallaire, D., & Zeman, J. (April, 2013). *Maternal incarceration: Effects on caregivers' mental health*. Poster presented at the biennial Society for Research in Child Development, Seattle, WA.