

EXPLORING COLLEGE STUDENTS' RELATIONSHIP WITH GOD AS A POTENTIAL
MEDIATOR BETWEEN RELIGIOUS BEHAVIORS AND SEXUAL AND ALCOHOL
RISK BEHAVIOR AMONG COLLEGE STUDENTS

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ERIN WHITNEY MOORE

B.A., University of Tennessee—Knoxville, 2007
M.A., University of Missouri—Kansas City, 2010

Kansas City, Missouri
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Erin Whitney Moore, Candidate for the Doctor of Philosophy Degree

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ABSTRACT

Many college students frequently engage in two behaviors – sexual activity and alcohol use – that can potentially lead to significant negative consequences, such as contracting a sexually transmitted infection or personal injury, respectively. College students also tend to be a population with strong religious beliefs and regular engagement in religious behaviors. Some research indicates that more frequent engagement in religious behavior is associated with less risky behavior (e.g., initiation of sex, fewer sexual partners, decreased alcohol use) among college students. However, previous research is mixed on why this association exists. The current study explored “relationship with God” as a religious construct that potentially mediates the relationship between religious behaviors and alcohol and sexual risk behaviors (lifetime and last 3 months). The sample consisted of 406 University of Missouri-Kansas City students. Data were analyzed using SPSS Statistics Version 19 and AMOS Version 18. Findings indicated participants’ increased engagement in religious behaviors was significantly associated with stronger beliefs that God influenced their alcohol use decision-making, which was in turn, associated with less alcohol use in the last three months. This finding suggested that God control beliefs partially mediated the protective relationship between religious behaviors and recent alcohol use. There were no

significant relationships between relationship with God variables and lifetime alcohol use and lifetime or recent sexual risk. Future research should continue to explore this area with larger samples that allow for sex and race/ethnicity comparisons regarding relationship with God and risk behavior. Interventions for reducing college students' alcohol use may consider incorporating messages that discuss God control beliefs.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the School of Graduate Studies, have examined a dissertation titled “Exploring College Students’ Relationship with God as a Potential Mediator Between Religious Behaviors and Sexual and Alcohol Risk Behavior Among College Students,” presented by Erin Whitney Moore, candidate for the Doctor of Philosophy degree, and certify that in their opinion it is worthy of acceptance.

Supervisory Committee

Jannette Y. Berkley-Patton, Ph.D., Committee Chair
Department of Psychology

Carolyn E. Barber, Ph.D.
Department of Counseling and Educational Psychology

Kymerly K. Bennett, Ph.D.
Department of Psychology

Kathleen Goggin, Ph.D.
Department of Psychology

Malcolm E. Linville, Ph.D.
Department of Curriculum and Instruction

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GLOSSARY

God Locus of Control: religious beliefs about God's direct control or influence over one's behavior

Negative God Coping Style: when facing stress and other problems, one believes God punishes for sins, questions God's love and power when faced with negative situations, and pleads for divine intervention or waits passively for God to solve one's problems

Positive God Coping Style: when facing stress and other problems, one becomes closer to God through life's challenges, relies on God for support and comfort while coping with problems, and sees God as a partner to help maintain control over life's problems

Religiosity: the institutional and external expression of the sacred, which includes religious behaviors like church attendance, prayer, and experiences with God

Religious Coping: turning to one's religious beliefs and faith in God to overcome stress and other problems

Structural Equation Modeling: a statistical technique similar to regression that allows for simultaneous confirmatory factor analysis and path analysis

CHAPTER 1

INTRODUCTION

College matriculation is a time that represents transition from adolescence into adulthood for many youth (Arnett, 2000). For adolescents, this transition often involves being away from parental supervision and developing autonomy regarding personal decision-making. The combination of increased independence and lack of parental monitoring can provide college students with the opportunity to engage in multiple risk behaviors, particularly sexual behavior and alcohol use. These risk behaviors can result in significant consequences.

While adolescents between the ages of 15 and 24 represent only 25% of the sexually experienced population, they account for almost half of all new sexually transmitted infection (STIs) cases (Weinstock, Berman, & Cates, 2004). Adolescents between 15-24 represented 19.6% of all new cases of human immunodeficiency virus (HIV) in 2009 (Centers for Disease Control and Prevention [CDC], 2011a). Furthermore, the highest rates of chlamydia and gonorrhea occur in the same age group (CDC, 2010). Regarding college students specifically, studies have also found that up to 10% of students have been diagnosed with an STI (American College Health Association [ACHA], 2011; Bryan, Aiken, & West, 1997; Bryan, Schindeldecker, & Aiken, 2001; Roberts & Kennedy, 2006; Scott-Sheldon, Carey, & Carey, 2008).

Several studies have found that approximately half of college students reported they have had sexual intercourse within a 30-day period (ACHA, 2011; Lynch et al., 2004). While simply engaging in sex may carry minimum risk, two sexual behaviors increase college students' risk for contracting STIs or HIV: multiple sex partners and inconsistent condom

use. A study of 1,595 undergraduate students found most reported having more than one sex partner in their lifetime, with an average of four sex partners (Scott-Sheldon et al., 2008). Another study of African American students found that many reported having between two to five sex partners per year (Poulson, Bradshaw, Huff, Peebles, & Hilton, 2008), whereas a national study found that students reported an average of 1.4 partners in the last 12 months with 24.8% reporting two or more partners (ACHA, 2011). The more sex partners a college student reports having, the more likely he or she is to come into contact with a person infected with an STI or HIV. Inconsistent condom use is a sexual behavior that also increases college students' risk for contracting STIs/HIV and unwanted pregnancies. When used consistently and correctly, condoms have been found to significantly reduce the likelihood of becoming pregnant or contracting STIs/HIV, if exposed (CDC, 2011b). However, college students do not always use condoms during sexual intercourse. Several studies found that over 70% of college students reported using condoms sometimes, but only about a third reported using condoms every time they have sex (ACHA, 2011; Fazekas, Senn, & Ledgerwood, 2001; Roberts & Kennedy, 2006; Scott-Sheldon et al., 2008). Some students have even lower likelihood of using condoms consistently, such female students, students who have a steady sex partner, and upperclassmen (Rhodes et al., 2007).

Contracting an STI can seriously impact college students' health. For example, gonorrhea is a major cause of pelvic inflammatory disease (PID), which can lead to tubal infertility, ectopic pregnancy, and chronic pelvic pain in women (CDC, 2010). Chlamydia, which is often asymptomatic, can also lead to PID. Untreated chlamydia and gonorrhea infections can lead to epididymitis and urethritis for men (CDC, 2007). Moreover, being infected with chlamydia or gonorrhea puts young adults at higher risk of contracting HIV

during sexual intercourse (Fleming & Wasserheit, 1999). In 2000, there were almost five million new diagnoses of Human Papillomavirus (HPV) among those aged 15-24, which can cause both genital warts and cervical cancer (Chesson, Blandford, Gift, Tao, & Irwin, 2004). Additionally, there are significant medical costs associated with STIs. It is estimated that the medical burden of STIs among those aged 15-24 is \$6.5 million (Chesson et al., 2004). Furthermore, the financial cost cannot approximate the cost of the physical and psychological pain associated with STIs.

Another risk behavior that is relevant among college students is alcohol use. Previous research found that most college students report drinking alcohol on a fairly regular basis (Johnston et al., 2011; Turrisi, Mallett, Mastroleo, & Larimer, 2006). A national college study found that 81% of college students consumed alcohol within a 30-day period, and 44% reported binge drinking in the two weeks prior to the survey (Turrisi et al., 2006). College students tend to report more frequent 30-day use of alcohol and heavy drinking than same-age peers who do not attend college (Johnston, O'Malley, Bachman, & Schulenberg, 2011). Previous research indicates that frequency of alcohol use among college students differs across ethnic groups, with African Americans tending to drink at substantially lower rates than other adolescents and young adults (Johnston et al., 2011). However, alcohol use is still an issue for African American college students. One study found that 26% of African American students reported binge drinking in the previous two weeks (Cranford, McCabe, & Boyd, 2006).

College students' alcohol use can lead to serious consequences. For instance, one study estimated that approximately 500,000 students aged 18-24 suffer alcohol-related injuries annually, and more than 1,000 students die annually from injuries related to alcohol

use (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002). Many college students report memory loss from their alcohol use and blackouts about what they did while drinking (Wechsler, Lee, Kuo, & Lee, 2000). Alcohol use is also associated with poorer academic performance. Even after controlling for class and SAT scores, alcohol consumption was still a predictor of GPA, with more alcohol use predicting lower GPA (Singleton, 2007). College students might also experience long-term health problems from their alcohol use, such as alcohol abuse that results in poor immune functioning (Engs & Aldo-Benson, 1995) and cirrhosis of the liver (Vaillant, 1996). Furthermore, alcohol use is also associated with engaging in risky sexual behaviors (Poulson et al., 2008), particularly decreased condom use (Cooper, 2002).

Conversely, religiosity is a protective factor that tends to decrease the likelihood that college students will engage in risky sexual and alcohol use behaviors. For example, some research found that more religious young adults are less likely to engage in sex than their less religious peers (Brown, Salsman, Brechting, & Carlson, 2007; Davidson, Moore, Earler, & Davis, 2008; Kirby, 2002; Lefkowitz, Gillen, & Shearer, 2004; Nonnemaker, McNeely, & Blum, 2003; Rostosky et al., 2004; Sinha, Cnaan, & Gelles, 2007; Steinman & Zimmerman, 2004). However, sexually active college students who are more religious have been found to be less likely to use condoms (Zaleski & Schiaffino, 2000). Thus, in some cases, increased religiosity may be related to increased sexual risk; yet, there is a lack of research that clarifies the relationship between religiosity and sexual behavior. Also, a review by Koenig (2001) and other studies (Brechting et al., 2010; Galen & Rogers, 2004; Menagi, Harrell, & June, 2008; Wells, 2010) highlight the protective qualities of college students' religiosity against alcohol use. Yet, this relationship has been limited and mixed. For example, a study with

African American college students found that involvement in religious activities was not significantly correlated with alcohol use (Poulson et al., 2008). Thus, there is a need for more research on the relationship between religiosity and students' alcohol consumption behaviors and why or for whom religiosity, specifically religious behaviors, is protective against alcohol use among college students.

Although young adults tend to be slightly less likely to be affiliated with a specific religious group and less involved in religious practices than older adults, 75% of those between 18-29 report they are affiliated with some religion (Pew Forum, 2010), and over half report attend religious services at least once a month (Holder et al., 2000; Smith, Denton, Faris, & Regnerus, 2002). Most college students report that they believe in God and are religious (Ginn et al., 1998; Poulson et al., 2008). In fact, over two-thirds of college students in one study believed God influenced their daily lives (Ginn et al., 1998). Given the importance of religiosity to college students, understanding its role as a protective factor against engagement in risk behaviors could contribute to the development of interventions to reduce college students' risk for STIs/HIV and alcohol use.

There is limited research on *why* religiosity might impact college students' risk behavior. Although previous research has identified the significant impact of engagement in religious behaviors on college students' risk behavior (Brechtling et al., 2010; Brown et al., 2007; Davidson et al., 2008; Galen & Rogers, 2004; Kirby, 2002; Lefkowitz et al., 2004; Wells, 2010), the relationship between religious behaviors and risk behaviors has not consistently been found to be significant, particularly after considering internal religious factors (e.g., rating of importance of religion, religious beliefs about behavior) (Galen & Rogers, 2004). Even less clear is whether the saliency of college students' relationship with a

higher power, such as God, is more protective against risk behaviors. This study sought to understand whether young adults' relationship with God mediates the relationship between engagement in religious activities and engagement in sexual and alcohol risk behaviors. This information could be used to develop faith-based programming for college students to reduce their sexual and alcohol risk.

CHAPTER 2

REVIEW OF THE LITERATURE

Religiosity and Religious Behaviors

Religiosity has been defined as the institutional and external expression of the sacred, including religious beliefs and religious behaviors (Miller & Thoresen, 2003). Religious behaviors can include church attendance and involvement in religious activities, such as thinking of God, engagement in prayer or meditation, reading or studying scriptures and holy writings, and having direct experiences of God (Connors, Tonigan, & Miller, 1996).

Spirituality has been defined as the personal and internal expression of the sacred, such as the comfort one experiences from faith and the use of religious coping (George, Larson, Koenig, & McCullough, 2000; Hill & Pargament, 2003). Belgrave and Allison (2010, p. 37) define spirituality as “a belief in a being or force greater than oneself.” Although spirituality and religiosity are not the same, they are related. People who report being spiritual are likely to engage in religious practices, such as attending church and praying (Bowie, Ensminger, & Robertson, 2006).

College Students and Religiosity

Overall, college students tend to believe in God and engage in religious behaviors. The majority of college students reports some religious affiliation (Wells, 2010) and believes that religion influences their daily lives (Simons, Burt, & Peterson, 2009). Previous research found about two-thirds of college students reported believing in God, and 67% of these student believed God operates in their daily lives (Ginn et al., 1998). While college students across ethnicities tend to report being religious, religion is especially important in African American culture (Hunt & Hunt, 2001). Although there is limited research on the effect of

religiosity on college students' overall health, a study by Phillips (2000) found that religious affiliation and engagement in religious activities were related to better psychological adjustment in the transition to college. Nelms, Hutchins, Hutchins, and Pursley (2007) found that greater spirituality was associated with better overall health among college students. The literature also indicates that a relationship exists between engagement in religious activities and sexual behavior and alcohol use for college students.

Religiosity and Sex

College students who report increased religiosity are less likely than their less religious peers to initiate sex (Davidson, Moore, Earler, & Davis, 2008; Kirby, 2002; Lefkowitz, Gillen, & Shearer, 2004; Moore, Berkley-Patton, & Hawes, 2011; Nonemaker, McNeely, & Blum, 2003; Rostosky et al., 2004; Sinha, Cnaan, & Gelles, 2007; Steinman & Zimmerman, 2004), even after controlling for socioeconomic status (Zaleski & Schiaffino, 2000), age, race, and parent education (Rostosky, Regnerus, & Wright, 2003). More specifically, studies have found that young adults who attend religious services and participate in religious activities are more likely to delay initiating sex (Bachanas et al., 2002; Davidson, Moore, & Ullstrup, 2004; Lefkowitz et al., 2004; McCree, Wingood, DiClemente, Davies, & Harrington, 2003; Steinman & Zimmerman, 2004) and to have fewer sex partners if they did become sexually active (Haglund & Fehring, 2010; Lefkowitz et al., 2004; Murray, Ciarrocchi, & Murray-Swank, 2007). Young adults are also more likely to delay initiating sex (Bachanas et al., 2002; McCree, Wingood, DiClemente, Davies, & Harrington, 2003; Steinman, & Zimmerman, 2004) and report fewer sex partners (Haglund & Fehring, 2010; Moore et al., 2011) if they report religion is important to them.

However, the relationship between religiosity and sexual risk among young adults is not entirely clear. Leonard and Scott-Jones (2010) found that the majority of high school seniors rated their religious beliefs as somewhat or very important, but most were also sexually active. Other research found that college students who have higher levels of religiosity are less likely to use condoms (Zaleski & Schiaffino, 2000). Thus, in some cases, increased religiosity may be related to increased sexual risk due to inconsistent condom use. Additionally, the protective qualities of engaging in religious behaviors may not be consistent across all college students. A study by Boyd-Starke, Hill, Fife, and Whittington (2011) found that church attendance was not related to risky behaviors for African American college students. There were certain weaknesses in the existing research cited above regarding sampling and measurement. For example, Zaleski and Schiaffino (2000) conducted their study at a private Catholic university, which likely reduced the diversity in religiosity in their sample. Zaleski and Schiaffino (2000) examined religiosity in a limited way, evaluating college students' intrinsic and extrinsic religious orientation but not specific religious behaviors and their frequency. Also, Boyd-Starke et al. (2011) evaluated one religious behavior (church attendance) but assessed frequency generally, only asking whether participants "regularly" attended church and if they believed attending church services was important. As such, measuring church attendance more specifically in terms of frequency and assessing frequency of several other religious behaviors simultaneously is critical to determining whether behaviors actually have a protective effect.

Religiosity and Alcohol

Previous research has found that religiosity (e.g. influence of religion on life, religious participation) and stronger religious convictions were significantly correlated with

less alcohol use. For instance, college students with low religiosity scores were 27 times more likely to use alcohol heavily and nine times more likely to use alcohol moderately compared to students with high religiosity scores (Wells, 2010). A review by Koenig (2001) found that the majority of studies that investigated the relationship between alcohol consumption and religious beliefs demonstrated that greater religiosity is associated with less alcohol use. Menagi et al. (2008) found that greater religious commitment (e.g., spending time developing one's faith, socializing with others' of one's religious affiliation) was associated with less alcohol use and less likelihood of binge drinking among college students. Other research has found that the more college students participate in religious behaviors (e.g., church attendance, frequency of prayer), the less likely they are to use alcohol (Brechtling et al., 2010; Galen & Rogers, 2004). However, Galen and Rogers (2004) found that religious behaviors no longer predicted alcohol use when intrinsic religiosity (e.g., importance of religious beliefs) was added as a predictor. More research is needed to better understand why and when religiosity is protective against alcohol use.

College Students' Relationship With God

College students' religiosity is frequently assessed in terms of engagement in religious behaviors and frequency of religious practices, such as church attendance and prayer (MacDonald, 2000). Because of the potential for motivation other than spiritual to engage in religious behaviors (i.e., as a means of socializing or because of pressure from parents), religious behaviors may not be the most appropriate way to conceptualize college students' religiosity when determining whether it influences behavior. Perhaps, students' relationship with God may serve as a better proxy of intrinsic and personal aspects of

religiosity. As such, examining college students' relationship with God may assist in understanding the impact of religiosity on risk behavior.

However, no studies on college students' relationship with God were identified. Therefore, the best measures for assessing this relationship has yet to be determined. Two possible "God relationship" measures for consideration include: God locus of control beliefs and God-related coping. These two concepts assess aspects of a relationship with God by examining God's influence on decision-making regarding risk behavior and how relationship with God is viewed during times of stress, respectively.

The first potential measure for assessing students' relationship with God is exploration of their God/Higher Power locus of control beliefs, or beliefs that God directly controls one's behavior. Goggin et al. (2007a) developed the Sexual Risk Behavior-related God Locus of Control Scale for Adolescents (SexGLOC-A) as a reliable, valid instrument to measure predictive aspects of domain-specific God control beliefs on youths' sexual risk behavior. God control beliefs is a construct that explains whether God is (or is not) directly assisting youth in their sexual decision-making including: a) not initiating sexual behavior, b) limiting number of sex partners, and c) refusing unsafe sexual behavior in their sexual decision-making. Higher scores on the SexGloc-A were associated with increased intentions to abstain from sex and decreased engagement in sexual risk behaviors with adolescents. The Alcohol-related God Locus of Control Scale for Adolescents (AGLOC-A) was developed and evaluated with high-school-age African American youth and was found to be a reliable and valid measure (Goggin, Murray, Malcarne, Brown, & Wallston, 2007b). Higher scores on the AGLOC-A were associated with decreased adolescent alcohol use. Although God control beliefs and their relationship to alcohol use have been explored primarily with

Caucasian adults (Murray, Malcarne, & Goggin, 2003), no research has examined this relationship among college students. Use of the SexGLOC-A and AGLOC-A with college students may assist in explaining their relationship with God and in understanding associations between their religiosity and sexual and alcohol risk behaviors, which could further fill a significant gap in the literature on protective factors and college student health.

Religious coping style is the second potential measure for exploring college students' relationship with God (Pargament, Koenig, & Perez, 2000). Pargament and colleagues (2000) developed this validated measure of religious coping to determine how college students use religion to positively or negatively cope with stressful events. A positive God coping style indicates that one becomes closer to God through life's challenges, relies on God for support and comfort while coping with problems, and sees God as a partner to help maintain control over life's problems. A negative God coping style suggests that one believes God punishes for sins, questions God's love and power when faced with negative situations, and pleads for divine intervention or waits passively for God to solve one's problems. Religious coping – turning to one's religious beliefs and faith to overcome stress and other problems – has been found to be associated with less alcohol use among college students (Aldridge-Gerry et al., 2011; Menagi et al., 2008). However, no studies have explored the effect of religious coping on college students' sexual behavior. Exploring religious coping could provide an advantage over many traditional ways of assessing religiosity, which tend to be more focused on cognitive aspects of religiosity or personal importance of religiosity, rather than assessing the partnership between an individual and God.

Research Hypotheses

This study sought to explore the protective effect of religiosity on two outcomes: college students' sexual and alcohol risk behaviors. Sexual risk behavior was defined as a total lifetime sexual risk score based on: (1) engaging in oral, vaginal, and/or anal sex, (2) number of sex partners, (3) estimated number of times one has engaged in oral, vaginal, and/or anal sex, and (4) frequency of condom use. Alcohol risk behavior was defined as a total lifetime risk score based on (1) whether participants ever consumed alcohol, (2) estimated number of times one has consumed alcohol, and (3) estimated number of times one has engaged in binge drinking. Similar questions were used to assess sexual and alcohol risk behavior in the last three months. Risk behavior scores were evaluated using sum scores, which is a technique that has been used in previous studies examining youth sexual risk (Evans et al., 2004; Goggin et al., 2007; Rogers et al., 2000).

As pointed out in reviews of the literature (MacDonald, 2000; Rostosky, Wilcox, Wright, & Randall, 2004), studies have tended to focus on belief and behavioral measures of religiosity (e.g., levels of belief/spirituality, attendance at religious services, engagement in religious practices, religious affiliation). One study found that religious behaviors moderated the relationship between religious beliefs and risk behaviors (Brechting et al., 2010), which conflicts with other research that indicates that religious beliefs were a better predictor of alcohol consumption than engaging in religious behaviors (Benda, Pope, & Kelleher, 2006). Yet, college students may be religious and have a relationship with God but may not consistently engage in religious behaviors. Furthermore, they may engage in religious behaviors for different reasons, including pressure from family or other societal pressures, rather than because of their own beliefs.

This study hypothesized that religiosity as measured with religious behaviors (i.e., church attendance, prayer) are only protective when mediated by college students' relationship with God constructs (i.e., God Locus of Control Beliefs, Religious Coping). This study explored the relationship between religiosity and the relationship with God constructs using two separate outcomes: sexual risk behavior and alcohol risk behavior. The following hypotheses were assessed:

1. There will be a direct and positive relationship between religiosity and relationship with God constructs, such that increased engagement in religious behaviors leads to a stronger, more positive relationship with God.
2. There will be a direct and negative relationship between relationship with God constructs and engagement in sexual and alcohol risk behavior, such that a stronger relationship with God leads to lower behavioral risk.
3. There will be an indirect negative relationship between religiosity and sexual and alcohol risk behavior, mediated by relationship with God constructs.

CHAPTER 3

METHODOLOGY

Participants

Participants in this study were students enrolled at the University of Missouri-Kansas City (UMKC). Eligible students were between ages 18 and 24, given that these are the students that fall in the age group with the highest rates of STIs (CDC, 2010). A total of 406 participants were recruited for this study.

Procedures

The university's institutional review board approved all study procedures prior to data collection. Participants were recruited via announcements made during UMKC undergraduate classes, flyers posted in general campus venues (e.g., Student Union and University Center,) and the PsychPool – an online university tool that allows faculty and graduate students to recruit study participants from currently enrolled students. The survey was administered individually to participants using a paper format in the Community Health Research Group laboratory located in the Psychology Department. Participants were first provided Informed Consent that explained the risks of participating in the study, which were minimal, and that personal identifiers would not be collected at any time during the survey to maintain confidentiality. Participants recruited via PsychPool received course credit. All participants were eligible to enroll in a lottery to win a \$10 Amazon gift card; 10% of participants ($n = 41$) were randomly selected to receive a gift card.

Measures

Demographics

Participants were asked their age, sex, race/ethnicity, relationship status, and sexual orientation. Participants were also asked about: the number of semesters completed, current major, grade point average, membership in a fraternity/sorority, identification as student-athlete, and place of residence (e.g., residence hall, home with parents, off-campus apartment).

Religiosity: Religious Beliefs and Behaviors

Participant's religious behaviors were assessed with the Religious Background and Behavior (RBB) questionnaire (Connors et al., 1996). The RBB is a 13-item, self-report measure that assesses religious affiliation, self-description of religious identification, and frequency of religious behaviors. However, only eight items were used in this study. Participants were asked about their religious affiliation (e.g., Catholic, Baptist, Muslim) and their self-described identification (e.g., religious, spiritual, unsure, agnostic, atheist). They also reported the frequency of specific behaviors and activities – thinking about God, praying, meditating, attending worship-services, reading-studying scriptures and holy writings, and experiences with God – on an 8-point scale from 1 (“never”) to 8 (“more than once a day”). The six behavior items used in analyses had strong reliability (Cronbach's $\alpha = .86$).

God Control Beliefs

Participants completed the Sexual Risk Behavior-related God Locus of Control Scale for Adolescents (SexGLOC-A). The SexGLOC-A is a 12-item, self-report measure that assesses adolescents' perceived control of God over their sexual behavior using three

domains: a) Problems (ability of the adolescent to manage problems in ways other than engaging in sexual activity; e.g., “God helps me handle my problems so that I don’t need to have sex.”), b) Initiation (capacity to resist initiating sexual behavior; e.g., “If I start having sex, whether I do it again or not is up to God.”), and c) Frequency (ability to control the frequency of sexual behavior; e.g., “Without God’s help, I cannot control how much I have sex.”). Participants rated their responses on a 4-point scale from 1 (“strongly disagree”) to 4 (“strongly agree”), with higher scores reflecting stronger beliefs in God-related control over sexual behavior (potential range = 12-48). Participants also completed the Alcohol-related God Locus of Control Scale for Adolescents (AGLOC-A). The AGLOC-A is a 12-item, self-report measure that assesses adolescents’ perceived control of God over their alcohol use (e.g., “God participates in my decision not to drink” and “God helps me handle my problems so that I don’t need to drink”). Participants rate their responses on a 4-point scale from 1 (“strongly disagree”) to 4 (“strongly agree”); higher scores indicate a greater perception that God plays a role in controlling drinking behavior (potential range = 12-48). The SexGLOC subscales reliability was good (ranging from .75 to .90). The AGLOC also had strong reliability ($\alpha = .95$).

God Coping Style

Participants completed 50 items from the RCOPE that assessed 10 different religious coping strategies (Pargament et al., 2000). Of the 10 subscales utilized from the RCOPE, five are positive religious methods of coping (Active Religious Surrender, Benevolent Religious Reappraisal, Collaborative Religious Coping, Seeking Spiritual Support, Self-directing Religious Coping) and five are negative (Passive Religious Deferral, Pleading for Direct Intercession, Punishing God Reappraisal, Reappraisal of God’s Power, Spiritual Discontent).

Participants were asked to rate their agreement on a 4-point scale ranging from 0 (“not at all like me”) to 3 (“a great deal like me”) of how much each statement applies when they are facing a stressful event. For each subscale, the possible scores range from 0 to 15, with higher scores indicating greater use of that strategy. Positive coping example items included “I see my situation as part of God’s plan” and “I work together with God as partners.” Negative coping example items included “I decide that God is punishing me for my sins” and “I don’t do much, just expect God to solve my problems for me.” The Positive Coping subscales had strong reliability (α ranging from .87 to .96), as did the Negative Coping subscales (α ranging from .77 to .91).

Sexual Risk Behaviors

Sex was defined as consensual oral, vaginal, and/or anal sex. Sexual risk behavior was measured with eight items that assessed both lifetime and recent sexual behavior based on items used by Goggin et al. (2007). Lifetime sexual behavior items included: (1) “Have you ever had oral sex? Have you ever had vaginal sex? Have you ever had anal sex?”, (2) “How many sex partners have you had in your lifetime?”, (3) “How many times would you estimate that you have had oral sex? Vaginal sex? Anal sex?”, and (4) “On average, what percentage of the time did you use a condom during oral sex? During vaginal sex? During anal sex?” Similar questions were asked regarding sexual behavior in past three months. Consistent with analyses of sexual risk behavior in other studies (Evans et al., 2004; Goggin et al., 2007; Rogers et al., 2000), sexual behavior items were summed to produce an overall lifetime risk score and an overall recent sexual behavior score. This approach reduced the threat of a Type 1 error from conducting multiple analyses with multiple dependent variables. Items were coded as follows. Engaging in oral, vaginal and anal sex were each separately

coded “1” and not engaging in each behavior coded as “0” and were added in to the total score. The number of sexual partners was added in as is. Reported percentage of condom use was recoded as an ordinal variable. Participants who reported using condoms all of the time were coded “0,” those who reported 75-99% condom use coded as “1,” those who reported 50-74% coded as “2,” those who reported 25-49% coded as “3,” and those who reported using condoms less than 25% of the time coded as “4.” A score representing the portion of protected sexual acts for each type of sexual behavior was determined by multiplying the recoded condom use value by the reported times one engaged in sex. Higher scores indicated more sexual risk.

Alcohol Risk Behaviors

Alcohol risk behavior was evaluated based on sum scores (Evans et al., 2004; Goggin et al., 2007; Rogers et al., 2000). Alcohol risk behavior was measured with six items that assessed both lifetime and recent alcohol use developed for this study, based on the format of the sexual risk behavior items. Lifetime alcohol use items included: (1) “Have you ever drunk alcohol?”, (2) “How many times would you estimate that you have drunk alcohol in your lifetime?”, and (3) “How many times would you estimate that you have engaged in binge drinking (i.e., five or more drinks in one sitting) in your lifetime?” Similar items were used to assess alcohol use in the past three months. Consistent with how this study analyzed sexual risk behaviors to reduce threat of a Type 1 error from conducting multiple analyses with multiple dependent variables, alcohol use items were summed to produce an overall lifetime risk score and an overall recent alcohol risk score. Items were coded as follows. For the first question, having consumed alcohol was coded “1” and not ever having drunk alcohol was coded as “0.” For questions two and three, the number of times participants consumed

alcohol and the number of times participants engaged in binge drinking were added in as is. Higher scores indicated more alcohol risk.

Social Desirability

To control for potential social desirability bias, participants completed a shortened version (10 items) of the Marlowe-Crowne (MC1; Strahan & Gerbasi, 1972). Previous research noted that this shortened version is less influenced by age and socioeconomic status than the original 33-item scale (DeVellis, 1991). The MC1 is a true/false assessment that measures participants' tendency to answer in a socially desirable manner and has been found to have acceptable reliability among college students (K-R 20 reliability coefficients ranging from .61 to .70 with U.S. students; Strahan & Gerbasi, 1972). The α (.54) for this study was more moderate.

Data Analysis Plan

Data were entered and verified using SPSS Statistics Version 19. Mean replacement was used with the six religious behavior items from the RBB; two participants did not respond to the item on meditation, one participant did not respond to the item on worship services, and two participants did not respond to the item on direct experiences with God). Additionally, a participant was missing a response to one item on the SexGLOC Initiation subscale and this missing item was replaced with the response that was given to the other three items of the Initiation subscale. Replacement on these items did not impact the findings. Two individuals had several missing responses on both the SexGLOC and AGLOC and were excluded from final analyses. SPSS was used to obtain descriptive statistics and correlations among major variables of interest (i.e., religious behaviors, SexGLOC, AGLOC, God coping, sexual risk, alcohol risk). Additionally, some demographic variables were also explored for

differences regarding main variables; age, sex, and race/ethnicity were explored for religiosity, sexual, and alcohol risk, and relationship status for sexual risk only.

The hypotheses were evaluated using structural equation modeling (SEM) with religious behaviors, SexGLOC, and God Coping variables used in sexual risk analyses and religious behaviors, AGLOC, and God Coping variables used in alcohol risk analyses. This study used SEM because it provides significant analytical advantages over regression. SEM permits simultaneous exploration of how well each variable is measured and the extent to which variables are related to each other. AMOS version 18 was the SEM statistical software used to test the validity of the model and illustrate the interrelationship between latent and observed variables. The four outcomes and the AGLOC were entered as observed variables. Religious behaviors, SexGLOC, Positive Coping, and Negative Coping were entered as latent variables. The indicators for religious behaviors were the six individual behavior items from the RBB. SexGLOC, Positive Coping, and Negative Coping were parceled using their respective subscales. For each outcome, a measurement model was developed first and reduced to the most parsimonious model. The outcome was then added to create the structural model; if appropriate, any controlling variables (e.g., age, sex, race/ethnicity [African American/Latino versus Caucasian and all others], relationship status [single versus those dating or in committed relationships] were added for a final structural model.

Fit indices provided information on the paths between the model constructs and evaluation of the overall model's goodness of fit. Overall model fit was assessed using the likelihood ratio chi square (which should be non-significant with good fit). Because risk behaviors tend to depart from multivariate normality, which chi-square is highly sensitive to, relative chi-square will also be calculated (chi-square divided by degrees of freedom);

different recommendations are found regarding what indicates reasonable fit, ranging from 2 to 5 (Marsh & Hocevar, 1985). Other fit indicators assessed include standardized root mean residual (values below .08 indicating acceptable fit and below .05 indicating good fit), as well as with the comparative fit index (CFI; Bentler, 1990), the adjusted goodness of fit index (AGFI; Jöreskog & Sörbom, 1984), and the root mean square error of approximation (RMSEA; Steiger, 1990), which are all less sensitive to model misspecification (Hu & Bentler, 1995). The CFI and the AGFI have a possible range of 0 to 1, with .90 indicating sufficient fit and .95 indicating good fit. The RMSEA has possible values of 0 to ∞ , with values at .08 or smaller indicating acceptable fit (MacCallum, Browne, & Sugawara, 1996).

CHAPTER 4

RESULTS

Descriptive Findings

The sample consisted of 406 participants. Participants' ages ranged from 18 to 24 with a mean of 19.8 ($SD = 1.6$), as shown in Table 1. The majority of participants (78.1%, $n = 317$) identified as completely heterosexual/straight, 1.5% ($n = 6$) identified completely homosexual/gay, and 19.6% ($n = 80$) indicated some degree of flexibility (responding with numbers between "3" and "9") regarding sexual orientation. Twenty-five percent ($n = 101$) were in their first semester.

Religious Behaviors and Relationship with God

From the RBB, most participants identified as religious (46.8%, $n = 190$) or spiritual (33.5%, $n = 136$), as shown in Table 2. Protestant was the most frequently reported religious affiliation, followed by Catholic. More than half thought of God and had direct experiences of God daily or almost daily, and 40.2% prayed daily or almost daily. Attending worship services and reading or studying scripture were less common with 30.6% attending services at least once a week and 27.9% reading or studying scripture at least once a week. Participants' mean SexGLOC score was 19.9 ($SD = 8.8$; range = 12-48) and mean AGLOC score was 21.7 ($SD = 10.5$; range = 12-48). Participants tended to endorse the use of positive coping strategies more than negative, as shown in Table 3. Seeking Spiritual Support and Benevolent Religious Reappraisal were the two most common strategies.

Sexual Behavior and Alcohol Use

Most participants were sexually experienced. The mean number of lifetime sex partners was 6.7 ($SD = 11.8$, range = 1-112), and the mean number of past three months sex

partners was 1.4 ($SD = 1.3$, range = 1-15). Most had engaged in oral sex over their lifetime (74.6%, $n = 303$) and in the last three months (50.2%, $n = 204$), as shown in Table 5.

Participants who had engaged in oral sex reported an average of 79.6 instances of oral sex ($SD = 375.8$; range = 1-6,000), and only 2.7% ($n = 11$) reported always using condoms during oral sex ($M = 6.25\%$, $SD = 21.9\%$; range = 0-100%). For those who reported engaging in oral sex in the past three months, they reported an estimated average of 8.2 instances of oral sex ($SD = 12.4$; range = 1-100), and 2.9% ($n = 6$) reported always using condoms during oral sex ($M = 3.3\%$, $SD = 17.3\%$; range = 0-100%).

Most had engaged in vaginal sex in their lifetime (70.4%; $n = 286$) and in the last three months (54.7%, $n = 222$). Participants who had engaged in vaginal sex reported an average of 166.5 instances of vaginal intercourse ($SD = 682.7$; range = 1-10,500), and 13.3% ($n = 54$) reported always using condoms during vaginal sex ($M = 63.9\%$, $SD = 33.7\%$; range = 0-100%) for lifetime. Among participants who reported engaging in vaginal intercourse in the past three months, the mean estimated times was 16.2 ($SD = 21.4$; range = 1-200), and 30% ($n = 67$) of participants always used condoms ($M = 52.5\%$, $SD = 44.8\%$; range = 0-100%).

Fewer participants reported ever having anal sex in their lifetime (21.4%, $n = 87$) and in the last three months (6.4%, $n = 26$). Participants who had engaged in anal sex reported an estimated average of 6.3 instances ($SD = 8.9$; range = 1-50), and 5.4% ($n = 22$) reported always using condoms during anal sex ($M = 38.8\%$, $SD = 45.7\%$; range = 0-100%) for lifetime. For the past three months, participants' estimated instances of anal sex was 2.2 ($SD = 1.7$; range = 1-6) and 23.1% ($n = 6$) reported always using condoms ($M = 27.4\%$, $SD = 43.8\%$; range = 0-100%).

The majority of participants (89.7%, $n = 364$) reported consuming alcohol in their lifetime and in the last three months (77.3%, $n = 314$). For the participants who reported consuming alcohol, the mean estimated number of times was 268.9 ($SD = 3242.4$; range = 1-60,000) for lifetime and 10.8 ($SD = 16.8$; range = 1-213) for past three months. The estimated number of times participants who had engaged in binge drinking was 34.4 ($SD = 111.1$; range = 0-1,000) for lifetime and 4.3 ($SD = 8.1$; range = 0-60) for past three months.

Correlations Among Main Variables

Correlational analyses with religiosity constructs and the risk outcomes (lifetime sexual risk, last three months sexual risk, lifetime alcohol risk, last three months alcohol risk) are reported in Table 5. There were no significant correlations between sexual risk outcomes or lifetime alcohol risk and religiosity variables. There were significant negative correlations between last three months alcohol risk and all religious behavior items except meditation. Both of the GLOC measures, four of the Positive Coping subscales, and two Negative Coping subscales were also significantly negatively correlated with last three months alcohol risk.

Structural Equation Modeling

Measurement Model

As shown in Figure 1, the preliminary measurement model for sexual risk included religious behavior, SexGLOC, Positive Coping, and Negative Coping. The SexGLOC subscales all had strong factor loadings (ranging from .78 to .94). However, the remaining three latent variables required trimming. Five religious behavior items (church attendance, prayer, reading/studying scripture, thinking about God, experiences with God) had sufficient factor loadings (ranging from .68 to .91), but the sixth item (meditation) had a weaker factor

loading of .31 and was trimmed from the model. Among Positive Coping, all subscales except Self-Directing Religious Coping had strong factor loadings (.88 to .94); Self-Directing Religious Coping had a moderate factor loading that was in the opposite direction of the other four subscales (-.48). As such, this subscale was trimmed from the model. Finally, Negative Coping had three subscales with acceptable factor loadings (.61 to .87), but Reappraisal of God's Powers had a very weak factor loading (.06) and Spiritual Discontent had a lower factor loading (.44). Both were trimmed from the model. In the final measurement model used with sexual risk outcomes depicted in Figure 2, all indicators had acceptable factor loadings ranging from .56 to .95.

The measurement model for alcohol risk was developed the same way with the only difference being that the observed variable, AGLOC, was included instead of the latent variable of SexGLOC as shown in Figures 3 and 4.

Structural Model: Lifetime Sexual Risk

After removal of an outlier (outcome score = 66,010) that was significantly higher than the next occurring sum score, Lifetime Sexual Risk sum scores ranged from 0-10,091 ($M = 356.5, SD = 908.5$). The sample size for this model was 403 participants. As shown in Table 6, the paths between religious behaviors and all three relationship with God variables were significant. However, there were no significant paths between religious behaviors, SexGLOC, Positive Coping, or Negative Coping and Lifetime Sexual Risk. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(97, N = 403) = 451.46, p < .001$. However, the relative chi-square was 4.65, which suggests adequate fit. The SRMR was acceptable at .06. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were

poor at .82 and .10, respectively. This final model explained 4.2% of the variance in Lifetime Sexual Risk.

Demographic variables (e.g., age, sex, race/ethnicity, relationship status) were entered individually as controls. Only age was significantly related to the outcome and retained for a final model; older participants had greater risk scores. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(111, N = 402) = 492.20, p < .001$. However, the relative chi-square was 4.43, which suggests adequate fit. The SRMR was acceptable at .06. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were poor at .82 and .09, respectively. This model explained 15.6% of the variance in Lifetime Sexual Risk.

Last Three Months Sexual Risk

Including only participants who had ever had at least one type of sex (oral, vaginal, or anal) in Lifetime Sexual Risk, Last Three Months Sexual Risk sum scores ranged from 0-803 ($M = 50.7, SD = 91.7$), and sample size was 322 participants. As shown in Table 7, the paths between religious behaviors and all three relationship with God variables were significant. However, there were no significant paths between religious behaviors, SexGLOC, Positive Coping, or Negative Coping and Last Three Months Sexual Risk. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(97, N = 322) = 393.90, p < .001$. However, the relative chi-square was 4.06, which suggests adequate fit. The SRMR was acceptable at .057. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were poor at .81 and .10, respectively. This final model explained 1.7% of the variance in Last Three Months Sexual Risk.

Demographic variables (e.g., age, sex, race/ethnicity, relationship status) were entered individually as controls. Only relationship status was significantly related to the outcome and retained for a final model; participants who were currently single had lower risk scores than those who were dating or in a committed relationship. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(111, N = 321) = 405.17, p < .001$. However, the relative chi-square was 3.65, which suggests adequate fit. The SRMR was acceptable at .055. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were poor at .81 and .09, respectively. This model explained 7.5% of the variance in Last Three Months Sexual Risk.

Lifetime Alcohol Risk

After removal of an outlier (outcome score = 60,071) that was significantly higher than the next occurring sum score, Lifetime Alcohol Risk sum scores ranged from 0-3,056 ($M = 109.1, SD = 293.7$). The sample size for this model was 403 participants. As shown in Table 8, the paths between religious behaviors and all three relationship with God variables were significant and positive. However, there were no significant paths between religious behaviors, AGLOC, Positive Coping, or Negative Coping and Lifetime Alcohol Risk. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(71, N = 403) = 381.45, p < .001$. The relative chi-square was 5.37, also suggesting inadequate fit. The SRMR was acceptable at .057. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were poor at .81 and .10, respectively. This final model explained 5.4% of the variance in Lifetime Alcohol Risk.

Demographic variables (e.g., age, sex, race/ethnicity) were entered individually as controls. Only age was significantly related to the outcome and retained for a final model; older participants reporting higher lifetime alcohol use. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(83, N = 402) = 411.11, p < .001$. However, the relative chi-square was 4.95, which suggests adequate fit. The SRMR was acceptable at .057. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were poor at .81 and .10, respectively. This model explained 15.3% of the variance in Lifetime Alcohol Risk.

Last Three Months Alcohol Risk

Including only participants who had at least one drink in Lifetime Alcohol Risk, Last Three Months Alcohol Risk sum scores ranged from 0-214 ($M = 14.7, SD = 22.1$) and sample size was 362 participants. As shown in Table 9, the paths between religious behaviors and all three relationship with God variables were significant and positive. There were no significant paths between religious behaviors, Positive Coping, or Negative Coping and Last Three Months Alcohol Risk. However, there was a significant path between AGLOC and Last Three Months Alcohol Risk. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(71, N = 362) = 343.91, p < .001$. However, the relative chi-square was 4.84, which suggests adequate fit. The SRMR was acceptable at .058. The CFI also supported goodness of fit at .93, but AGFI and RMSEA were poor at .81 and .10, respectively. This final model explained 5% of the variance in Last Three Months Alcohol Risk.

Demographic variables (e.g., age, sex, race/ethnicity) were entered individually as controls. All three were significantly related to the outcome and retained for a final model.

The paths suggested that older participants, male participants, and Caucasian and other racial groups reported greater alcohol use in the last three months than younger, female, and Latino and African American participants. With the indicators of model fit, there were mixed findings on the goodness of the model fit. The chi-square test was significant and suggested poor fit, $\chi^2(110, N = 361) = 435.68, p < .001$. However, the relative chi-square was 3.96, which suggests adequate fit. The SRMR was acceptable at .057. The CFI also supported goodness of fit at .92, but AGFI and RMSEA were poor at .82 and .09, respectively. This model explained 12% of the variance in Last Three Months Alcohol Risk.

CHAPTER 5

DISCUSSION

Consistent with national research (ACHA, 2011), the participants in this study were mostly sexually experienced. For instance, 74.6% had had oral sex, 70.4% had had vaginal sex, and 21.4% had had anal sex. Furthermore, the mean number of lifetime sex partners was 6.7, supporting other research that found students often report having more than one sex partner (Poulson et al., 2008; Scott-Sheldon et al., 2008). The number of participants who reported always using a condom during oral, vaginal or anal sex was small (2.7%, 13.3%, and 5.4%, respectively). However, condom use was inconsistent for many participants in this study; the mean percentage of lifetime vaginal and anal condom use was 63.9% and 38.8%, respectively. These findings are consistent with other studies that found college students tend to use condoms inconsistently (ACHA, 2011; Fazekas et al., 2001; Roberts & Kennedy, 2006; Scott-Sheldon et al., 2008). Additionally, most participants in this study reported that they had consumed alcohol in their lives, and more than half had engaged in binge drinking at least once. This is consistent with other research that found a majority of college students report drinking alcohol on a regular basis (Johnston et al., 2011; Turrisi et al., 2006).

As with other research conducted with college students (Ginn et al., 1998; Poulson et al., 2008), this study found that most participants reported that they believed in God and considered themselves to be spiritual or religious. More than half thought of God and had direct experiences of God daily or almost daily, and 40.2% prayed daily or almost daily. Attending worship services and reading or studying scripture were less common with 30.6% attending services at least once a week and 27.9% reading or studying scripture at least once

a week. Overall, the religious behavior items fit well together as a scale with the exception of meditation. This may be due to the fact that meditation was a less common behavior or that some students may not have differentiated between prayer and meditation depending on their beliefs. Qualitative research involving focus groups or interviews would also provide useful information about what religious activities students engage in and the processes involved in these behaviors. It could highlight whether certain behaviors should be explored separately or together and as such may lead future studies to consider combining frequency of prayer and meditation into a single item.

There have been mixed findings on whether religiosity is a good predictor of college students' risk behavior (Benda et al., 2006; Brechting et al., 2010). The primary goal of this study was to expand on the research conducted on college students' religiosity by focusing on more than a limited measure of religious behaviors to also examine college students' perceived relationship with God through exploring their God control beliefs (Goggin et al., 2007a; Goggin et al., 2007b) and God coping style (Pargament et al., 2000). Overall, participants in this study had low God control beliefs. Specifically, they did not believe that God was directly influencing them in their sexual and alcohol use decision-making. Participants tended to utilize positive God coping styles more than negative styles to deal with stressful situations. This means that participants felt that they became closer to God when facing challenges, relied on God for support and comfort while coping with problems, and viewed God as a partner to help them through difficult times.

It was hypothesized that there would be a direct and positive relationship between religious behaviors and the relationship with God variables. For all models, this hypothesis was correct. Religious behaviors had significant positive relationships with both sex- and

alcohol-related God control beliefs and with both positive and negative God coping style; the strongest relationship was between religious behaviors and positive coping style. These findings suggest that the more college students participate in religious behaviors, then the more they believe God influences their risk behavior and rely on God to cope during stressful situations. This connection supports the idea that the college students in this study engaged in religious activities because of a stronger connection with God rather than a peripheral reason such as for socializing or because of familial expectations for involvement. Additionally, the stronger relationship between religious behaviors and positive God coping rather than negative God coping indicates that engagement in religious behaviors leads college students to be more inclined to view God as a partner and a benevolent force in times of stress rather than viewing God as a punishing being who is failing them during stressful situations. As such, it may indicate that students who are more involved in religious activities are more likely to renew their faith in God during times of stress. However, the relationship between religious behaviors variables and negative God coping was still significant in all models, suggesting that religious behaviors were still tied to students questioning their relationship with God when faced with stressful situations. Future research should continue to explore this relationship and determine under what circumstances are students more likely to use positive versus negative coping and if the coping styles are used simultaneously during some situations and how that impacts the effectiveness of coping.

It was also hypothesized that there would be a direct and negative relationship between relationship with God variables and participants' engagement in sexual and alcohol risk behavior. For the sexual risk and lifetime alcohol risk outcomes, this hypothesis was not supported. For last three months alcohol risk, this hypothesis was supported for God control

beliefs. There was a significant negative relationship between God control beliefs and alcohol consumption in the last three months, meaning that the stronger their beliefs that God influences their alcohol use decision-making the less alcohol they had consumed. This was not significant for lifetime alcohol risk, which may be due to the fact that the survey assessed participants' current God control beliefs and their past beliefs may not have been as strong. Exploring current beliefs and last three months alcohol use could have removed the barrier of any time-related changes. However, the same relationship was not observed regarding last three months sexual behavior, suggesting that college students' behavior is not impacted by their beliefs about God influencing their sexual behavior. The participants in this study did have slightly lower God control beliefs regarding sex compared to alcohol (19.9 versus 21.7, respectively). College students may perceive that they or their partners are more influential regarding sexual behavior, whereas God has more influence regarding whether they consume alcohol. Future research should further explore why this difference may have occurred, especially given that a larger proportion of college students had consumed alcohol versus engaged in sex in this study. This study did not ask students whether they had received religious messages regarding sex or alcohol, and this should be evaluated in relation to perceived influence of God on behavior.

For last three months alcohol risk, there were no significant paths between God coping styles. This finding suggests that relying on one's relationship with God to cope during stressful situations is not tied to alcohol consumption. It is surprising that God coping styles were not related to less risk behavior, as positive religious coping has been found to be associated with less alcohol use among college students (Aldridge-Gerry et al., 2011; Menagi et al., 2008). This may be tied to participants' likelihood of using alcohol as an additional

way to cope during stressful situations. However, reasons for consuming alcohol were not explored in this study. Future research should determine whether God coping style affects reasons for consuming alcohol. For negative coping style, the lack of significance may be due to the fact that participants in this study rarely used them. Future research should continue to explore whether God coping style is an appropriate construct for understanding risk behavior among college students.

Lastly, it was hypothesized that there would be an indirect relationship between religious behaviors and sexual and alcohol risk behavior, mediated by relationship with God. This final hypothesis was supported for last three months alcohol risk regarding God control beliefs but not God coping styles. There was a significant path between religious behaviors and God locus of control and a significant path between God locus of control and last three months alcohol risk. While the direct path from religious behaviors to alcohol risk was not significant, the direct effects were not reduced to zero. This suggests that God control beliefs partially mediate the protective relationship between religious behaviors and recent alcohol use, meaning that the more religious behaviors participants engaged in, the stronger their beliefs that God influences their alcohol use decision-making. In turn, having stronger beliefs in God's influence over alcohol use led to less alcohol use in the last three months.

The lack of significant findings with relationship with God variables regarding the sexual risk models is contrary to other research that has found that increased religiosity is protective for college students (Davidson et al., 2008; Kirby, 2002; Lefkowitz et al., 2004; Nonnemaker et al., 2003; Rostosky et al., 2004; Sinha et al., 2007; Steinman & Zimmerman, 2004). In the case of last three months sexual risk, religious behaviors were not even related to sexual risk. This could be due to the fact that earlier studies tended to focus on college

students' level of religiosity and whether or not sex had been initiated. In this study, an aggregate risk score was used that captured whether students' had had sex, number of partners, and proportion of unprotected sex acts. Although Goggin et al. (2007a) used a similar outcome measure when evaluating God locus of control, their sample consisted of adolescents aged 12-18 of whom just over half had engaged in sexual intercourse but who likely had a narrower range of risk behavior than the college students in this study. Some of the SexGLOC items may also have been more relevant regarding whether sex had been initiated or not. The greater range of sexual experience among college students may have impacted the model and the fact that most students were sexually experienced may have resulted in decreased relevancy of this scale given that a third of the items were focused on initiation of sex and "trying" sex. It may be that this measure should be altered to include questions that focus on more than sexual frequency, such as items regarding condom use and number of partners. An alternative explanation may be that college students do not perceive God as having much influence over their sexual behavior, which would be consistent with participants' lower mean SexGLOC score in this study. Additionally, the RCOPE items in this study were not specific to sexual behavior. How students view their relationship with God during stressful situations may not have been related to their sexual behavior because sex is not considered a stressful situation or is not used as a coping mechanism.

Some demographic variables were related to the risk outcomes. Age was related to both lifetime sexual and alcohol risk, which is unsurprisingly as those college students who have been alive longer have had more time to have sex and consume alcohol. This is also consistent with research that has found that older college students tend to engage in riskier sexual behavior, specifically less frequent condom use (Rhodes et al., 2007). For recent

sexual behavior, relationship status as a significant demographic variable; college students who were dating or in committed relationships had greater risk scores than those who were currently single. This is likely due to the fact that they have a regular sex partner and the opportunity to have sex more frequently, but also reflects the fact that they are less likely to use condoms with their partner. Decreased condom use with steady sex partners has been noted previously with college students (Rhodes et al., 2007). Regarding last three months alcohol use, age, being male, and race/ethnicity were significantly related. Older students consumed more alcohol, probably reflecting the fact that students over the age of 21 have easier access to alcohol than younger students. African American and Latino students were had lower alcohol risk scores, which was consistent with previous research that found that African American college students consume alcohol at lower rates than Caucasian students (Johnston et al., 2011). There are some limitations to consider regarding the findings in this study.

Limitations

There is much debate about how to determine adequate sample size for structural equation modeling (SEM) analyses (Westland, 2010). A long-standing rule of thumb has been to have at least ten times as many subjects as parameters (Nunnally, 1967; Westland, 2010). Barrett (2007) simply recommended that no journal should publish an SEM analysis with less than 200 participants. The structural model without demographic factors for lifetime alcohol risk and last three months alcohol risk each had 34 parameters; with demographic factors, they had 37 and 43 parameters, respectively. The lifetime alcohol risk model had 403 (basic) and 402 (demographic) participants and last three months alcohol risk had 363 (basic) and 362 (demographic) participants. With the exception of the last three

months alcohol risk model with demographics, the number of participants in the alcohol risk models satisfied both of these proposed recommendations for sample size in SEM. The lifetime sexual risk model without demographics had 39 parameters and with age had 42 parameters, and for the last three months sexual risk analyses, the parameters in the model without demographics was 39 and with was 42. Sample size for the lifetime sexual risk model was 403 (basic) and 402 (demographic) and for the last three months sexual risk model was 322 (basic) and 321 (demographic). Barrett (2007) is satisfied for all sexual risk models, but Nunnally (1967) and Westland (2010) are only satisfied with the basic lifetime sexual risk model. Therefore, it is possible that the lack of significant findings with regards to the sexual behavior models may be due to inadequate sample size. Future research should endeavor to recruit a larger sample to reevaluate the relationship between relationship with God and sexual risk.

Another limitation regarding the sample was that the majority of participants were female, which resulted in an unbalanced sex ratio. However, females are overrepresented in the university population (approximately 57% of the student body identified as female), making it is unsurprising that it was more difficult to recruit male students. While there was good racial diversity in the sample that fairly approximated the diversity on-campus (although Caucasians were slightly underrepresented in this study compared to campus statistics [56.4% versus 62%] and African Americans [18.7% versus 11.4%] and Asians [10.3% versus 5.8%] were slightly overrepresented), but the small sample size did not permit race/ethnicity comparisons of greater depth. Future studies should recruit larger and more balanced samples to determine if the relationship between God coping, God locus of control, and sexual and alcohol risk are different according to college students' demographic

characteristics by running the same models separately by sex and by racial/ethnic groups to determine if there may be a moderated mediating effect.

A possible limitation regarding the outcome measures is that they relied on participants providing estimates of their lifetime and recent sexual and alcohol risk behavior. It is likely that recollection of recent behavior was fairly accurate as it involved only the past three months. However, lifetime risk behavior recollections may be more questionable. There were some participants who were more apparent regarding the fact that their responses were estimates (e.g., adding a question mark after their answer, putting a range rather than a single number [the minimum and maximum numbers were then averaged together to create a single score for these participants]). Asking participants to provide estimates of lifetime risk behavior is not uncommon (Evans et al., 2004; Goggin et al., 2007; Rogers et al., 2000) and is considered to be accurate for adolescent participants as they have a more limited potential history of behavior compared to adults. The oldest participants in this study were 24 but the majority were 18 or 19 years of age and had a limited number of years to reflect on when providing estimates, and as such it is believed that the majority of this sample's recollections were reasonably accurate.

A final limitation is that this study was cross-sectional and causation cannot be determined. Time may be a specific important element in understanding religious and risk behaviors and beliefs as they are most likely to be changing parameters for students exiting adolescence and entering adulthood during their college years. Longitudinal studies should be conducted with adolescents prior to their sexual debut and first alcohol use exploring their initial level of religious behaviors, God coping styles, and God locus of control beliefs and should track changes over time to determine how current levels of beliefs affect behavior.

Continuing to gather this information from adolescents as they make the transition from high school to college and college into full adulthood could provide crucial information on how risk behavior changes in relation to religious behaviors and beliefs during emerging adulthood.

Implications for Health Education Curriculum Planning

This study expanded on the research exploring college students' religiosity and sexual and alcohol risk behavior. It was the first to explore associations between God control beliefs and religious coping with college students' sexual and alcohol risk behavior. This study was also conducted at a public university with a diverse student population in terms of demographics, religious identification, and behavior. Mediation in the last three months alcohol risk model suggests that religious behaviors and current God control beliefs related to alcohol use can be protective for decreased alcohol use. Given that increased engagement in religious behaviors is related to stronger God control beliefs, alcohol education programs targeting college students could incorporate religious activities or take place in religious settings. Private religious higher education institutions would be able to provide this programming to all of their enrolled students. Alcohol education programs could take place during worship activities, include reading of relevant scripture and holy writings, or have students think of God and how he guides their behavior.

However, behavioral interventions meant to reduce alcohol risk could also be delivered online and early questions about college students' religious affiliation and beliefs could be used to provide tailored information built around their religious identity. Program information could be specifically developed to strengthen students' God locus of control beliefs by reminding them that God would want them to take care of their bodies and not

harm them with too much alcohol use and that God can be relied upon to help them resist peer pressure to drink. Although Relationship with God variables were not related to lifetime sexual risk behavior, religious behaviors were related to this outcome. It suggests that sexuality education programs delivered in church settings and incorporating similar religious activities as those in an alcohol risk reduction program could have an impact on students' sexual risk.

While embedding religiosity into health education programs seems easier done in a church setting, less than a third of college students in this study attended worship services once a week or more. This may be due to students' busy schedules or not having services convenient to where students live or a lack of interest in engaging in religious activities while still identifying as religious or spiritual. Almost 40% of students in this study lived on campus and having programs available on campus could help facilitate education for these students. Interested university personnel could collaborate with local religious institutions to develop health programs for college students that were on or close to campus. Alternatively, religious-based health education programs may be more effective if delivered to adolescents prior to college and prior to their initiation of alcohol use and sexual behavior. Knowing that – for alcohol use specifically – current beliefs have an impact on behavior, developing programs to strengthen religious behaviors and beliefs when adolescents are beginning to develop their sexual identity and begin experimenting with substances may help intertwine risk reduction with a stronger religious identity. Furthermore, experimental studies should evaluate whether college education programs that incorporate religious aspects are effective in reducing students' risk behavior.

APPENDIX

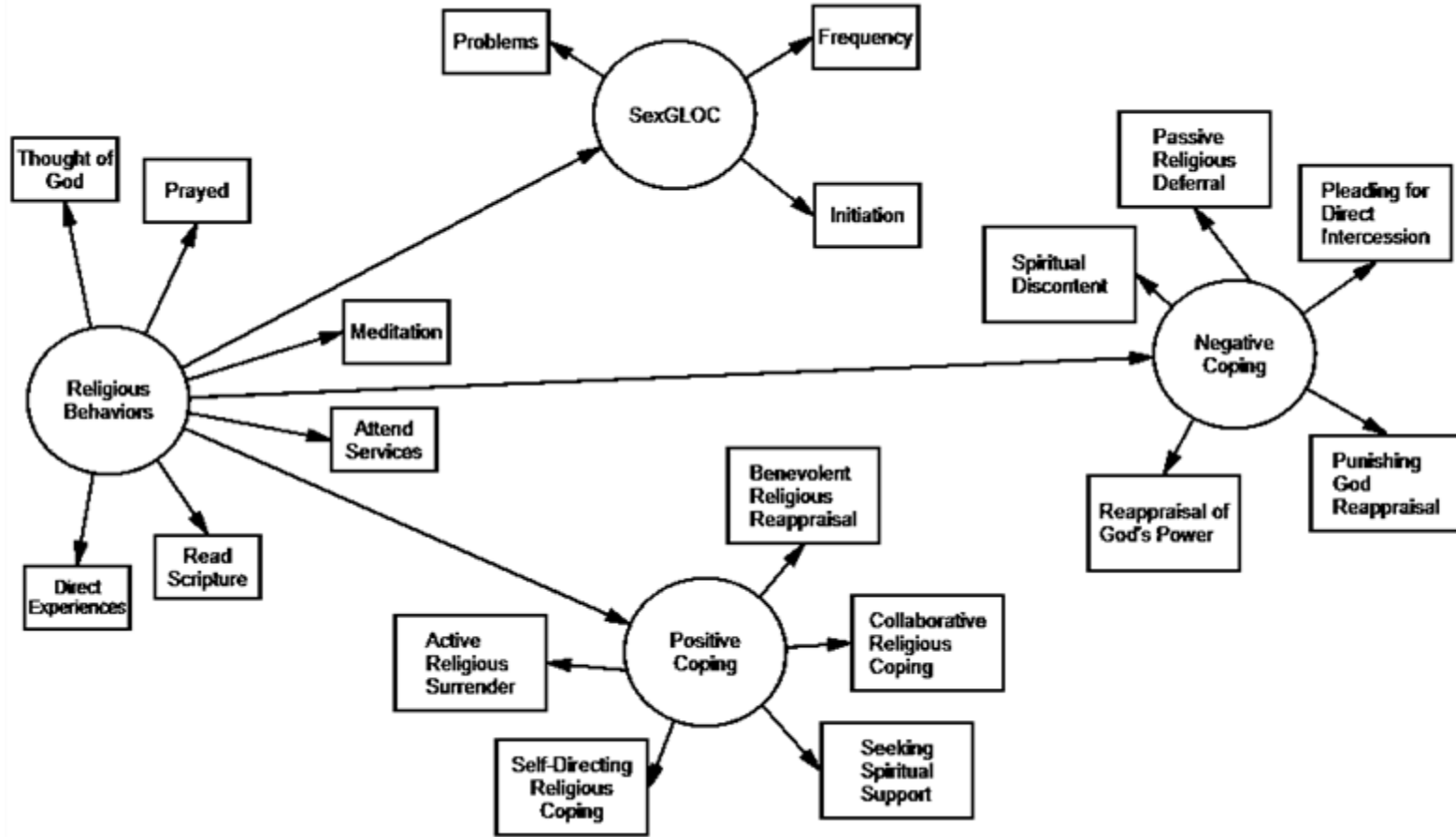


Figure 1. Preliminary Measurement Model: Sexual Risk

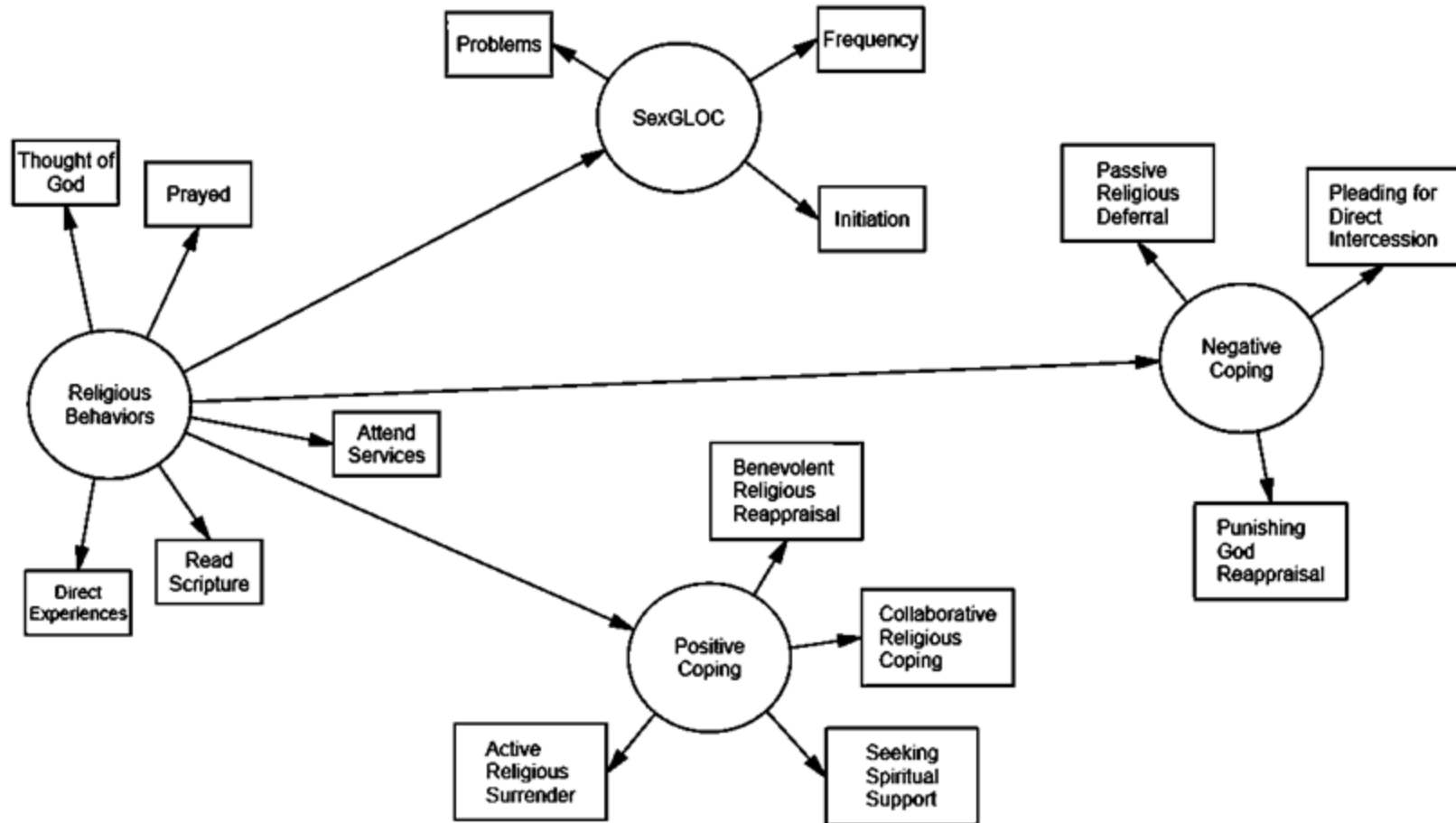


Figure 2. Final Measurement Model: Sexual Risk

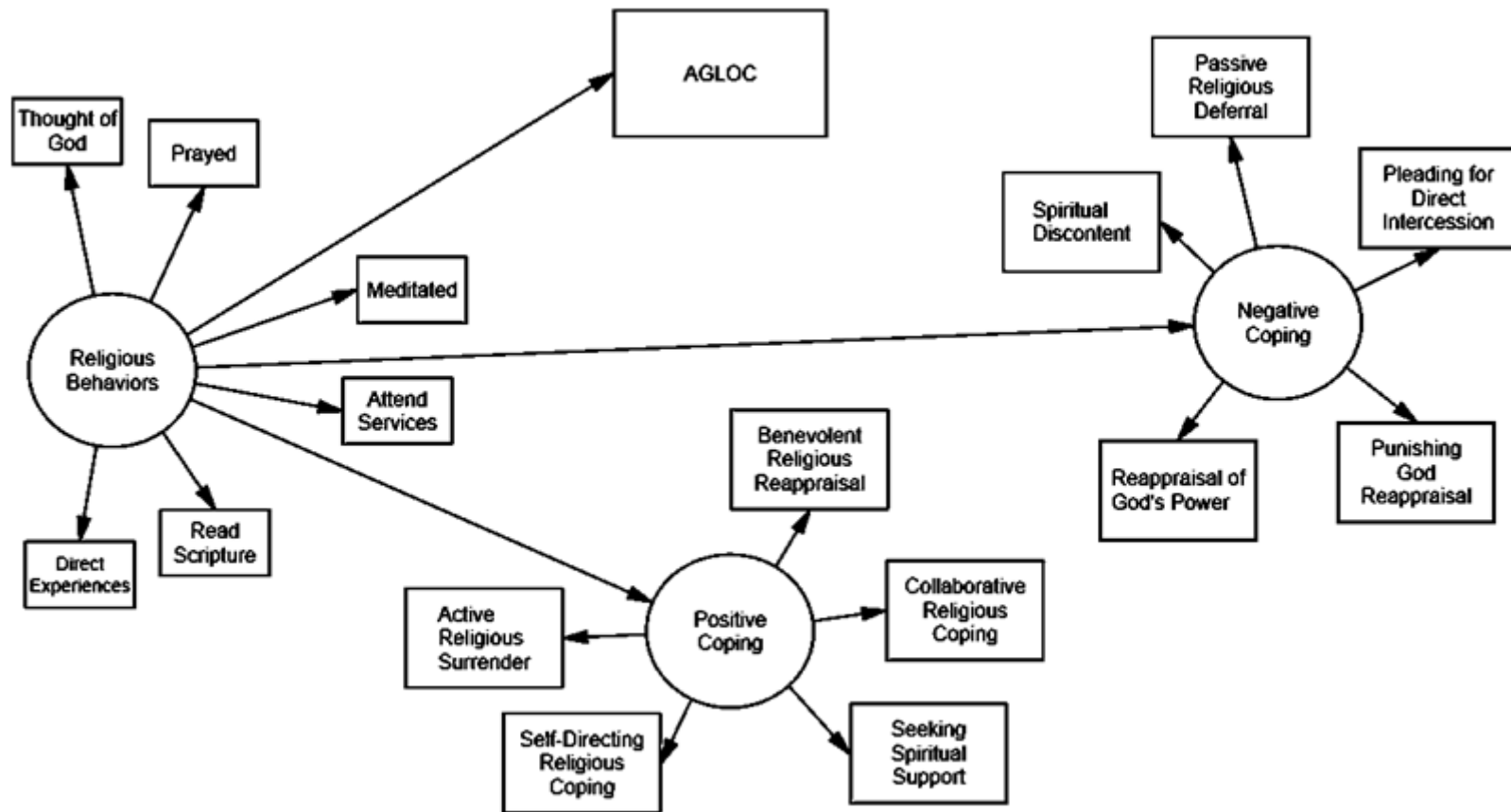


Figure 3. Preliminary Measurement Model: Alcohol Risk

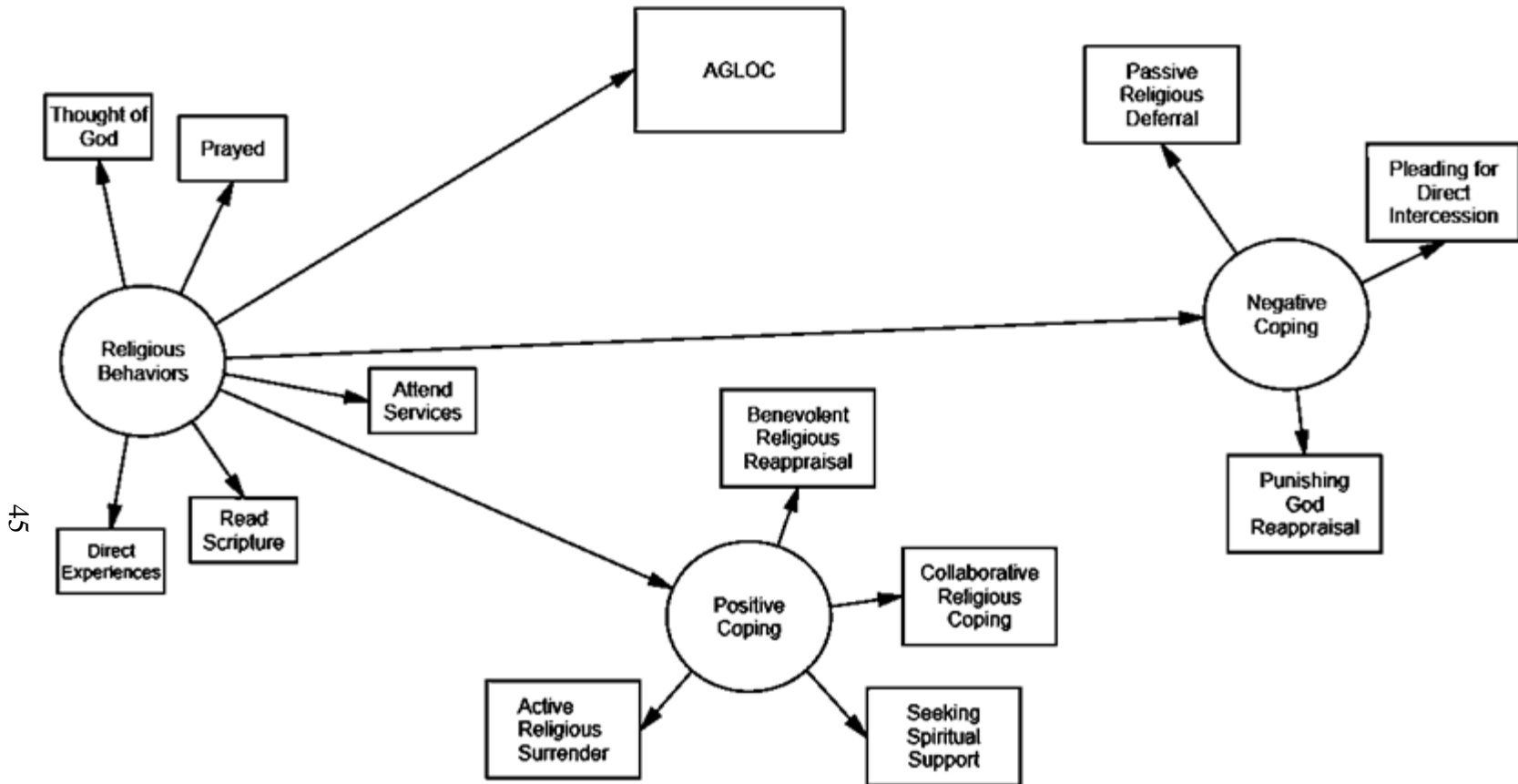


Figure 4. Final Measurement Model: Alcohol Risk

Table 1

Demographics of Participants (N = 406)

Variable	% (n)
Sex	
Male	28.1% (114)
Female	71.9% (292)
Race/Ethnicity	
White/Caucasian	56.4% (229)
Black/African American	18.7% (76)
Latino/a/Hispanic	6.4% (26)
Asian/Pacific Islander	10.3% (42)
Native American/Alaskan Native	0.5% (2)
Other	1% (4)
Multiracial	6.4% (26)
Relationship Status	
Single	47.5% (193)
Dating/Not in Committed Relationship	14.3% (58)
In a Committed Relationship/Married	37.9% (154)
Member of Fraternity/Sorority	
Yes	16.3% (66)
No	83.5% (339)
Student-athlete	
Yes	8.9% (36)

No	90.9% (369)
Current Housing Situation	
Live on-campus, in dorm	31.8% (129)
Live on-campus, in apartment	8.1% (33)
Live off-campus, in apartment/house	8.1% (33)
alone	23.6% (96)
Live off-campus, with roommates	24.9% (101)
Live off-campus, with parents/relatives	2.5% (10)
Live off-campus, with partner	0.7% (3)
Live on-campus, fraternity house	

Table 2

Religious Belief and Behaviors

Variable	% (n)
Self-Description	
Religious	46.8% (190)
Spiritual	33.5% (136)
Unsure	7.4% (30)
Agnostic	6.9% (28)
Atheist	5.4% (22)
Denomination	
Buddhist	1.7% (7)
Catholic	24.4% (99)
Christian (e.g., non-denominational, non-specified faith)	13.1% (53)
Hindu	1.5% (6)
Judaism	1.2% (5)
Muslim	4.9% (20)
Protestant (e.g., Baptist, Seventh Day Adventist, Presbyterian)	26.1% (106)
Other (e.g., Wiccan, Pantheism, Sikh, Jehovah Witness, Shamanism)	2.7% (11)
None	24.4% (99)
Thought About God	
More Than Once a Day	28.3% (115)
Almost Daily	32% (130)

Twice a Week	10.3% (42)
Once a Week	9.4% (38)
Twice a Month	6.4% (26)
Once a Month	3.4% (14)
Rarely	6.9% (28)
Never	3.2% (13)
 Prayed	
More Than Once a Day	13.8% (56)
Almost Daily	26.4% (107)
Twice a Week	11.3% (46)
Once a Week	9.4% (38)
Twice a Month	6.4% (26)
Once a Month	3.4% (14)
Rarely	14.5% (59)
Never	14.8% (60)
 Meditated	
More Than Once a Day	2.5% (10)
Almost Daily	7.1% (29)
Twice a Week	3.9% (16)
Once a Week	11.8% (48)
Twice a Month	4.2% (17)
Once a Month	7.1% (29)
Rarely	26.8% (109)

Never	36% (146)
Attended Worship Services	
More Than Once a Day	1.2% (5)
Almost Daily	1% (4)
Twice a Week	5.2% (21)
Once a Week	22.9% (93)
Twice a Month	11.1% (45)
Once a Month	9.4% (38)
Rarely	27.1% (110)
Never	21.9% (89)
Read or Studied Scriptures or Holy Writings	
More Than Once a Day	1.5% (6)
Almost Daily	9.6% (39)
Twice a Week	6.2% (25)
Once a Week	10.6% (43)
Twice a Month	7.9% (32)
Once a Month	8.4% (34)
Rarely	29.3% (119)
Never	26.6% (108)
Had Direct Experiences of God	
More Than Once a Day	37.9% (154)
Almost Daily	18% (73)
Twice a Week	3.4% (14)

Once a Week	5.4% (22)
Twice a Month	5.4% (22)
Once a Month	8.9% (36)
Rarely	18% (73)
Never	37.9% (154)

Table 3

Religious Coping Scales: Means and Standard Deviations

Variable	<i>M (SD)</i> ^a
Benevolent Religious Reappraisal	8.1 (5)
Collaborative Religious Coping	7.1 (5.1)
Active Religious Surrender	7.5 (5.6)
Self-Directing Religious Coping	6.2 (4.8)
Seeking Spiritual Support	9.6 (5.7)
Punishing God Reappraisal	3.1 (4.1)
Reappraisal of God's Powers	4.8 (4.1)
Passive Religious Deferral	2.3 (3.1)
Pleading for Direct Intercession	5.5 (4.2)
Spiritual Discontent	2.3 (3.4)

^aAll scales ranged from 0-15

Table 4

Sexual and Alcohol Behavior: Lifetime and Past Three Months

Lifetime	% (n)
Oral Sex	
Yes	74.6% (303)
No	25.4% (103)
Vaginal Sex	
Yes	70.4% (286)
No	29.3% (119)
Anal Sex	
Yes	21.4% (87)
No	78.1% (317)
Consumed Alcohol	
Yes	89.7% (364)
No	10.3% (42)
Engaged in Binge Drinking	
Yes	60.8% (247)
No	25.9% (105)

table continues

Past Three Months	% (<i>n</i>)
Oral Sex	
Yes	50.2% (204)
No	24.4% (99)
Never Engaged in Oral Sex	25.4% (103)
Vaginal Sex	
Yes	54.7% (222)
No	15.8% (64)
Never Engaged in Vaginal Sex	29.3% (119)
Anal Sex	
Yes	6.4% (26)
No	15.5% (63)
Never Engaged in Anal Sex	78.1% (317)
Consumed Alcohol	
Yes	77.3% (314)
No	12.3% (50)
Never Consumed Alcohol	10.3% (42)
Engaged in Binge Drinking	
Yes	42.9% (173)
No	24.1% (98)
Never Binge Drank	24.6% (100)

Table 5

Correlations Between Risk Behavior and Religiosity Variables

Religiosity Variable	Lifetime Sexual Risk	Past Three Months Sexual Risk	Lifetime Alcohol Risk	Past Three Months Alcohol Risk
Thought About God	-.06	-.03	-.02	-.15**
Prayed	-.02	.004	-.01	-.16**
Meditated	.04	-.08	-.04	-.05
Attended Worship Services	-.05	-.03	.03	-.14**
Read/Studied Scripture	-.04	-.05	.03	-.13*
Direct Experiences with God	-.05	.01	-.04	-.12*
SexGLOC	-.09	-.07	.000	-.15**
AGLOC	-.02	-.07	-.002	-.21***
Benevolent Religious Reappraisal	-.05	.02	.000	-.18****
Collaborative	-.04	-.03	-.02	-.11*

Religiosity Variable	Lifetime Sexual Risk	Past Three Months Sexual Risk	Lifetime Alcohol Risk	Past Three Months Alcohol Risk
Religious Coping				
Active Religious	-.08	.06	-.03	-.16**
Surrender				
Self-Directing	.07	-.04	.01	.01
Religious Coping				
Seeking	-.08	-.03	.02	-.15**
Spiritual Support				
Punishing God	-.04	-.04	.03	-.15**
Reappraisal				
Reappraisal of	.06	-.03	-.01	.09
God's Powers				
Passive	-.07	-.03	.03	-.12*
Religious Deferral				
Pleading for	-.07	-.04	.01	-.08
Direct Intercession				

Religiosity	Lifetime Sexual	Past Three	Lifetime	Past Three
Variable	Risk	Months Sexual	Alcohol Risk	Months Alcohol
		Risk		Risk
Spiritual	-.02	-.08	-.004	-.06
Discontent				

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Structural Equation Modeling: Lifetime Sexual Risk (LSR)

Parameter Estimate	Estimate (s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 1				451.46 (97)	4.65	.06	.93	.82	.10
Religious Behaviors→SEXGLOC	1.41 (.10)	.71	.001						
Religious Behaviors→Positive Coping	2.52 (.11)	.91	.001						
Religious Behaviors→Negative Coping	.83 (.09)	.64	.001						
Religious Behaviors→LSR	-47.72 (91.93)	-.09	.604						
SEXGLOC→LSR	-19.76 (20.31)	-.08	.330						
Positive Coping→LSR	3.14 (38.59)	.02	.935						
Negative Coping→LSR	-36.17 (42.04)	-.09	.390						
Positive Coping↔ Negative Coping	1.89 (.33)	.56	.001						

Parameter Estimate	Estimate (s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 2				492.20 (111)	4.43	.06	.93	.82	.09
Religious Behaviors→SEXGLOC									
Religious Behaviors→Positive Coping	1.41 (.10)	.71	.001						
Religious Behaviors→Negative Coping	.83 (.09)	.64	.001						
Religious Behaviors→LSR	-3.79 (85.81)	-.01	.965						
SEXGLOC→LSR	-6.00 (19.20)	-.02	.755						
Positive Coping→LSR	-13.88 (35.98)	-.07	.700						
Negative Coping→LSR	-47.58 (39.69)	-.12	.231						
Positive Coping↔ Negative Coping	1.89 (.33)	.56	.001						
Age→LSR	185.51 (25.98)	.33	.001						

Table 7

Structural Equation Modeling: Last Three Months Sexual Risk (L3MSR)

Parameter	Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (df)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 1					393.90 (97)	4.06	.057	.93	.81	.10
Religious Behaviors→SEXGLOC										
Religious Behaviors→Positive Coping		1.43 (.11)	.74	.001						
Religious Behaviors→Negative Coping		.84 (.10)	.67	.001						
Religious Behaviors→L3MSR		-4.00 (11.26)	-.07	.723						
SEXGLOC→L3MSR		-3.33 (2.65)	-.12	.210						
Positive Coping→L3MSR		5.27 (4.92)	.27	.284						
Negative Coping→L3MSR		-6.85 (6.01)	-.16	.255						
Positive Coping↔ Negative Coping		1.95 (.37)	.63	.001						

Parameter Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 2				405.17 (111)	3.65	.055	.93	.81	.09
Religious Behaviors→SEXGLOC	1.43 (.11)	.74	.001						
Religious Behaviors→Positive Coping	2.54 (.13)	.91	.001						
Religious Behaviors→Negative Coping	.84 (.10)	.67	.001						
Religious Behaviors→L3MSR	-2.02 (10.70)	-.04	.850						
SEXGLOC→L3MSR	-2.47 (2.56)	-.09	.334						
Positive Coping→L3MSR	3.50 (4.70)	.18	.456						
Negative Coping→L3MSR	-4.60 (5.81)	-.11	.429						
Positive Coping↔ Negative Coping	1.95 (.37)	.63	.001						
Relationship Status→L3MSR	-48.50 (10.18)	-.26	.001						

Table 8

Structural Equation Modeling: Lifetime Alcohol Risk (LAR)

Parameter Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 1				381.45 (71)	5.37	.057	.93	.81	.10
Religious Behaviors→AGLOC	4.35 (.27)	.71	.001						
Religious Behaviors→Positive Coping	2.55 (.11)	.92	.001						
Religious Behaviors→Negative Coping	.84 (.09)	.64	.001						
Religious Behaviors→LAR	-19.76 (30.83)	-.12	.522						
AGLOC→LAR	-1.97 (2.02)	-.07	.331						
Positive Coping→LAR	-8.75 (13.05)	-.14	.503						
Negative Coping→LAR	17.54 (13.47)	.13	.193						
Positive Coping↔ Negative Coping	1.76 (.32)	.55	.001						

Parameter Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 2				411.11 (83)	4.95	.057	.93	.81	.10
Religious Behaviors→AGLOC	4.34 (.27)	.71	.001						
Religious Behaviors→Positive Coping	2.54 (.11)	.92	.001						
Religious Behaviors→Negative Coping	.84 (.09)	.65	.001						
Religious Behaviors→LAR	-2.12 (28.80)	-.01	.941						
AGLOC→LAR	-1.72 (1.91)	-.06	.369						
Positive Coping→LAR	-13.81 (12.25)	-.22	.260						
Negative Coping→LAR	14.44 (12.81)	.11	.260						
Positive Coping↔ Negative Coping	1.78 (.32)	.55	.001						
Age→LAR	57.01 (8.27)	.32	.001						

Table 9

Structural Equation Modeling: Last Three Months Alcohol Risk (L3MAR)

Parameter Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 1				343.91 (71)	4.84	.058	.93	.81	.10
Religious Behaviors→AGLOC	3.89 (.26)	.70	.001						
Religious Behaviors→Positive Coping	2.48 (.11)	.92	.001						
Religious Behaviors→Negative Coping	.77 (.09)	.66	.001						
Religious Behaviors→L3MAR	-2.23 (2.37)	-.19	.345						
AGLOC→L3MAR	-.35 (.16)	-.16	.033						
Positive Coping→L3MAR	.74 (1.08)	.17	.497						
Negative Coping→L3MAR	-.54 (1.22)	-.05	.657						
Positive Coping↔ Negative Coping	1.66 (.31)	.59	.001						

Parameter Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Model 2				435.68 (110)	3.96	.057	.92	.82	.09
Religious Behaviors→AGLOC	3.89 (.26)	.71	.001						
Religious Behaviors→Positive Coping	2.49 (.11)	.92	.001						
Religious Behaviors→Negative Coping	.77 (.09)	.66	.001						
Religious Behaviors→L3MAR	-1.63 (1.98)	-.16	.410						
AGLOC→L3MAR	-.32 (.14)	-.17	.018						
Positive Coping→L3MAR	.45 (.89)	.12	.614						
Negative Coping→L3MAR	.56 (1.02)	.06	.584						
Positive Coping↔ Negative Coping	1.58 (.31)	.58	.001						
Age→L3MAR	1.32 (.54)	.12	.015						
Sex→L3MAR	4.43 (2.00)	.11	.026						
Race/Ethnicity→L3MAR	-7.76 (2.24)	-.19	.001						

Parameter Estimate	Estimate(s.e.)	Std Estimate	<i>p</i>	χ^2 (<i>df</i>)	<i>CMIN/DF</i>	<i>SRMR</i>	<i>CFI</i>	<i>AGFI</i>	<i>RMSEA</i>
Religious Behaviors \leftarrow \rightarrow Age	-.01 (.15)	-.003	.948						
Religious Behaviors \leftarrow \rightarrow Sex	-.07 (.04)	-.09	.081						
Religious Behaviors \leftarrow \rightarrow Race/Ethnicity	.26 (.04)	.34	.001						

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VITA

Erin Whitney Moore was born on December 9, 1985, in Athens, Ohio. She graduated from Cookeville High School in 2003. She matriculated her first year of post-secondary education at the University of New Orleans in New Orleans, Louisiana. In 2005, she transferred to the University of Tennessee—Knoxville in Knoxville, Tennessee, from which she graduated, *summa cum laude*, in 2007. Her degree was a Bachelor of Arts in Psychology.

After a year off, Ms. Moore began her graduate education in psychology at the University of Missouri—Kansas City. She was awarded the Master of Arts degree in Psychology in May, 2010.

After earning her Master of Arts degree, Ms. Moore served as an instructor for the University of Missouri—Kansas City Department of Psychology as she began her studies in the Interdisciplinary Ph.D. program with her coordinating unit, Psychology, and co-discipline, Curriculum and Instruction. Upon completion of her degree requirements, Ms. Moore will begin a Visiting Assistant Professor position at Stetson University in Deland, Florida and continue to pursue her research interests in human sexuality.

Ms. Moore is a member of the American Psychological Association, Association for the Psychological Sciences, American College Health Association, and American Public Health Association.