

Examining the Role of Social Cognitive Constructs in Religion's Effect on Alcohol Use

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(ABSTRACT)

Previous research has shown that individuals who are more religious use alcohol less than those who are less religious. The purpose of the current study was to investigate the relationship between various dimensions of religion and alcohol use, including an examination of the potential mediating role of social cognitive constructs in that relationship. It was hypothesized that: 1) Individuals who were more religious would drink alcohol less often, consume fewer drinks per drinking day, and experience fewer alcohol-related problems than those who were less religious. 2) Individuals who utilized more self-regulatory strategies, had higher self-efficacy, had less positive and more negative expectancies of alcohol use, and had standards of more moderate alcohol use would report less frequent alcohol use, fewer drinks per drinking day, and fewer alcohol-related problems. 3) Individuals who reported greater religiosity would utilize drinking self-regulatory strategies more frequently, have higher self-efficacy for avoiding heavy alcohol use, have less positive and more negative outcome expectancies regarding alcohol use, and have standards of more moderate alcohol use. 4) The relationships between the dimensions of religiosity and the alcohol use indices would be mediated by the social cognitive constructs.

Three hundred and thirty-four college students completed a number of self-report questionnaires assessing alcohol use, religiosity dimensions, and social cognitive

constructs. Results were consistent with, and expanded upon, previous research by demonstrating that various dimensions of religiosity were inversely related to, and also multivariate predictors of, the quantity and frequency of alcohol use and the experience of alcohol-related problems in a sample of college students. Findings further suggested that this relationship was completely mediated by several social cognitive constructs including self-efficacy, outcome expectancies, internal standards regarding alcohol use, and the use of self-regulatory strategies. Limitations of the study and suggestions for future research are discussed.

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Background and Significance

Most religious organizations discourage heavy use (and some, *any* use) of alcohol, and research evidence substantiates the existence (and effectiveness) of this position by demonstrating that individuals who are more religious use alcohol less than those who are less religious (e.g., Burkett & White, 1974, Costa, Jessor, & Turbin, 1999; Lorch & Hughes, 1985; Patock-Peckham et al, 1998; see Booth & Martin, 1998, for a review). Koenig, McCullough, and Larson's (2001) review found that, of 86 studies investigating the relationship between religion and alcohol use, 76 of them reported a negative relationship, 6 reported no relationship, 2 reported mixed results, and 2 reported a positive relationship. Furthermore, while the majority of these studies have examined the relationship between religion and quantity or frequency of alcohol use, several have also found an inverse relationship between religion and alcohol misuse, binge drinking, alcohol-related problems, or abuse and/or dependence (e.g., Bock, Cochran, & Beeghley, 1987; Costa et al., 1999; Donahue & Benson, 1995; Miller, Davies, & Greenwald, 2000).

Despite the apparently robust finding of an inverse relationship between religion and alcohol use, there are limitations to many of the studies that have found this relationship. Probably the most significant limitation is the fact that the majority of the studies reported only a bivariate relationship, which, while significant, was typically small (e.g., $r = 0.20$). A second limitation was that religion was most often measured unidimensionally, with a single item inquiring as to frequency of attendance at religious services, importance of religion, or denominational affiliation. However, most theorists (e.g., Connors, Tonigan, & Miller, 1996; Evans et al., 1996; Idler & George, 1998; Levin & Merkides, 1986) believe that religiosity is a multidimensional construct. Thus, in

using only one measure of religiosity the relationship may either be underestimated because of a failure to include the appropriate religious dimensions, or be misrepresented if the single religion item serves only as a proxy for other aspects of religion that are the actual causal factors.

Another shortcoming of these studies is that most utilized gross measures of alcohol use, such as one-item likert-scale questions asking the participants to report their frequency of use of different drugs over their lifetime, over a specified period of time, or in general, without a timeframe specified. Two items, one measuring frequency and one measuring quantity were also regularly used. These gross measures of use may not allow the degree of specification needed to fully understand the impact of religion on alcohol use. Furthermore, as noted above, only a few studies assessed for alcohol abuse or dependence. It is important to know if religion protects against the development of alcohol disorders or if it is only associated with less use. While heavy use is often associated with abuse and dependence, this is not always the case. Thus, given the lack of data on this issue, it is difficult to determine whether or not religion's influence on alcohol use is a meaningful one.

A final criticism of the studies is that the majority used self-report data, leading to questions about the truthfulness of the responses. There is little support for a relationship between socially desirable responding and intrinsically religious individuals (Donahue & Benson, 1995; Gorsuch; 1988). However, Johnson (1985) recommends that questions about substance use should be administered before questions about religion in an effort to prevent underreporting of substance use.

Direction of Future Research in the Assessment of Religion and its Role in Drinking

At the conclusion of their review of spiritual and religious factors in substance use, dependence, and recovery, Booth & Martin (1998) state:

Finally, it is fairly evident that religious and spiritual factors play an important role in substance abuse and recovery. Rather than continue this debate, it is time to conduct research on what factors and specific processes will promote abstinence and reduction of harm from substance abuse, and ultimately, apply this research-born knowledge to the clinical setting (p. 195-196).

Therefore, several steps need to be taken to advance this area of research. First, multiple dimensions of religion that are most relevant to alcohol use need to be identified (Idler & George, 1998). Previous studies have identified several dimensions of religion as being related to alcohol use. While the dimensions may have been measured differently in these studies, there is some agreement across studies with regard to certain religious constructs that have been shown to be related to alcohol use.

One of these constructs is religious commitment. This aspect of religion refers to the importance individuals place on their religion and the saliency of it in their daily lives. Studies have shown that individuals who are more committed to their religion or rate it as being more important drink less than those who are less committed (e.g., Engs & Hanson, 1985; Hadaway, Elifson, & Petersen, 1984; Perkins, 1985). A closely related construct is meaning, or sense of life purpose. Koenig et al. (2001) state that “religion provides adherents with a sense of purpose and meaning in life”, citing many studies that have found a positive relationship between involvement in religion and life purpose/meaning. While no known studies have investigated the impact of meaning on

alcohol use, theorists have suggested that there may be a relationship (e.g., Bahr, Hawks, & Wang, 1993; Gorsuch, 1995).

A second religious construct that has been shown to be related to alcohol use is religious practices or involvement (e.g., Bechtel & Swisher, 1992; Connors et al, 1996; Miller, 1998). Religious practices indicate the level of an individual's involvement in religious activities and include attendance at religious services and activities, private prayer, reading of religious texts, and watching or listening to religious programs on television or radio. Many studies have shown that individuals who attend religious services more frequently drink less (e.g., Brown & Gary, 1994; Cochran, Beeghley, & Bock, 1992; Lorch & Hughes, 1985). One study by Koenig et al. (1994) found that more frequent prayer and Bible reading was associated with fewer symptoms of alcohol abuse and dependence. Similarly, in a sample of alcohol-dependent treatment seekers, a measure containing items assessing the frequency of praying, meditating, and reading religious texts was inversely related to the number of heavy drinking days and positively related to the percent of abstinent days (Connors et al., 1996).

Religious coping strategies involve the use of both positive (e.g., "I look to God for strength, support, and guidance in crises") and negative (e.g., "I express anger at God for letting terrible things happen") strategies to deal with stress and problems (Pargament & Brant, 1998). While the influence of religious coping strategies on alcohol use has not been studied directly, the likelihood of a relationship has been suggested (e.g., Ellison & Levin, 1998; Khavari & Harmon, 1982; Koenig et al., 2001; Miller, Davies, & Greenwald, 2000). There have been findings that religious coping strategies are related to mental health beyond that of non-religious coping strategies (e.g., Pargament, Koenig, &

Perez, 2000; Pargament et al., 1998) and that alcohol use is associated with less use of coping strategies (e.g., Fromme et al., 1994; Maisto, Carey & Bradizza, 1999).

A fourth construct, religious social support, refers to the extent of help and support received from others who share one's religious beliefs. Gorsuch (1995) offered one possible explanation for there being an inverse relationship between social support and substance use: "inasmuch as social support reduces physical or mental anguish, one might hypothesize that these people would have less need for a drug to do so" (p. 77). Research has found that individuals who are more involved in religious organizations report greater social support than those who are less (or not at all) involved (see Koenig, 2001a for a review). A review by Koenig et al. (2001) led them to conclude that "many studies show that persons who participate in religious activities...have larger support networks... and greater satisfaction with support" (p. 100). Ellison and Levin (1998) indicate that many researchers believe that the demonstrated relationship between religion and overall mental health is, at least in part, a result of the role that religion plays in providing social support. Furthermore, they suggest that "social support delivered through religious channels may also differ in content from that provided through other, non-religious sources" (p. 706). Likewise, Pargament and Brant (1998) state that "measures of spiritual support have predicted adjustment above and beyond the effects of general measures of social support" (p. 125). While there is no known research to date on the effect of specifically *religious* social support on alcohol use, researchers recognize the role that this construct may play (e.g., Gorsuch, 1995; Miller, 1998).

Another religious construct, religious social embeddedness, refers to the frequency of and satisfaction derived from social interaction with others who share one's

religious beliefs. In addition to finding that people who participated in religious activities had larger support networks and greater satisfaction with support, Koenig et al.'s review (2001) also found that people who participated in religious activities had more social contacts. While no known research has directly assessed the impact of this construct on alcohol use, many theorists (e.g., Gorsuch, 1995; Burkett & White, 1974; Miller et al., 2000) suggest that social embeddedness affects alcohol use through the internalization of norms. Likewise, Miller et al. (2000) note that increased participation in religious social activities may decrease substance use by “mitigating the opportunity for substance use and providing alternative communal activities” (p. 1196).

A final construct, perception of religious organizations' standards regarding alcohol use, refers to individuals' perceptions of their religious organizations' beliefs and “rules” regarding alcohol use. While no known research has directly assessed this construct, there has been a great deal of research on the effect of denominational affiliation on alcohol use (e.g., Brown and Gary, 1994; Lorch & Hughes, 1985; Patock-Peckham et al, 1998). This research has shown that individuals who are affiliated with denominations that proscribe the use of alcohol drink less than those who are affiliated with denominations that do not. However, examination of the individual's actual perception of their religious organization's position regarding alcohol use may be a more salient predictor of alcohol use since many local religious organizations' standards may vary significantly from those of the larger religion or denomination. In other words, previous studies that have only assessed religious affiliation may have made incorrect assumptions about the participants' perception of their religious organizations' standards regarding alcohol use.

In addition to identifying and assessing these dimensions of religiosity that are the most likely to be related to alcohol use, the mechanisms by which the relationship between religiosity and alcohol use exists must be explored. With regard to the need for research investigating the mechanisms of relationships between religion and mental health in general, Levin and Chatters (1998) state:

Given the extent of existing findings, a next logical step for research on religion and mental health would be to explore possible explanations for this mostly salutary religious effect. In other words, research should begin to address the “why” question by identifying or postulating the possible characteristics, functions, expressions, or manifestations of being religious or practicing religion that are known or believed to be salient for mental health. This involves describing salutogenic mechanisms whose effects may mediate or moderate in some way the impact of religious constructs on particular mental health outcomes (p. 38).

They further propose that “... respective religious dimensions are linked to better mental health outcomes via several mediating pathways, each operationalized as one or more factors which, independent of religion, are known or believed to influence mental health through respective, established salutogenic mechanisms” (p. 40)

Specific to substance use, Miller and Bennett (1998) emphasize the need for the development of theoretical models to explain the relationship between religion and substance use and suggest that “efforts should be made to integrate these models with existing theories of substance use disorders” (p. 75).

Proposing a Mediational Framework for Religion's Effect on Drinking

Consistent with Levin and Chatters (1998) and Miller and Bennett's (1998) recommendations, one theory that could potentially help explain the relationship between religion and substance use is social cognitive theory (SCT; Bandura, 1986; 1997). SCT is a promising theoretical framework because there is research indicating that several components of SCT, specifically self-regulation, self-efficacy, and outcome expectancies, are related to alcohol use. No known research has explored a possible relationship between religion and these social cognitive variables. However, given the nature of the social cognitive constructs and the factors that contribute to their development, it is likely that they are influenced by religion. Thus, we propose that religion's effect on alcohol use is mediated by self-regulation processes, self-efficacy, and outcome expectancies.

Self-Regulation. Self-regulation is the process by which an individual plans, carries out, evaluates, and reacts to goal-directed behaviors (Bandura, 1986; 1997). There are three subfunctions of self-regulation: self-observation, judgmental processes, and self-reaction (Bandura, 1986; 1997). Self-observation primarily involves the self-monitoring of behavior. Judgmental processes involve the development of internal standards, or goals, and the evaluation of one's behavior through personal, social, normative, or collective comparison. Finally, self-reaction processes involve an individual's evaluative (positive or negative) and tangible (reward or punishment) reactions to his or her behavior. Another component of the self-reaction process is the "development of self-regulatory skills for self-directedness" (Bandura, 1986).

At least two of these self-regulation processes, the development of internal, personal standards and the use of self-regulatory strategies, may be influenced by

religion. Bandura (1986) suggests that internal standards are developed through direct experiences, through other people's reactions to one's behavior, and through observation of the standards, or norms, modeled by others. Bandura (1991) further states that "eventually [people] may come to judge themselves by the evaluative standards reflected in the social sanctions of others" (p. 253) and that "direct tuition is most effective in fostering development of standards when it is based on shared values and mutual support" (p. 254). Religion offers many opportunities for individuals to be directly and indirectly exposed to standards and norms regarding alcohol use (Koenig, 2001a). Participation in religious practices such as attendance at religious services may directly expose people to the standards/norms of their religious organization. For example, some congregations provide alcohol education courses to their youth (Lorch & Hughes, 1988), and spiritual leaders may also directly speak against alcohol use in sermons. Reading religious texts that prohibit excessive, or any, alcohol use likewise exposes individuals to religious standards regarding the consumption of alcohol. As a result of this exposure to the religion's standards and norms regarding alcohol use, individuals often internalize and adopt them as personal standards (Rohrbaugh & Jessor, 1975). Koenig et al. (2001) state that "the more one is exposed to religion, through either worship services or personal religious activities (particularly in denominations that prohibit alcohol use), the more this moral code [of abstinence from alcohol] is reinforced" (p. 175).

With regard to indirect exposure to norms, Levin & Chatters (1998) suggest that religious commitment affects mental health in general by encouraging healthy behaviors, which includes the avoidance of alcohol. In addition, individuals who are socially embedded with others who share their religious beliefs may be indirectly exposed to

standards regarding alcohol use. Idler and George (1998) state that "...religious groups...regulate the behavior of individuals...Social groups, and religious groups especially, provide structures which protect individuals from anomie, or 'normlessness,' a state in which individuals have insufficient guides for their behavior" (p. 52).

Therefore, internal standards are likely to be influenced by the standards and norms of an individual's religion and/or religious social group, and will then be used to evaluate one's own use (or non-use) of alcohol in comparison to those internal standards. Idler and George (1998) point out "many religious groups have very specific rules proscribing the use of alcohol and drugs...which could lower the rates of substance abuse and dependence among members" (p. 53)

Religion also may affect the development and use of self-regulatory skills among drinkers by offering an opportunity to observe others modeling strategies for controlled alcohol use (Gartner, Larson & Allen, 1991) and by limiting exposure to social activities that involve alcohol use, particularly heavy alcohol use, which is a popular self-regulatory strategy. In addition, some alcohol education programs offered by non-proscriptive denominations present information about ways to control alcohol use (i.e., self-regulatory skills) (Lorch & Hughes, 1988).

Self-Efficacy. Another social cognitive construct, self-efficacy, is the level of confidence in one's ability to perform a specific behavior. In this case it refers to one's confidence in his or her ability to completely avoid using alcohol or to use it in a controlled fashion (Bandura, 1986). Self-efficacy appears to be negatively related to drinking frequency, such that the higher one's efficacy, the less frequently he or she drinks (Baldwin, Oei, & Young, 1993; Evans & Dunn, 1995). Self-efficacy has also been

shown to predict alcohol use at later follow-up points, with higher self-efficacy at intake predicting lower levels of alcohol use at follow-up among individuals who report using alcohol at the follow-up (Solomon & Annis, 1990). Similarly, individuals who abstain from alcohol after participating in a treatment program report higher self-efficacy than those who relapse (Burling et al., 1989), and those who with a longer period of sobriety report higher self-efficacy than those with a shorter period of sobriety (Miller et al., 1989).

The various religious dimensions may affect self-efficacy in several ways (George, Ellison, & Larson, 2002). Several theorists (e.g., Bristow-Braitman, 1995; Koenig et al., 2001) suggest that religion, particularly the experience of a relationship with something or someone beyond oneself, can be empowering. One example is that individuals who find meaning from their religion often feel more confident and efficacious. Koenig et al (2001) state that “prayer to an all-powerful and sympathetic God gives religious persons a tool that can be used to change their situation or acquire the strength to endure it” (p. 101).

Another way in which religion may influence self-efficacy is that individuals who use religious coping strategies to deal with stress, or receive support from members of their congregation in dealing with stress may have higher self-efficacy in their ability to avoid using alcohol for that purpose. Bristow-Braitman (1995) states, “Seeing oneself as having the ability and skills to cope without chemicals is... seeing their relationship with something beyond themselves as the source of this ability” (p.415).

Finally, social embeddedness with members of one's religious organization may also serve to increase self-efficacy via modeling of either abstinence or moderate drinking.

Outcome Expectancies. A third social cognitive construct, outcome expectancies, are the expectations one has regarding the consequences of a given behavior (Bandura, 1986). In the context of alcohol use, outcome expectancies can be defined as the effects that an individual anticipates from using alcohol. Leigh (1989) suggests that expectancies are "risk factors that affect initiation and maintenance of drinking behavior...the assumption is that expectations about the consequences of drinking influence people to drink or not to drink" (p. 432). Studies supporting this position have found that individuals with positive outcome expectancies consume higher quantities of alcohol, drink more frequently, and experience more alcohol-related problems than those with negative expectancies (e.g., Evans & Dunn, 1995; Leigh & Stacy, 1993). Baldwin, Oei, and Young (1993) state that:

Alcohol expectancies both positive and negative are weighed in order to determine whether or not alcohol consumption is a behavioral response which will help the individual achieve the desired goal. Strong expectations of goal fulfillment (reinforcement) through alcohol consumption are likely to result in a decision to drink, while expectations that the goal will not be fulfilled through alcohol consumption are likely to result in the decision not to drink (p. 512-513).

Outcome expectancies regarding alcohol use could be affected by the proposed religious dimensions in many ways. Religious individuals may hold negative alcohol outcome expectancies as a result of exposure to religious standards and social norms

regarding drinking, as well as of their perception of their religious organization's views regarding alcohol use. Carey and Johnson (1994) suggest that norms regarding alcohol use likely influence attitudes toward alcohol. Koenig (2001b) notes that "religious teachings discourage most behaviors that harm the body or control the mind..." (p. 210). Likewise, Idler and George (1998) state that "most religions have beliefs about the dangers of contamination and the maintenance of the purity of the mind, body, and soul" (p. 53). Such standards likely influence the development of negative alcohol expectancies in religious individuals. For example, many religious individuals believe that the body is God's temple and hold negative expectancies regarding alcohol's "contamination" of that temple (Perkins, 1985). Moreover, Shafranskie (1996) states that "transgressions against the holy...carry with them heavy spiritual penalties..." (p. 219), which suggests that religious individuals may not only hold negative expectancies regarding alcohol's effect on the body but may also have an expectation of being punished should one transgress the standard of abstinence (or moderation). Booth and Martin (1998) review some other common negative alcohol outcome expectancies held by religious individuals, including beliefs that alcohol smells/tastes bad and that it is harmful to one's health. Other negative expectancies include anticipated feelings of guilt and shame, and fear of social disapproval (Ellison & Levin, 1998). Adams and McNeil (1991), arguing the need to study negative, as well as positive expectancies, suggest that "negative expectancies are important individual difference factors or are significant in certain populations" (p. 12). It is likely that religious individuals are one population in which negative expectancies would play a significant role in drinking behavior.

Individuals may not only hold more negative outcome expectancies but may also hold fewer positive expectancies. For example, individuals who enjoy socializing with others who share their religious beliefs (i.e., social embeddedness) in activities that involve little or no alcohol may be less likely to expect that activities involving heavy alcohol use are enjoyable. Fromme, Kivlahan, & Marlatt (1986) suggest that “an expanded view of alcohol expectancies would include the value placed on certain effects, the availability of alternative means for obtaining those effects, and the presence of situational constraints” (p 250). Outcome expectancies might also be influenced by religious commitment/meaning in that individuals who are more committed to their religion and experience greater life meaning as a function of their religion have less desire to find meaning in alcohol use and feel that alcohol use is less attractive (Bahr et al., 1993; Gorsuch, 1995; Koenig, 2001a). Miller et al. (2000) suggest that if the search for meaning is “unaddressed by religion, the heightened desire for transcendence... may pose a particular risk of substance use” (p. 1196). Finally, individuals who utilize religious coping strategies or who enjoy greater religious social support may find these resources more effective in coping with stress than alcohol, thereby eliminating a common positive expectancy of alcohol as an effective coping strategy (Koenig, 2001b).

In summary, social cognitive theory offers a promising framework within which to understand the mechanisms by which religion exerts its influence on alcohol use. Therefore, the purpose of the current study was to investigate the relationship between the various dimensions of religion and alcohol use, including an examination of the potential mediating role of social cognitive constructs in that relationship. Three hundred and thirty-four college students completed a number of self-report questionnaires

assessing their alcohol use, the religiosity dimensions, and the social cognitive constructs discussed above. A college student population was chosen because of the well-established widespread use of alcohol in this population. Not only do the majority of students drink (Prendergast, 1994), but many of them are considered heavy drinkers (Engs et al., 1996; Wechsler et al., 1994, 1998). These excessive drinking episodes frequently result in negative consequences such as driving while intoxicated, having legal problems, having academic problems, experiencing health problems, and engaging in unsafe sex (Engs et al., 1996; Prendergast, 1994; Wechsler et al., 1994). Given the prevalence and severity of drinking by college students, there is a need to identify factors, such as religiosity, that may protect against the development of these problems in this population. Furthermore, previous research examining the relationship between religion and alcohol use has focused on college students as well as community samples, and the findings of an inverse relationship between religion and alcohol use remains consistent across populations (see Booth & Martin, 1998 and Koenig et al., 2001 for reviews).

Based on previous research and on theory, the following hypotheses were proposed for the current study:

1) Individuals who were more religious would drink alcohol less often, consume fewer drinks per drinking day, and experience fewer alcohol-related problems than those who were less religious.

2) Individuals who utilized more self-regulatory strategies, had higher self-efficacy, had less positive and more negative expectancies of alcohol use, and had standards of more moderate alcohol use would report less frequent alcohol use, fewer drinks per drinking day, and fewer alcohol-related problems.

3) Individuals who reported greater religiosity would utilize drinking self-regulatory strategies more frequently, have higher self-efficacy for avoiding heavy alcohol use, have less positive and more negative outcome expectancies regarding alcohol use, and have standards of more moderate alcohol use.

4) The relationships between the dimensions of religiosity and the alcohol use indices would be mediated by the social cognitive constructs.

Research Design and Methods

Pilot Study

A pilot study involving one hundred thirty-five participants was conducted to develop and/or further validate measures of the religious dimensions that, based on theory, were the most likely to influence alcohol use. Those dimensions included religious coping, religious practices, religious meaning, religious social support, religious social embeddedness, and perceptions of religious organizations' standards regarding alcohol use. In addition, a measure of internal standards regarding drinking was developed, and a pre-existing measure of drinking self-regulation strategies (Drinking Self-Regulation Questionnaire) was further developed so as to be applicable to the population being studied. Principal components analyses were run on each of the measures. As a general rule, items with factor loadings greater than 0.40 on only one factor were retained. Those with loadings less than 0.40 or with loadings of 0.30 or greater on a second factor were dropped. Next, internal consistency analyses were conducted and further guided scale membership. Items that reduce the alpha coefficient of a scale were dropped. The questionnaires were modified, when needed, based on the results of the factor analyses and internal consistency analyses, and the resulting

questionnaires were used in the main study (see detailed descriptions of the measures below).

In order to explore the possibility of order effects, the various questionnaires were distributed to the participants in one of three orders: 1) alcohol indices, social cognitive constructs, religious dimensions; 2) religious dimensions, alcohol indices, and social cognitive constructs; and 3) social cognitive constructs, alcohol indices, religious dimensions. Comparisons of means on all primary drinking, social cognitive, and religious variables generally did not show significant differences between orders. While correlational relationships between the drinking and religious variables appeared to differ depending upon order, they did not appear to be dramatically different.

Main Study

Participants

Three hundred and twenty-four students were recruited from the psychology participant pool at Virginia Polytechnic Institute and State University. As shown in column 2 of Table 1, participants were nearly evenly split between females (57%) and males (43%). Most were Caucasian (77.2%). The average age of the sample was 19 years, and 42% were freshmen, 29% were sophomores, 17% were juniors, and 12% were seniors. Approximately 15% of the sample identified themselves as atheist or agnostic, while 28% identified themselves as Catholic, 15% as Baptist, 11% as Methodist, and 5% as Presbyterian. The remainder of the sample identified themselves with various other religions that were listed on the religious preference questionnaire, but no other single religion or denomination captured more than 5% of the sample. Of the 277 individuals who identified with a religion, 83 (26%) of them indicated that they were actively

involved in a religious organization or fellowship. With regard to alcohol consumption, 19% of the sample indicated that they had abstained from alcohol in the past 30 days. Among those who did drink in the past 30 days, the average number of drinking days was 5.96, and the average number of drinks consumed per drinking day was 4.05. Sample means and standard deviations for each of the social cognitive and religion measures are also included in Table 1.

Assessment Procedures

In order to reduce demand characteristics, the current study was entitled “Values, Beliefs and Health Behaviors”. Participants signed up for the study via the Experimentrix website maintained by the psychology department and then attended an in-person data collection session which included no more than 10 participants. At the beginning of the session, participants signed a consent form (Appendix A) that described the study and their responsibilities. The participants’ confidentiality was assured, and they were informed that they could withdraw from the project at any time. Participants then completed a number of self-report questionnaires assessing their alcohol use, alcohol-related beliefs (i.e., social cognitive constructs), and religiosity (across several dimensions). In addition, participants completed three other questionnaires assessing values, general social support, and health behaviors in an effort to reduce demand characteristics. Prior to the sessions, the questionnaires were assembled into three separate packets: 1) health behaviors and alcohol indices; 2) social cognitive constructs; and 3) values and religious dimensions. These packets were then distributed, one at a time, to the participants in one of two orders to again explore the possibility of order effects: 1) religious dimensions, alcohol indices, and social cognitive constructs; and 2)

alcohol indices, religious dimensions, and social cognitive constructs. In both orders the social cognitive variables were assessed last and the effect of answering religious questions on the reporting of alcohol consumption could be tested more directly by comparing results for the two orders. The demographic information sheet was always given with the first set of questionnaires, regardless of order. The participants received one point extra credit in their psychology course for their participation.

Measures

Demographic information (Appendix B). This measure was identical to that administered in the pilot study. Participants provided various demographic information, including age, gender, ethnicity, and student status.

Alcohol use (TLFB; Appendix C). The Timeline Followback (TLFB; Sobell & Sobell, 1996) was used to obtain detailed information about the participants' quantity and frequency of alcohol use. The TLFB required participants to retrospectively report the number of drinks they consumed each day for the previous 30 days. Participants were given a calendar that had a box for each of the last 30 days, and they were asked to write in each box how many alcoholic beverages they consumed on each day. One standard drink was defined as one 12-ounce beer, one cocktail containing 1.5 ounces of 86 proof liquor, or one 4-ounce drink of wine. Participants were encouraged to consult their personal date-books to record memory prompts such as birthdays, parties, and holidays on the TLFB calendar in an effort to aid recall. The specific alcohol indices that were calculated for the 30 days included: 1) total number of drinking days in the past 30 and 2) average number of drinks per drinking day. Several studies have found the TLFB to have good test-retest reliability, with most demonstrating r values $> .85$ (see Sobell & Sobell,

1996 for a review). One study using the timeline followback method with college students (Sobell et al. 1986) found test-retest reliabilities of r values $\geq .92$ for several drinking variables over a mean of 22.96 days. The TLFB also demonstrates good validity when compared with verifiable events, collateral informants' reports, survey studies, alcohol related consequences, and biochemical tests (see Sobell & Sobell, 1996 for a review).

Alcohol-Related Problems (RAPI; Appendix D). The Rutgers Alcohol Problem Index (White & Labouvie, 1989) was used to assess negative consequences associated with alcohol use. The participants were asked to indicate on a scale from 0 (never) to 4 (more than 10 times) how often they had experienced 25 negative consequences (e.g., “missed a day of school or work”) as a result of alcohol use in the past six months. This measure was found to have good internal consistency ($\alpha \geq 0.88$) and convergent validity with use intensity (White & Labouvie, 1989). In the current study, $\alpha = 0.94$. An average score was computed for the entire measure.

Internal Standards Regarding Alcohol Use (IAS; Appendix E). This measure assessed participants' standards and goals regarding alcohol use, an aspect of the self-regulation process. The measure was modified for the current study based on the results from the pilot study. Five items were retained from the pilot study that asked participants to indicate the extent to which they agreed or disagreed with the statements about alcohol use. Examples of items include “I have a goal of complete abstinence from alcohol” and “It is acceptable for me to get drunk”. Results from the current study suggested that this questionnaire consisted of one factor, with an alpha coefficient of 0.87. An average score

was calculated for items 1-5 (items 1 and 3 were reverse scored), with higher scores indicating more liberal standards of alcohol use.

Drinking Self-Regulation Strategies (DSRQ; Appendix F). The Drinking Self-Regulation Questionnaire assessed participants' use of specific strategies to avoid drinking altogether or to avoid drinking heavily. The participants were asked to indicate how often in the past 30 days they used a particular strategy on a continuum from 0 ("never") to 4 ("often"). The original measure was modified for the current study based on data from the pilot study and a previous study. The modified version used in the current study consisted of 38 items and 3 scales: cognitive (10 items), behavioral (11 items), and environmental (17 items). The data from the current study was combined with the aforementioned data sets and was again subjected to a principle components factor analysis and internal consistency analyses. The scree plot again suggested 3 factors; however, 1 of the behavioral and 2 of the cognitive items loaded at 0.30 or higher on 2 scales, so they were dropped, resulting in a 35-item scale. The scales were found to evidence good internal consistency, with alpha coefficients ranging from 0.81-0.91. An average score was calculated for each of the scales.

Self-Efficacy (SCQ; Appendix G). The participant's self-efficacy regarding his or her ability to resist the urge to drink heavily in a variety of situations was assessed using a modification of the Situational Confidence Questionnaire (Soloman and Annis, 1990). The measure was modified so as to be more relevant to college student drinking situations (Greaves and Stephens, 1992), resulting in 36 items. The measure requires the participant to imagine himself/herself in 36 situations and then rate on a scale from 0 ("not at all confident") to 100 ("very confident") how confident he or she is that he or she

would be able to resist the urge to drink heavily in that situation. For example, responders were asked to indicate how confident they were in their ability to resist the urge to drink heavily “if I were out with friends and they stopped by a bar for a drink.” This version has been found to have good reliability ($\alpha > 0.90$) and validity (Greaves and Stephens, 1992). In the current study, a factor analysis replicated a 1 factor structure, and internal consistency analyses produced an alpha of 0.98. An average confidence score was calculated for the scale.

Outcome Expectancies (AOES; Appendix H). The Alcohol Outcome Expectancies Scale (Leigh & Stacey, 1993) was used to assess participants’ expected outcomes of alcohol use. This measure asked respondents to indicate how likely, on a scale from 1 to 6, each of 34 outcomes was to occur when they drank alcohol. For example, participants’ were asked how likely it was that they would “feel more social” or “get into fights” when they drank. Leigh & Stacey (1993) found that the questionnaire consisted of two scales, positive and negative expectancies, with internal consistencies of 0.91 and 0.85, respectively. These two factors were replicated in the current study, and results from internal consistency analyses indicated alphas of 0.92 and 0.89 for the positive and negative scales respectively. Average expectancy scores were computed for the positive and negative scales separately.

Religious Preference (Appendix I). Participants were first asked if they identified with any religion or religious belief system. If they answered yes, they were asked to identify their religious preference from a list of different religions and denominations. This item was slightly modified from the Religious Preference subscale developed by the Fetzer Institute and National Institute of Aging Working Group (1999). If a participant

indicated that they did identify with a religion, they were also asked if they were currently actively involved in a religious organization or fellowship. These items allowed the sample to be organized into 3 groups for further analyses: 1) does not identify with a religion (atheist/agnostic); 2) identifies with a religion but is not actively involved; and 3) identifies with a religion and is actively involved.

Religious Practices (RPQ; Appendix J). This measure was identical to that used in the pilot study and assessed participants' frequency of engaging in 5 religious behaviors (attended religious services, took part in other activities at a place of worship, prayed privately, watched or listened to religious programs, and read religious literature). In the current study, a factor analysis again suggested one factor, and an internal consistency analysis produced an alpha coefficient of 0.83. An average religious practices z-score was computed for the measure (z-scores were used because responses to the various items were on different scales).

Religious Commitment/Meaning (RMQ; Appendix K). Participants' sense of life purpose and meaning as a function of their religion was assessed with this measure, as well as their strength of commitment to and salience of their religion. Based on the results of the pilot study, this questionnaire was reduced from 35 to 25 items. Participants rated on a scale from 1 (strongly disagree) to 5 (strongly agree) the extent to which they agreed with statements about the role that religion and spirituality play in their lives. Examples of the items include "Without a sense of spirituality, my daily life would be meaningless", "My spiritual beliefs give my life a sense of significance and purpose", and "I try hard to carry my religion over into all my other dealings in life". In the current study, factor and internal consistency analyses revealed a one-factor structure with an

alpha coefficient of 0.98. An average religious meaning score was calculated for the entire measure.

Religious Coping Strategies (BRCOPE; Appendix L). The modified version of the Brief RCOPE (Pargament et al., 1998) from the pilot study was also used in the current study. Participants' use of religious coping strategies to deal with major problems in their lives was assessed by having participants indicate on a four-point scale the extent to which they used each of 14 coping strategies to deal with problems. The two-factor structure (positive and negative coping strategies) was replicated in the current study, with alpha coefficients of 0.95 and 0.83, respectively. Examples of items from the positive coping scale included "Sought God's love and care" and "Tried to see how God might be trying to strengthen me in this situation", while examples of items from the negative coping scale included "Wondered what I did for God to punish me" and "Wondered whether God had abandoned me". Average scores were computed for each of the subscales.

Religious Social Support (RSSQ; Appendix M). This measure was reduced from a 12- to a 9-item measure based on the results from the pilot study and assessed the extent of social support received from people who shared the participants' religious beliefs. In the pilot study the questionnaire asked about support from people in the participant's religious fellowship, but in the main study this was changed to people who shared the participant's religious beliefs so that the items would be applicable to a larger number of participants. Participants were asked to indicate on a 4-point scale how much help and support they received from people who shared their religious beliefs. Factor analyses from the current study again suggested 2 factors, positive and negative support, with

alpha coefficients of 0.94 and 0.78, respectively. Average scores were computed for each of the subscales.

Religious Social Embeddedness (RSEQ; Appendix N). This measure was identical to that used in the pilot study and assessed satisfaction from and frequency of interaction with others who shared the participants' religious beliefs. Example items included "I enjoy spending time with others who share my religious beliefs" and "In the past month, how often did you socialize with people who share your religious beliefs, outside of church activities". Factor analyses and internal consistency analyses in the current study suggested a one-factor structure with an alpha coefficient of 0.57. An average z-score was calculated for the entire measure (a z-score was used because responses to the various items were on different scales).

Religious Organization's Standards Regarding Alcohol Use (ROPRA; Appendix O). This measure was reduced from 10 to 7 items based on results from the pilot study and assessed participants' perceptions of their religious organizations' standards regarding alcohol use. Participants indicated the extent to which each statement was "not at all true" to "totally true" of their religious organization's standards regarding alcohol use. Items included statements such as "Any alcohol use is sinful", "Alcohol use in moderation is acceptable", and "Occasionally getting drunk is acceptable". Results from the current study suggested that the measure is composed of one factor with an alpha coefficient of 0.81. An average score was computed for the measure, with higher scores reflecting more conservative views toward alcohol use (i.e., abstinence or moderation).

Results

Handling of Missing/Not Applicable Data

Some of the items on the various scales were not applicable to some participants. For example, participants who did not identify with a religion were unable to complete the Religious Social Support Questionnaire, the Religious Social Embeddedness Questionnaire, and the Religious Organization's Perceptions Regarding Alcohol Use Questionnaire. Therefore, any analyses involving these measures were limited to those participants who indicated that they identified with a religion. Likewise, participants who did not drink were unable to answer many of the questions on the Drinking Self Regulation Questionnaire, so any analyses involving these measures were limited to those participants who reported drinking in the past 30 days.

Order Effect

As noted in the assessment procedures section, the measures were administered in two orders in an effort to detect a possible order effect. The rationale for including two orders was based on the possibility that asking participants about their religious beliefs and behaviors before asking about alcohol use may influence their reporting of alcohol use so as to make it more consistent with their religious beliefs. Therefore, in Order 1 the religious measures were administered first, followed by the alcohol measures and then the social cognitive measures. In Order 2, the alcohol measures were administered first, followed by the religion measures and then the social cognitive measures. As in the pilot study, correlational relationships between the drinking and religious variables appeared to differ somewhat depending upon order, but the differences did not appear to be dramatic. To further test for potential differences between the orders with regard to the groups of

drinking indices, social cognitive variables, and religious variables, multivariate analyses of covariance (MANCOVAs) were conducted. Sex was included as a covariate in these analyses due to its known relationship with both alcohol use and religion. No significant multivariate effects of order were found and order was not considered further in the analyses.

Preliminary Analyses

Before testing the hypotheses, two more basic issues regarding the assessment and measurement of religiosity were examined. First, we checked to see whether the single item measures of religious identity and active involvement from the Religious Preference questionnaire represented a continuum of religiousness for use in later analyses. First, MANOVAs were performed to determine if there were differences between the 3 religious involvement groups (does not identify with a religion; identifies with a religion but not actively involved; identifies with a religion and is actively involved) with regard to the group of related religious indices. Due to the fact that some of the religious measures, specifically the ROPRA, RSSQ, and RSEQ, were not applicable to individuals who did not identify with a religion, two separate analyses were run. The first MANOVA compared the three religious groups on the religious measures that were applicable to all participants. Results revealed a significant multivariate effect, $F(8, 626) = 53.48, p < 0.001$. Significant univariate effects were found on the RPQ (religious practices; $F(2, 316) = 189.51, p < 0.001$), RMQ (religious meaning; $F(2, 316) = 160.22, p < 0.001$), and the positive scale of the Brief RCOPE ($F(2, 316) = 125.66, p < 0.001$). Post hoc tests showed significant differences between all three groups on most measures, with those who were actively involved in a religion having the highest means (i.e., greater

religiosity), followed by those who identified with a religion but were not actively involved; those who did not identify with a religion had the lowest means. On the negative scale of the Brief RCOPE, those who did not identify with a religion differed significantly from those who did identify with a religion but were not actively involved ($F(2, 316) = 4.16, p < 0.05$); those who identified with a religion and were actively involved did not differ from the other two groups. Table 2 presents the means on each of these measures for the 3 religious involvement groups.

The second MANOVA compared the two groups who identified with a religion, one consisting of those who were actively involved and one of those who were not, on the RSSQ, RSEQ, and ROPRA. Results again revealed a significant multivariate effect, $F(4, 253) = 27.15, p < 0.001$. Those who identified with a religion and were actively involved scored significantly higher (i.e., greater religiosity) on the RSEQ (religious social embeddedness; $F(1, 256) = 96.30, p < 0.001$), ROPRA (religious organizations' perceptions regarding alcohol use; $F(1, 256) = 8.80, p < 0.01$), and the positive scale of the RSSQ (religious social support; $F(1, 256) = 39.33, p < 0.001$). Table 3 presents the means on each of these measures for the 2 religious involvement groups. The results of these analyses supported using the grouping of participants based on self-reported identification and active involvement in religious groups as another way of testing hypotheses about general relationships between religiosity and drinking.

Second, in order to determine if the proposed religious dimensions actually represented distinct constructs, a principal components analysis was performed on the scale averages of each of the religiosity measures. The scree plot suggested two factors accounting for 59.4% of the variance. One factor included religious practices (RPQ),

religious commitment/meaning (RMQ), positive religious coping strategies (from the Brief RCOPE), positive religious social support (from the RSSQ), religious social embeddedness (RSEQ), and religious organization's perceptions regarding alcohol use (ROPRA). The second factor was composed of negative religious coping strategies (from the Brief RCOPE) and negative religious social support (from the RSSQ). Factor loadings are presented in Table 4.

In addition, zero-order correlations were computed among each of the religiosity scales. In an effort to correct for potential Type I errors, alpha was set at $p < 0.01$. As can be seen in Table 5, most of the religiosity dimensions were related to one another, with the magnitudes of the correlations ranging from moderate to high. The RPQ, RMQ, and the positive scale of the Brief RCOPE showed the strongest relationships with one another, while the negative scales of the RSSQ and the Brief RCOPE failed to correlate with any of the religious dimensions besides one another.

Hypothesis 1

A series of analyses were performed to test hypothesis 1, which predicted that individuals who were more religious would drink less often, consume a lower quantity of alcohol, and experience fewer alcohol-related problems. First, a MANOVA was conducted to determine if there were differences between the three religious involvement groups in regard to the drinking indices. Results indicated a significant multivariate effect, $F(6, 634) = 5.05, p < 0.001$. Significant univariate effects were found for average number of drinks per drinking day, $F(2, 319) = 13.77, p < 0.001$; total number of days of alcohol use, $F(2, 319) = 7.35, p < 0.01$; and average RAPI score, $F(2, 319) = 4.97, p < 0.01$. Post-hoc tests revealed that individuals who identified with and were actively

involved in a religion scored significantly lower on all three drinking indices than those who did not identify with a religion and those who identified with but were not actively involved in a religion. There were no differences between those who did not identify with a religion and those who identified with but were not actively involved in a religion.

Table 6 presents the means for each of these drinking indices by the 3 religious involvement groups. The η^2 values are also presented for each of the drinking indices.

In addition, zero-order correlations were computed between the religiosity subscales and the drinking variables. Sample sizes for the correlations varied because some of the measures were not applicable to those who did not identify with a religion. Results are shown in Table 7. In an effort to correct for potential Type I errors, alpha was set at $p < 0.01$. With the exception of the negative scale of the Brief RCOPE and both scales of the RSSQ, the religious measures were significantly related to the alcohol indices in the expected direction. The magnitudes of the relationships were generally low (ranging from -.15 to -.31), with religious practices (RPQ), religious organization's perceptions regarding alcohol use (ROPRA), and religious commitment/meaning (RMQ) showing stronger relationships than positive religious coping (from the Brief RCOPE) and religious social embeddedness (RSEQ). Comparing the squares of these correlations to the η^2 values in Table 6 allows a general comparison of the ability of the religious involvement categories versus the individual dimensions of religiosity to predict the alcohol indices in terms of percentages of variance explained. The values appear to be roughly comparable and of a small magnitude.

Finally, multivariate regression models predicting the alcohol indices from the set of religiosity subscales were tested. Analyses were limited to those individuals who

identified with a religious organization, and any missing values on specific measures were replaced with the variable mean. Two separate models were tested, one including both drinkers and non-drinkers and the other including drinkers only. Among drinkers and non-drinkers, results showed that, as a whole, the religious indices explained a statistically significant amount of variance in all three drinking indices, with the amount of variance explained ranging from 4% to 13%. However, only two of the religious dimensions, religious organization's perceptions regarding alcohol use (ROPRA) and religious practices (RPQ), contributed unique variance to the drinking indices. Table 8 presents the beta weights for each of the religiosity dimensions and the R^2 for the models. Among drinkers only, results revealed that the religious indices explained a statistically significant amount of variance only in the total number of drinking days ($R^2 = 0.05$, $p < .05$) but not in the average number of drinks per drinking occasion or the RAPI. Again the ROPRA and the RPQ were the only two religious dimensions that contributed unique variance to the model. Table 9 presents the beta weights for each of the religiosity dimensions and the R^2 for the models.

Hypothesis 2

Hypothesis 2 predicted that individuals who used self-regulatory strategies more often, had higher self-efficacy, had less positive and more negative expectancies of alcohol use, and had more moderate standards of alcohol use would report less frequent alcohol use, fewer drinks per drinking day, and fewer alcohol-related problems. This hypothesis was tested by computing zero-order correlations between the social cognitive scales and the drinking indices. Sample sizes for the correlations between the DSRQ and the alcohol indices were smaller due to the fact that many of the DSRQ items were not

applicable to individuals who did not drink, therefore analyses were limited to those who had consumed alcohol at least once in the past 30 days. Results are shown in Table 10. In an effort to correct for potential Type I errors, alpha was set at $p < 0.01$. As expected, self-efficacy, negative outcome expectancies, and behavioral and environmental self-regulation strategies were inversely related to all of the alcohol indices, while positive outcome expectancies and internal standards regarding alcohol use were positively related to the alcohol indices. The cognitive scale of the Drinking Self-Regulation Questionnaire was negatively related to the number of drinks per drinking day but was not significantly related to the other drinking indices. The magnitudes of the relationships were low to moderate, ranging from $-.19$ to $.57$, with the SCQ and IAS showing the strongest relationships.

Hypothesis 3

The hypothesis that individuals who reported greater religiosity would utilize drinking self-regulation strategies more frequently, have higher self efficacy, less positive and more negative outcome expectancies, and more moderate standards regarding alcohol use was tested by a series of analyses. First, MANOVAs were performed to determine if there were differences between the 3 religious involvement groups with regard to the social cognitive variables. Due to the fact that the Drinking Self Regulation Questionnaire (DSRQ) was not applicable to non-drinkers, two separate analyses were run. The first MANOVA compared the 3 religious groups with regard to self efficacy (SCQ), alcohol expectancies (AOES), and internal alcohol standards (IAS). Results indicated a significant multivariate effect, $F(8, 636) = 5.96, p < 0.001$. All of the scales showed significant univariate effects (SCQ: $F(2, 321) = 5.70, p < 0.01$; AOES-positive:

$F(2, 321) = 9.20, p < 0.001$; AOES-negative: $F(2, 321) = 3.92, p < 0.05$; IAS: $F(2, 321) = 22.16, p < 0.001$), with those actively involved in a religion tending to have higher self-efficacy, fewer positive and more negative expectancies, and more moderate standards regarding alcohol use than those who identified with but were not actively involved in a religion and those who did not identify with a religion. Those who identified with but were not actively involved in a religion did not differ from those who did not identify with a religion on any of the alcohol indices. Likewise, the MANOVA comparing the 3 religious groups on the 3 scales of the DSRQ revealed a significant multivariate effect, $F(6, 504) = 4.64, p < 0.001$. Additionally, significant univariate effects were found on the cognitive ($F(2, 254) = 6.73, p < 0.01$) and environmental scales ($F(2, 254) = 4.99, p < 0.01$). Those not identifying with a religion reported less frequent use of cognitive strategies than those who identified with and those who were actively involved in a religion. Similarly, individuals who were actively involved in a religion reported more frequent use of environmental strategies than both those who did not identify and those who did identify but were not actively involved in a religion. Table 11 presents the means on each of these measures for the religious involvement groups.

Finally, zero-order correlations were computed between the religiosity subscales and the social cognitive variables. As before, sample sizes for the correlations varied due to some of the religious measures not being applicable to those who did not identify with a religion and to the DSRQ scales not being applicable to non-drinkers. Results are shown in Table 12. In an effort to correct for potential Type I errors, alpha was set at $p < 0.01$. In general, the religious dimensions were positively related to self-efficacy, negative outcome expectancies, and drinking self regulation strategies as expected, while

they were negatively correlated with positive outcome expectancies and internal standards regarding alcohol use. The RPQ, RMQ, Brief RCOPE-positive, ROPRA, and RSEQ tended to demonstrate the strongest relationships with the social cognitive constructs while the Brief RCOPE-negative and both scales of the RSSQ evidenced little or no relationship to the social cognitive variables.

Hypothesis 4

To determine whether or not the social cognitive constructs mediated the effect of the religious dimensions on alcohol use, a stepwise regression equation using the religious dimensions, social cognitive constructs, and drinking variables (see Baron & Kenny, 1986) was conducted. Analyses were limited to those individuals who identified with a religious organization, and any missing values on specific measures were replaced with the variable mean. Due to the fact that the Drinking Self-Regulation Questionnaire did not apply to non-drinkers, two separate models were tested: one for drinkers and non-drinkers, which did not include the drinking self-regulation strategies, and one for drinkers only which did include the drinking self-regulation strategies. Both models were tested only for those participants who indicated that they identified with a religion due to the fact that many of the religious measures were not applicable to individuals who did not identify with a religion.

For each model, the set of social cognitive variables were entered as a block, followed by the religiosity dimensions as a second block. If the social cognitive variables mediated the effect of religiosity on drinking as hypothesized, then the amount of variance explained by the religiosity block would be reduced to near zero or substantially reduced in relation to the amount of variance explained by religious subscales in the

absence of the social cognitive variables (as tested in Hypothesis 1). Among the drinkers and non-drinkers, there was evidence that the social cognitive variables mediated the effect of religion on the alcohol indices, as evidenced by the fact that the amount of variance explained by the religiosity block was substantially reduced. Comparing the R^2 values in Tables 8 and 13, one can see that the amount of variance accounted for by the religiosity dimensions was reduced from 13% to 2% in the total number of drinking days; from 12% to 2% in the average number of drinks per drinking day; and from 4% to 1% in the alcohol problems when the social cognitive constructs were controlled. Furthermore, all of these reductions resulted in the R^2 value becoming essentially zero and non-significant.

Among the drinker-only group, there was little evidence of the social cognitive constructs mediating religiosity's effect on the total number of drinking days. Comparing the R^2 s in Tables 9 and 14, one can see that the amount of variance accounted for by the religiosity dimensions was reduced from 5% to 4% when the social cognitive constructs were controlled. Although this reduction resulted in the R^2 value becoming non-significant, the magnitude of reduction was minimal. Because the religious indices did not have a significant effect on the average number of drinks per drinking day and alcohol-related problems in the subsample of drinkers, there was no reason to test for mediation (see Table 9). Examination of the standardized regression coefficients in the final models with all predictors suggested that the IAS consistently provided unique contribution to the model, and the positive and negative scales of the AOES, the behavioral scale of the DSRQ, the SCQ, the ROPRA, and the RPQ also showed unique prediction of the alcohol indices in some of the models.

In an effort to begin to explore the possibility of more specific relationships between the dimensions of religiosity, the social cognitive constructs, and the alcohol use indices, the two dimensions of religiosity (RPQ and ROPRA) and the two social cognitive variables (IAS and SCQ) that demonstrated the strongest relationships with the alcohol indices in the correlational and regression analyses were included in a model predicting the total number of drinking days. An exploratory path analysis was then performed via a series of regression equations. First, the total number of drinking days was regressed on IAS and SCQ, then each of these social cognitive constructs was regressed on the two religiosity variables. Figure 3 presents the model with path coefficients. The paths between both social cognitive constructs and the alcohol index were significant at the $p < 0.001$ level. Furthermore, the paths between the RPQ and both the SCQ and the IAS were significant, while only the path between the ROPRA and the IAS were significant at the $p < 0.001$ level. The path between the ROPRA and the SCQ approached significance ($p = 0.08$). In addition, similar to the mediational analyses presented earlier, there was evidence that the SCQ and IAS fully mediated the effect of the RPQ and ROPRA on the alcohol index, reducing the amount of variance accounted for by the religious indices from 15% to 1% after controlling for the social cognitive variables.

Discussion

Results from this study were consistent with, and expanded upon, previous research by demonstrating that various dimensions of religiosity were inversely related to, and also predictive of, the quantity and frequency of alcohol use and the experience of alcohol-related problems in a sample of college students. Findings further suggested that

this relationship was completely mediated by several social cognitive constructs including self-efficacy, outcome expectancies, internal standards regarding alcohol use, and the use of self-regulatory strategies.

The first objective of the current study was to investigate the relationship between religiosity and alcohol use. Results comparing three religious involvement groups revealed that individuals who identified with and were actively involved in a religious organization or fellowship reported less frequent alcohol use, lower quantities of use, and fewer problems resulting from alcohol use compared to those who did not identify with a religion and those who identified with but were not involved in a religion. Interestingly, there were no differences with regard to the alcohol indices between those who did not identify with a religion and those who identified with but were not involved in a religion. While this finding may initially seem to be in contrast to previous results, no known studies have specifically compared atheists/agnostics to individuals who identify with a religion, much less compared those who are actively involved with those who are not. The majority of previous studies have simply administered questionnaires pertaining to religious practices, attendance, and/or meaning to all individuals (regardless of religious identification and involvement), and analyses have mainly consisted of correlations rather than comparisons among different levels of religious involvement. Therefore, the current results expand upon previous findings by suggesting that there may be a differential impact of religion on alcohol use depending on the level of (or lack of) involvement. It is very likely that, although individuals may identify with a particular religion, identification alone does not guarantee that they are actively involved in the religion, that they share any of the religion's beliefs (with regard to alcohol use or otherwise), or that

they even consider themselves to be religious. Thus, it makes some intuitive sense that they may not differ from individuals who do not identify with a religion in many regards, including alcohol use. Gorsuch (1995) also recognizes this possibility:

The impact of one's religion and its substance abuse norms depends on the person's own commitment to and participation in the religion. If one merely expresses a verbal preference for a religion but has no interaction with other religious people, for example, we might expect him or her to resemble nonreligious persons in some ways. Greater differences should be found for those who are highly involved with their religion. (p. 67)

This would suggest that the individuals who are actively involved in a religion are the ones who are receiving the maximum benefit of religion's effect on alcohol use. Thus, one possible goal for religious organizations, as well as for clinicians working with religious individuals, would be to encourage individuals to become more actively involved in religious activities in an effort to capitalize on the positive impacts of religion on alcohol use.

In addition to finding differences among the religious involvement categories with regard to the drinking indices, results showed that many of the individual religious dimensions were inversely correlated with the drinking indices. Specifically, individuals who reported greater religious commitment/meaning, more frequent engagement in religious practices, greater use of positive religious coping, greater religious social embeddedness, and perceived that their religious organization held conservative views regarding alcohol use, drank alcohol less often, drank a lower quantity, and experienced

fewer negative consequences from alcohol use. Negative religious coping strategies and religious social support were not found to be related to the drinking indices.

Finally, in an effort to expand upon previous research, which primarily has only examined correlational relationships between religion and alcohol use, the current study went a step further and examined the relationship within a multivariate model. Regression equations predicting the alcohol use indices from the dimensions of religiosity among a sample of individuals who identified with a religion (both drinkers and non-drinkers) revealed that the religious dimensions accounted for a significant amount of the variance in all of the alcohol indices. However, in a subsample of drinkers only, the religious indices accounted for a significant amount of variance only in the total number of drinking days, and even then the amount of variance accounted for was small (5%).

The reason for the different predictive ability of the religious dimensions in the two samples (drinkers and non-drinkers versus drinkers only) is unclear. It may be that religiosity predicts whether or not an individual will drink at all, but once one does drink, religiosity has little effect on the quantity of alcohol consumed or the experience of alcohol-related problems. This is consistent with the “paradoxical alcohol use” phenomenon (see Booth & Martin, 1998), which suggests that individuals who are members of religions/denominations that proscribe alcohol use are less likely to consume alcohol, but when they do drink they tend to do so heavily. Thus, the protective effect of religiosity may be a function of its influence on the decision of whether or not to drink rather than on how much to drink.

A somewhat related issue was the finding that, within the drinker and non-drinker sample, the amount of variance accounted for in alcohol-related problems, while significant, was fairly small (4%) and weak in comparison to the amount of variance accounted for in the other drinking indices. Bock, Cochran, and Beeghley (1987) reported similar findings of weaker relationships between religiosity and alcohol misuse. They explain these findings by suggesting that “religious involvement fails to influence alcohol misuse because the normative guidelines of the various religious groups and the larger society are congruent” (p. 99). In other words, society’s norms discourage alcohol abuse just as religious norms do, therefore we would not expect religiosity to have much additional influence on alcohol abuse. This idea is similar to the paradoxical alcohol use phenomenon described above in that religiosity may protect against the frequency of alcohol use but not necessarily against alcohol-related problems. It may also be that, although individuals who are more religious drink alcohol less frequently and at a lower quantity, they still experience a similar number of problems when they do drink for the very fact that they are infrequent drinkers. In other words, individuals who rarely drink are likely to have a lower tolerance, therefore moderate levels of alcohol use have similar negative effects on infrequent drinkers as do higher levels of use on frequent heavy drinkers.

This begs the question, then, that if religion does not serve as a major protective factor against alcohol-related problems, why should we be interested in its effect on alcohol use at all? One reason is that there is evidence that religion increases the likelihood that an individual will abstain from alcohol use, which obviously would result in fewer drinking-related problems. Thus, if ways can be found to emphasize those

dimensions of religiosity that encourage abstinence, then the prevalence of alcohol abuse should decrease. Furthermore, if future research is able to substantiate the paradoxical alcohol use phenomenon, it may be possible to reduce this effect. For example, Booth and Martin (1998) suggest that the paradoxical effect “may result from punishing or abusive forms of religiousness” (p. 183), whereby individuals are made to feel guilty for drinking and consequently drink heavily to cope with the guilt. If this is the case, it may be possible to help individuals change their perceptions from religion being condemning to it being forgiving of alcohol use, and perhaps even seeing it as a source of motivation and empowerment for the individual to change his/her behaviors.

A second main objective of the current study was to identify specific dimensions of religiosity that influenced alcohol use. As noted above, correlational analyses revealed that many of the religious dimensions were inversely related to alcohol use, with religious practices and religious organization’s perceptions regarding alcohol use tending to show the strongest relationships with the alcohol indices. Similarly, multivariate results indicated that these same two religious indices contributed unique variance to the alcohol indices. There was, however, an overall lack of unique prediction by the religious dimensions. This finding, in combination with results from the factor analysis of the religious dimensions as well as the number of interrelationships among the religious dimensions, suggest that religiosity may be a unidimensional rather than a multidimensional construct. In addition, a comparison of the size of the correlations between the religiosity dimensions and the alcohol indices to the effect sizes for the religious involvement categories revealed roughly similar results, suggesting that a more

basic categorization of religious involvement does just as well in predicting alcohol use as do the individual religious dimensions.

These findings are of some concern given the current push in the field to view religion as multidimensional. It may be that the particular dimensions assessed in the current study do not differentiate from one another due to the particular population being studied. Considering the transitional and experimental nature of the college environment, it makes sense that students' views toward religion and their involvement in religious activities may not yet be well established and, consequently, attempting to discriminate between different aspects of religiosity becomes more difficult than it might be in a population of adults who have more stable religious and drinking practices. Another population in which we might expect more dimensions of religiosity to stand out would be a rural population where the church plays a bigger role as a support system. In this type of population we might expect that religious social support and social embeddedness would have a larger impact on alcohol use since the church would be the primary support network. Similarly, we might expect that individual dimensions of religiosity would uniquely predict alcohol use in a population that is highly involved in their religion. Bock et al. (1987) drew a similar conclusion from their findings, stating that "the more involved people are...the more influential the moral message of their religious affiliations" (p. 99). It may be that in the current study, the large number of people who identified with but were not actively involved in a religion suppressed the individual religious dimensions' effect on alcohol use because those individuals did not report a great deal of religiosity, whereas a sample of highly involved individuals would report greater religiosity and its effect on alcohol use would be more prominent. It could also be

that religiosity is a multidimensional construct, but the only dimensions that play a significant role in alcohol use are active involvement in a religion/denomination that discourages alcohol use.

A final objective of the current study was to examine whether religion's effect on alcohol use was mediated by social cognitive constructs. Comparisons of the three religious involvement groups on the social cognitive variables supported the hypothesis that individuals who reported greater religiosity would utilize drinking self-regulation strategies more frequently, have higher self efficacy, less positive and more negative outcome expectancies, and more moderate standards regarding alcohol use. Similar to findings that individuals who were actively involved in their religion consumed less alcohol and experienced fewer alcohol-related problems, these findings suggest that individuals who are more involved in their religion reap more benefits from it in terms of its effect on protecting against alcohol use. These findings lay the groundwork for the idea that one way in which religiosity impacts alcohol use is through its effect on multiple social cognitive constructs.

In addition to finding differences among the religious involvement categories with regard to the social cognitive variables, results showed that many of the religious dimensions were related to the social cognitive variables. Specifically, individuals who reported greater religious meaning/commitment, more frequent engagement in religious practices, greater positive religious coping, and greater religious social embeddedness, reported higher self-efficacy, less positive and more negative outcome expectancies regarding alcohol use, greater use of self-regulatory strategies, and more moderate standards regarding alcohol use. Similarly, individuals who perceived their religious

organization to have more conservative views regarding alcohol use reported greater self-efficacy, fewer positive and more negative outcome expectancies, and more moderate standards regarding alcohol use. Negative religious coping and both positive and negative religious social support did not appear to be related to the social cognitive variables.

Overall, these findings lend additional support for a theoretical model in which the effects of religiosity on alcohol use can, at least in part, be explained by its effect on various social cognitive constructs.

This proposed model, which suggested that the effect of the religious dimensions on the alcohol use indices was mediated by the social cognitive constructs, was supported in the current study. In addition to demonstrating that religiosity was related to multiple social cognitive constructs, results also replicated previous findings indicating that the social cognitive constructs were related to the alcohol use indices. Further support for the model was established with the finding that, among a sample of individuals who identified with a religion (both drinkers and non-drinkers), the amount of variance accounted for by the religious dimensions was reduced from significant levels to near 0% after accounting for the effects of the social cognitive constructs. However, when the sample was restricted to drinkers only, there was little evidence of mediation with regard to the number of drinking days (the amount of variance explained was only reduced by 1%). The reason for the different findings between this sample and the sample including non-drinkers is unclear. It may be that the lack of mediation in this sample of drinkers is a function of the small effect that religiosity had on the alcohol indices even before the social cognitive constructs were included.

In an effort to further explore the relationships among religiosity, social cognitive constructs, and alcohol use, an exploratory path model proposing more specific relationships between two of the religiosity dimensions and two of the social cognitive constructs was developed and tested. Results indicated that religious practices was a unique predictor of both self-efficacy and internal standards regarding alcohol use, while religious organization's perceptions regarding alcohol use contributed unique variance to internal standards regarding alcohol use but not self-efficacy. In addition, both self-efficacy and internal standards regarding alcohol use uniquely predicted the total number of drinking days in the past thirty. Furthermore, the results again demonstrated the mediation of the effect of the religiosity dimensions on alcohol use by the social cognitive constructs. These findings illustrate the notion that the most important aspect of religiosity with regard to alcohol use is active involvement in a religion that discourages alcohol use, and suggest that the way by which religiosity exerts its effects on alcohol use is primarily through internal standards regarding alcohol use and self-efficacy.

The current study expands upon previous research investigating the relationship between religion and alcohol use in many ways. First, in the current study religiosity was considered to be a multidimensional construct and was assessed as such. This allowed a more detailed look at which aspects of religiosity may be related to alcohol use. Second, the current study proposed and tested a model which adds to our understanding of the ways in which religion exerts its effects by providing a theoretical framework in which the mechanisms by which religion influences alcohol use can be understood. Third, the current study not only examined the effect of religiosity on the quantity and frequency of alcohol use, but also on alcohol-related problems.

There were, however, some limitations to the current study. One limitation pertains to the potential lack of representativeness of the population with regard to it being composed of college students who primarily identified themselves as Catholic or Protestant; therefore the generalizability of the findings to samples consisting of non-college students and members of other religions such as Judaism, Islam, etc. is not known. Another shortcoming of the current study is that the alcohol indices, which served as the dependent variables, were all self-report and therefore uncorroborated. Similarly, all of the religious measures were also self-report. Finally, the current study focused only on alcohol use, so the model's generalizability to religiosity's effect on other substance use is unknown.

Ideas for future research include continuing to investigate the nature of religiosity as a uni- versus a multidimensional construct. In addition, studies should examine the relationships between these dimensions of religion and alcohol use, as well as the fit of the mediational model, with other, more diverse populations (with regard to both demographics and religious identification), as well as with substances other than alcohol. A more extensive analytical investigation of models that propose specific relationships between the dimensions of religiosity, the social cognitive constructs, and the alcohol use indices using path analysis and/or structural equation modeling techniques is recommended given the complexity of the relationships. Future research should also examine the relationship between religiosity and diagnoses of alcohol abuse and/or dependence via structured clinical interviews in addition to self-reported alcohol-related problems. Self-reports of quantity and frequency of alcohol use could also be corroborated, perhaps through collateral reports. Similarly, a more objective assessment

of the religiosity dimensions is recommended. One idea would be to assess frequency of religious practices and social embeddedness using a Timeline-Followback method of assessment, within a time frame that corresponds to that of the alcohol use assessment. Finally, clinical interventions that specifically target the religious dimensions that were found to share a relationship with alcohol use should be tested in an effort to determine if intervening with those dimensions could result in a decrease in alcohol use. For example, interventions that increase individuals' engagement in religious practices and educate and explain the religion's perceptions and standards regarding alcohol use may lead to a reduction in alcohol use. As Lorch and Hughes (1988) point out, "the fact that over half of even the fundamentalist type churches had no special youth substance use program may account for their success not being greater... it is likely that both goals (preventing substance use and preventing heavy substance use) could be more successfully achieved by the church if more churches provided youth substance use education programs" (p. 24). Applied studies assessing the success of interventions such as these could further the field of substance abuse prevention and/or treatment. In addition, as George, Ellison, and Larson (2002) point out, if the "'active ingredients' by which religion promotes health can be established, it may be possible to provide them in ways that are acceptable to people unwilling to participate in religion" (p. 190). Thus, continued efforts to identify the dimensions of religiosity that prove most beneficial in preventing and/or treating substance abuse could have clinical applications beyond religious populations.

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Figure 1. Model Depicting Relationships Among Religious, Social Cognitive, and Drinking Indices for those who Identify with A Religion

(Drinkers and Non-Drinkers)

Note: All exogenous variables are assumed to be correlated.

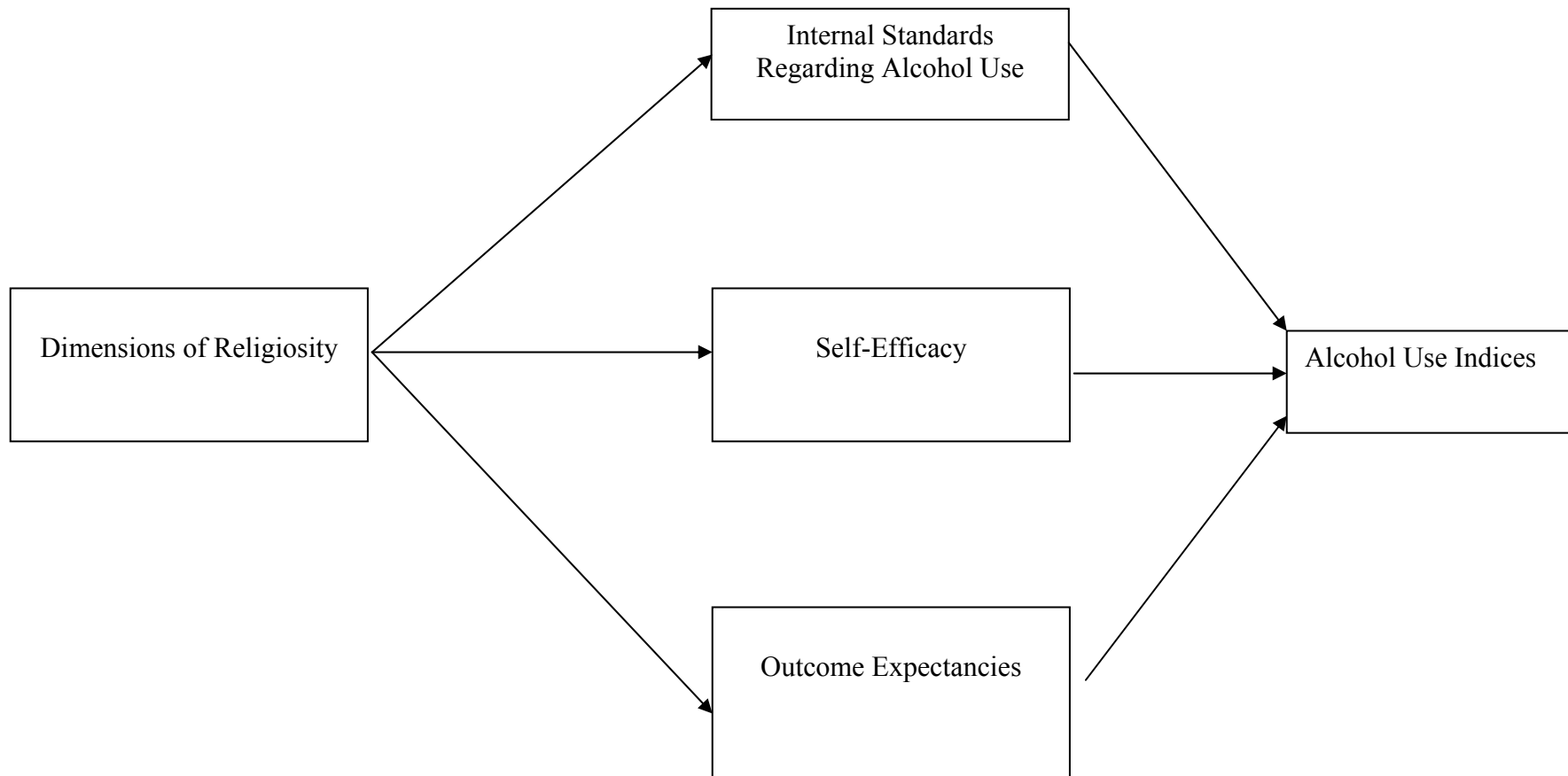


Figure 2. Model Depicting Relationships Among Religious, Social Cognitive, and Drinking Indices for those who Identify with A Religion

(Drinkers only)

Note: All exogenous variables are assumed to be correlated.

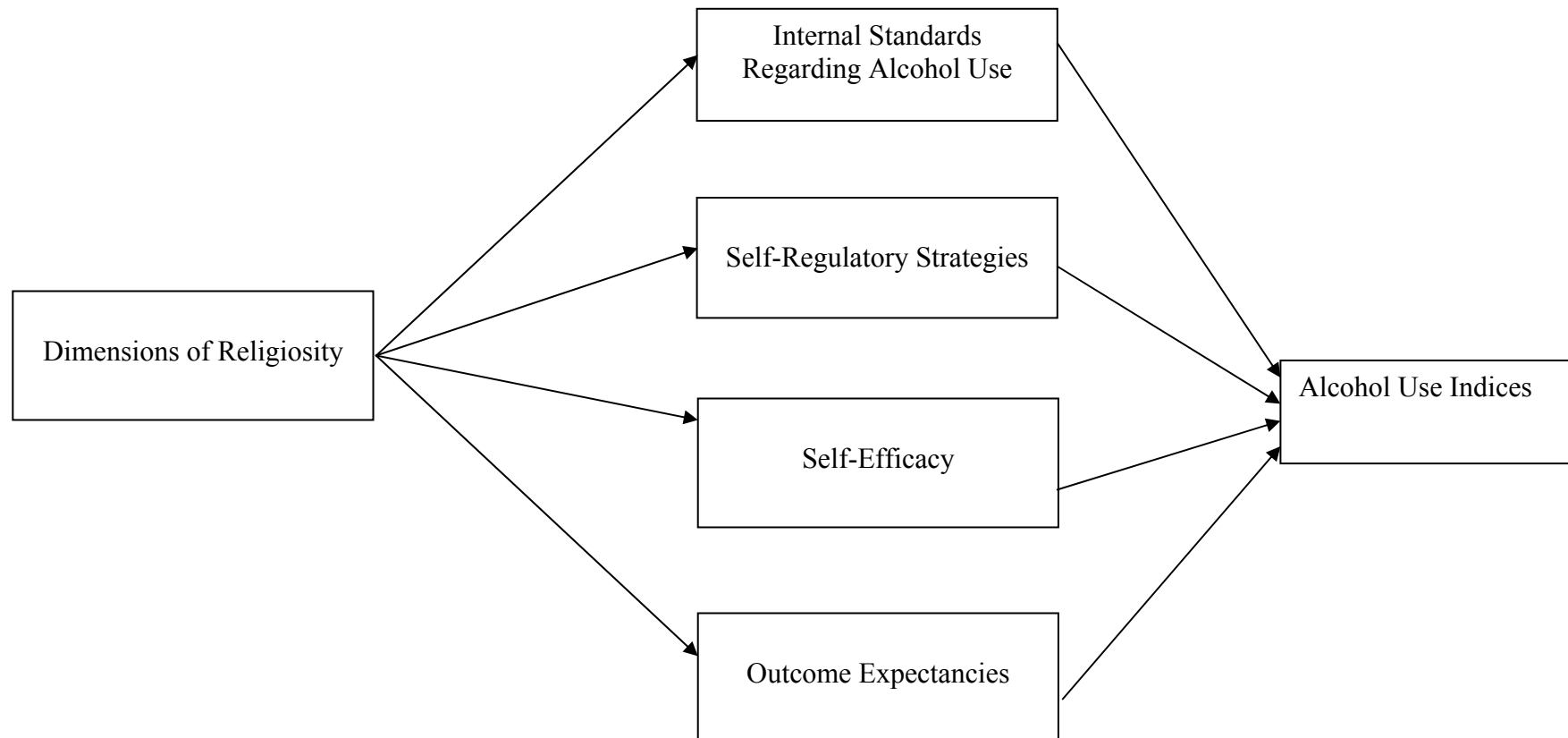


Table 1

Sample Characteristics

Variable	Total Sample (n=324)	Order 1 (n=152)	Order 2 (n=172)
Age	19.30 (1.34)	19.36 (1.30)	19.24 (1.39)
Sex (Male)	43.5%	47.4%	40.1%
Race (White)	77.2%	79.6%	75.0%
Student Status			
Freshman	42.3%	40.8%	43.6%
Sophomore	29.0%	28.9%	29.1%
Junior	16.7%	19.1%	14.5%
Senior	12.0%	11.2%	12.8%
Religion			
None (Atheist/Agnostic)	14.5%	14.5%	14.5%
Baptist	14.5%	17.1%	12.2%
Catholic	27.8%	23.0%	32.0%
Methodist	11.1%	13.8%	8.7%
Presbyterian	5.2%	5.9%	4.7%
Other	32.1%	31.6%	32.6%
Actively involved in religious organization	25.6%	30.8%	29.3%
Total Number of Days of Alcohol Use in Past 30 Days	5.96 (5.37)	6.66 (5.82)	5.34 (4.87)
Abstained from Alcohol Use in Past 30 Days	19.1%	17.8%	20.5%

Average Number of Drinks per			
Drinking Day	4.05 (3.21)	4.40 (3.58)	3.73 (2.82)
RAPI	0.49 (0.52)	0.49 (0.52)	0.49 (0.52)
AOES			
Positive	4.05 (0.71)	4.05 (0.69)	4.05 (0.73)
Negative	3.25 (0.76)	3.25 (0.75)	3.26 (0.76)
SCQ	68.46 (23.95)	70.21 (22.76)	66.92 (24.91)
IAS	3.76 (1.02)	3.80 (.97)	3.72 (1.06)
DSRQ ^a			
Environmental	1.55 (.77)	1.53 (.76)	1.58 (.78)
Behavioral	2.16 (.78)	2.15 (.73)	2.17 (.83)
Cognitive	2.25 (.79)	2.27 (.81)	2.24 (.78)
RMQ	3.14 (1.06)	3.17 (1.06)	3.10 (1.07)
RPQ (z-score)	-0.00 (0.79)	0.03 (0.76)	-0.02 (0.81)
Brief RCOPE			
Positive	3.07 (1.15)	3.11 (1.15)	3.05 (1.14)
Negative	1.93 (0.84)	2.01 (0.92)	1.86 (0.74)
RSSQ ^b			
Positive	3.22 (0.74)	3.24 (0.76)	3.19 (0.73)
Negative	1.72 (0.62)	1.82 (0.67)	1.64 (0.55)
RSEQ ^b (z-score)	0.01 (0.69)	0.01 (0.70)	0.00 (0.68)
ROPRA ^b	2.67 (0.98)	2.60 (0.98)	2.73 (0.98)

Note. RAPI=Rutger's Alcohol Problem Index; AOES = Alcohol Outcome Expectancy Scale; SCQ = Situational Confidence Questionnaire (self-efficacy); IAS = Internal Standards Regarding Alcohol Use; DSRQ = Drinking Self-Regulation Questionnaire; RMQ = Religious Meaning Questionnaire; RPQ = Religious Practices Questionnaire;

Brief RCOPE = Religious Coping Questionnaire; RSSQ = Religious Social Support Questionnaire; RSEQ = Religious Social Embeddedness Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol.

^aData is presented only for those who drank in the past 30 days (n's range from 257-261).

^bData is presented only for those who identified with a religion (n's range from 265 to 274).

Table 2

Means and Standard Deviations on RMQ, RPQ, and Brief RCOPE by Religious

Involvement Group (n = 319^a)

Variable	Do not identify with a religion (n = 44)	Identify with a Religion only (n = 192)	Actively involved in a religion (n = 83)
RMQ (z-score) ^{***}	-1.39 (0.75) _a	-0.09 (0.73) _b	0.94 (0.61) _c
RPQ (z-score) ^{***}	-0.98 (0.40) _a	-0.26 (0.61) _b	1.19 (0.90) _c
Brief RCOPE (z-scores)			
Positive ^{***}	-1.36 (0.64) _a	-0.01 (0.80) _b	.82 (0.63) _c
Negative [*]	-0.35 (1.11) _a	0.11 (1.01) _b	-0.05 (0.89) _{ab}

Note. RMQ = Religious Meaning Questionnaire; RPQ = Religious Practices

Questionnaire; Brief RCOPE = Religious Coping Questionnaire.

Note. Means with different subscripts differ significantly at $p < 0.05$ in the Tukey honestly significant difference comparison.

^aFive participants were missing data.

^{*} $p < 0.05$. ^{**} $p < 0.01$. ^{***} $p < 0.001$.

Table 3

Means and Standard Deviations on RSEQ, ROPRA, and RSSQ by Religious Involvement Group (n = 258^a)

Variable	Identify with a Religion only (n = 177)	Actively involved in a religion (n = 81)
RSEQ (z-score)***	-0.26 (0.82)	0.83 (0.86)
ROPRA (z-score)**	-0.02 (0.92)	0.37 (1.08)
RSSQ (z-scores)		
Positive***	-0.20 (0.98)	0.56 (0.68)
Negative	0.05 (1.00)	-0.17 (0.93)

Note. RSEQ = Religious Social Embeddedness Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol; RSSQ = Religious Social Support Questionnaire.

^aNineteen of the 277 participants who identified with a religion were missing data.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 4

Factor Loadings from Principal Components Analysis of Measures of Religiosity

Religiosity Scale	Factor 1	Factor 2
RMQ	0.89	
RPQ	0.88	
Brief RCOPE- positive	0.87	
RSEQ	0.69	
RSSQ-positive	0.55	
ROPRA	0.50	
Brief RCOPE- negative		0.84
RSSQ-negative		0.75

Note. RMQ = Religious Meaning Questionnaire; RPQ = Religious Practices Questionnaire; Brief RCOPE = Religious Coping Questionnaire; RSSQ = Religious Social Support Questionnaire; RSEQ = Religious Social Embeddedness Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol.

Note. Factor loadings less than .30 are not presented.

Note. Missing values were replaced with the series mean, n = 324.

Table 5

Zero-Order Correlations between Religious Measures

	RPQ	RMQ	BRCOPE- positive	BRCOPE- negative	RSSQ- positive	RSSQ- negative	ROPRA	RSEQ
RPQ	_____	0.79**	0.72**	0.07	0.39**	-0.05	0.42**	0.55**
RMQ		_____	0.89**	0.12	0.37**	-0.03	0.43**	0.56**
BRCOPE- positive			_____	0.18*	0.39**	0.01	0.41**	0.52**
BRCOPE- negative				_____	-0.08	0.39**	0.07	-0.05
RSSQ-positive					_____	0.03	0.10	0.54**
RSSQ-negative						_____	-0.01	-0.04
ROPRA							_____	0.23**
RSEQ								_____

Note. RPQ = Religious Practices Questionnaire; RMQ = Religious Meaning Questionnaire; Brief RCOPE = Religious Coping Questionnaire; RSSQ = Religious Social Support Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol; RSEQ = Religious Social Embeddedness Questionnaire.

Note: Sample sizes range from 274 to 324 due to some of the religious measures being inapplicable to those who did not identify with a religion.

* $p < 0.01$. ** $p < 0.001$.

Table 6

Means and Standard Deviations on Drinking Indices by Religious Involvement Group
(n = 322^a)

Variable	Do Not Identify with a Religion (n = 46)	Identify with a Religion only (n = 193)	Actively involved in a religion (n = 83)	η^2 Value
Total number of days of alcohol use**	6.59 (5.66) _a	6.65 (5.45) _a	4.06 (4.60) _b	0.04
Average number of drinks per drinking day***	4.69 (3.37) _a	4.56 (3.24) _a	2.52 (2.54) _b	0.08
RAPI Average**	0.59 (0.59) _a	0.53 (0.53) _a	0.34 (0.43) _b	0.03

Note. RAPI = Rutger's Alcohol Problem Index

Note. Means with different subscripts differ significantly at $p < 0.05$ in the Tukey honestly significant difference comparison.

^aTwo participants were missing data.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 7

Zero-Order Correlations between Religious Measures and Alcohol Indices

	Total no. of drinking days (in past 30)	Avg. number of drinks per drinking day	RAPI
RPQ ^a	-0.30**	-0.30**	-0.17*
RMQ ^a	-0.22**	-0.30**	-0.15*
BRCOPE-positive ^a	-0.17*	-0.25**	-0.11
BRCOPE-negative ^a	0.02	-0.01	0.10
RSSQ-positive ^b	-0.11	-0.08	-0.01
RSSQ-negative ^b	0.02	0.01	0.03
ROPRA ^b	-0.31**	-0.25**	-0.20*
RSEQ ^b	-0.19*	-0.20*	-0.09

Note. RPQ = Religious Practices Questionnaire; RMQ = Religious Meaning Questionnaire; Brief RCOPE = Religious Coping Questionnaire; RSSQ = Religious Social Support Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol; RSEQ = Religious Social Embeddedness Questionnaire.

^aSample sizes range from 318 to 323 due to missing values.

^bData is presented only for those who identified with a religion. Sample sizes range from 264 to 274 due to missing values.

* $p < 0.01$. ** $p < 0.001$.

Table 8

Multiple Regression Analyses Predicting Drinking Indices by Religious Variables
Among Those Who Identify with a Religion (Drinkers and Non-Drinkers; $n = 277$)

Predictor	β		
	Total no. of drinking days (in past 30)	Avg. number of drinks per drinking day	RAPI
BRCOPE-positive	0.09	0.02	0.02
BRCOPE-negative	0.01	-0.01	0.09
RMQ	-0.06	-0.23	-0.11
ROPRA	-0.22**	-0.13*	-0.15*
RPQ	-0.27**	-0.13	-0.07
RSSQ-positive	0.01	0.07	0.07
RSSQ-negative	0.01	0.01	-0.01
RSEQ	-0.02	-0.02	-0.01
Adj R²	0.13***	0.12***	0.04*

* *Note.* Brief RCOPE = Religious Coping Questionnaire; RMQ = Religious Meaning Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol; RPQ = Religious Practices Questionnaire; RSSQ = Religious Social Support Questionnaire; RSEQ = Religious Social Embeddedness Questionnaire.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 9 Multiple Regression Analyses Predicting Drinking Indices by Religious Variables Among Those Who Identify with a Religion and Drink (n = 222)

Predictor	β		
	Total no. of drinking days (in past 30)	Avg. number of drinks per drinking day	RAPI
BRCOPE-positive	0.11	0.02	-0.01
BRCOPE-negative	0.01	-0.03	0.08
RMQ	0.02	-0.24	-0.09
ROPRA	-0.14*	0.02	-0.06
RPQ	-0.28**	-0.05	0.03
RSSQ-positive	-0.06	0.00	0.01
RSSQ-negative	0.05	0.05	0.03
RSEQ	0.03	0.06	0.08
Adj R²	0.05*	0.02	-0.02

Note. Brief RCOPE = Religious Coping Questionnaire; RMQ = Religious Meaning Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol; RPQ = Religious Practices Questionnaire; RSSQ = Religious Social Support Questionnaire; RSEQ = Religious Social Embeddedness Questionnaire.

* $p < 0.05$. ** $p < 0.01$.

Table 10

Zero-Order Correlations between Social Cognitive Measures and Alcohol Indices

	Total no. of drinking days (in past 30)	Avg. number of drinks per drinking day	RAPI
SCQ ^a	-0.50**	-0.49**	-0.47**
AOES-pos ^a	0.38**	0.44**	0.36**
AOES-neg ^a	-0.22**	-0.32**	-0.07
IAS ^{a,b}	0.55**	0.57**	0.43**
DSRQ-B ^c	-0.26**	-0.40**	-0.22**
DSRQ-C ^c	-0.06	-0.19*	0.04
DSRQ-E ^c	-0.36**	-0.39**	-0.26**

^an = 323 due to 1 participant missing data.

^bHigher scores on the IAS indicate more liberal standards of alcohol use.

^cData is presented only for those who drank, n's range from 256 to 261.

* $p < 0.01$. ** $p < 0.001$.

Table 11

Means and Standard Deviations on Social Cognitive Variables by Religious Involvement

Group (n = 324)

Variable	Do Not Identify with a Religion	Identify with a Religion only	Actively involved in a religion
SCQ**	68.96 (24.48) _{ab}	65.25 (22.90) _a	75.69 (24.73) _b
AOES			
Positive***	4.22 (0.71) _a	4.13 (0.62) _a	3.77 (0.83) _b
Negative*	3.10 (0.60) _a	3.21 (0.66) _{ab}	3.44 (0.99) _b
IAS#***	4.02 (1.03) _a	3.95 (0.87) _a	3.15 (1.10) _b
DSRQ [^]			
Behavioral	1.93 (0.67)	2.17 (0.76)	2.25 (0.89)
Cognitive**	1.84 (0.77) _a	2.34 (0.74) _b	2.25 (0.88) _b
Environmental**	1.44 (0.80) _a	1.48 (0.71) _a	1.84 (0.82) _b

Note. Means with different subscripts differ significantly at $p < 0.05$ in the Tukey honestly significant difference comparison.

#Higher scores on the IAS indicate more liberal standards of alcohol use.

[^]Data is presented only for those who drank in the past 30 days, n = 257.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 12

Zero-Order Correlations between Religious Measures and Social Cognitive Variables

	SCQ	AOES-positive	AOES-negative	IAS ^b	DSRQ- behavioral	DSRQ- cognitive	DSRQ- environmental
RPQ	0.26**	-0.32**	0.19**	-0.43**	0.22**	0.14	0.30**
RMQ	0.19*	-0.23**	0.17*	-0.39**	0.26**	0.27**	0.33**
BRCOPE- positive	0.16*	-0.19*	0.14	-0.29**	0.32**	0.27**	0.27**
BRCOPE- negative	-0.11	0.09	0.09	0.04	-0.06	0.08	0.05
RSSQ-positive	0.12	-0.03	0.05	-0.08	0.25**	0.07	0.12
RSSQ-negative	-0.00	-0.02	0.02	-0.02	0.02	.00	-0.02
ROPRA	0.21**	-0.24**	0.27**	-0.46**	0.06	0.08	0.13
RSEQ	0.25**	-0.19*	0.06	-0.33**	0.17	0.02	0.16

Note. Sample sizes range from 207 to 324 due to some of the religious measures being inapplicable to those who did not identify with a religion and to the DSRQ being inapplicable to those who did not drink.

* $p < 0.01$. *** $p < 0.001$.

^bHigher scores on the IAS indicate more liberal standards of alcohol use

Table 13

Stepwise Multiple Regression Analyses Predicting Drinking Indices by Social Cognitive Variables and Religious Variables Among Those Who Identify with a Religion (Drinkers and Non-Drinkers; n = 277)

Predictor	β		
	Total no. of drinking days (in past 30)	Avg. number of drinks per drinking day	RAPI
IAS	0.35***	0.31***	0.33***
AOES-negative	0.01	-0.14**	0.11
AOES-positive	-0.01	0.15*	0.03
SCQ	-0.32***	-0.22***	-0.32***
R² for SCT	0.36***	0.39***	0.26***
Variables			
BRCOPE-positive	0.06	-0.03	0.01
BRCOPE-negative	-0.04	-0.06	0.03
RMQ	0.02	-0.16	-0.04
ROPRA	-0.08	0.04	-0.04
RPQ	-0.12	0.07	-0.07
RSSQ-positive	-0.06	-0.01	-0.01
RSSQ-negative	0.04	0.05	0.03
RSEQ	0.07	0.06	0.08
ΔR^2 for Religious	0.02	0.02	0.01
Variables			
Adj Total R²	0.36***	0.39***	0.25***

Note. RAPI=Rutger's Alcohol Problem Index; AOES = Alcohol Outcome Expectancy Scale; SCQ = Situational Confidence Questionnaire (self-efficacy); IAS = Internal Standards Regarding Alcohol Use; DSRQ = Drinking Self-Regulation Questionnaire; RMQ = Religious Meaning Questionnaire; RPQ = Religious Practices Questionnaire; Brief RCOPE = Religious Coping Questionnaire; RSSQ = Religious Social Support Questionnaire; RSEQ = Religious Social Embeddedness Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 14

Stepwise Multiple Regression Analyses Predicting Drinking Indices by Social Cognitive Variables and Religious Variables-Religious Drinkers (n = 222)

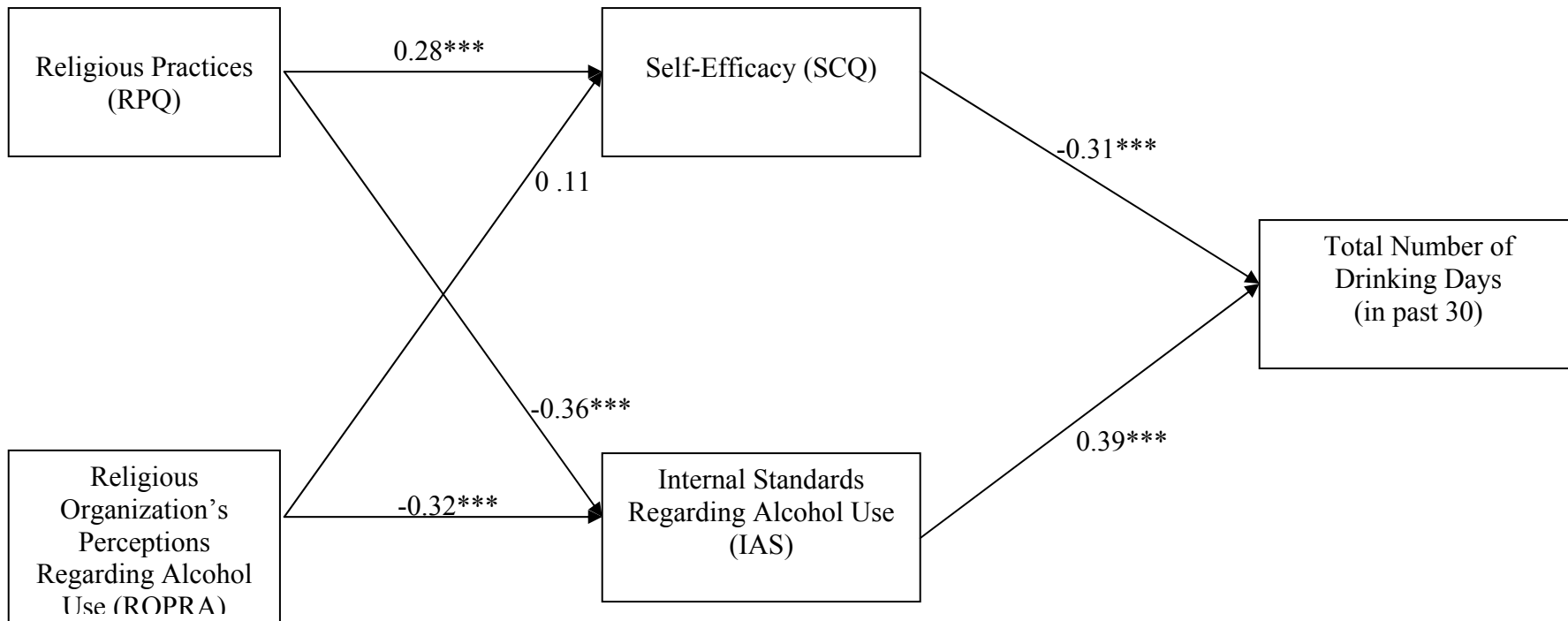
Predictor	β		
	Total no. of drinking days (in past 30)	Avg. number of drinks per drinking day	RAPI
IAS	0.17*	0.11	0.10
AOES-negative	0.03	-0.11	0.20**
AOES-positive	-0.03	0.16*	-0.02
SCQ	-0.25**	-0.09	-0.25**
DSRQ-behavioral	-0.06	-0.29**	-0.07
DSRQ-cognitive	0.10	0.05	0.13
DSRQ- environmental	-0.20*	-0.09	-0.19*
R² for SCT	0.21***	0.24***	0.16***
Variables			
BRCOPE-positive	0.15	0.10	0.03
BRCOPE-negative	-0.03	-0.09	0.02
RMQ	0.05	-0.22	-0.10
ROPRA	-0.11	0.03	-0.07
RPQ	-0.16	0.05	0.14
RSSQ-positive	-0.08	0.01	0.01
RSSQ-negative	0.05	0.07	0.03
RSEQ	0.06	0.04	0.13

ΔR^2 for Religious	0.04	0.02	0.04
Variables			
Adj Total R^2	0.21***	0.23***	0.17***

Note. RAPI=Rutger's Alcohol Problem Index; AOES = Alcohol Outcome Expectancy Scale; SCQ = Situational Confidence Questionnaire (self-efficacy); IAS = Internal Standards Regarding Alcohol Use; DSRQ = Drinking Self-Regulation Questionnaire; RMQ = Religious Meaning Questionnaire; RPQ = Religious Practices Questionnaire; Brief RCOPE = Religious Coping Questionnaire; RSSQ = Religious Social Support Questionnaire; RSEQ = Religious Social Embeddedness Questionnaire; ROPRA = Religious Organization's Perceptions Regarding Alcohol.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Figure 3. Exploratory Path Analysis Model of Relationship Between Selected Dimensions of Religiosity, Social Cognitive Constructs, and the Total Number of Drinking Days.



APPENDIX A

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**Informed Consent for Participants
Of Investigative Projects**

Title of Project: Values, Beliefs and Health Behaviors

Investigators: Stephanie A. Fearer, M.S.
Robert S. Stephens, Ph.D.

I. The Purpose of this Project

The purpose of this project is to understand the relationship between college students' values, beliefs, and health behaviors.

II. Procedures

You will be asked to complete questionnaires containing many items pertaining to your values, beliefs, and various health behaviors. The session should last approximately one hour, and all responses are anonymous.

III. Risks

Few risks are involved with participation in this study. If there are any questions that make you feel uncomfortable, you may refuse to answer those questions or discontinue your participation in the study without penalty.

IV. Benefits of this Project

You may benefit from participating in this study by learning how psychological research is conducted.

V. Confidentiality

All responses will be kept anonymous. Your name will not be stored with any of your data. Your consent form will not be connected to your responses in any way, and it will be stored separately from your responses in a locked file cabinet that is accessible only to members of the research team.

VI. Compensation

You will receive one extra credit point towards your Psychology grade for your participation in the study.

VII. Freedom to Withdraw

If, at any time during the study, you become uncomfortable, you are free to withdraw your participation without penalty. You will still receive credit for participating. You may also choose not to answer specific questions without penalty.

VIII. Approval of Research

This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University (IRB #01-485), and by the Human Subjects Committee of the Department of Psychology.

IX. Participant's Responsibilities

I voluntarily agree to participate in this study. I have the following responsibilities: respond to questions about my values, beliefs, and health behaviors.

X. Participant's Permission

I have read and understand the Informed Consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

 Print name

 Signature

 Date

**Should I have questions about this research or its conduct, I may contact:
Investigators:**

Stephanie A. Fearer, M.S. stadams3@vt.edu 231-7631
Investigator

Robert S. Stephens, Ph.D. stephens@vt.edu 231-6304
Faculty Advisor

IRB Representatives:

David Harrison, Ph.D. dwh@vt.edu 231-4422
Chair, Psychology Human
Subjects Committee

Dr. David Moore moored@vt.edu 231-4991
Chair, IRB
CVM Phase II

APPENDIX B

Demographic Information

1. How old are you? _____
2. What is your sex?
_____(1) male
_____(2) female
3. What is your ethnicity?
_____(1) African-American
_____(2) American Indian or Alaskan native
_____(3) Asian or Pacific Islander
_____(4) Caucasian
_____(5) Hispanic
_____(6) Other: _____
4. What is your student status?
_____(1) Freshman
_____(2) Sophomore
_____(3) Junior
_____(4) Senior

APPENDIX C

Health Behaviors Questionnaire

1. In general, would you say your health is:

- (1) Poor
- (2) Fair
- (3) Good
- (4) Very good
- (5) Excellent

2. Do you have a diagnosed medical condition?

- (0) No
- (1) Yes, specify: _____

3. How often do you engage in aerobic exercise (e.g., walking, jogging, aerobics, swimming, biking, etc.)

- (0) Never
- (1) A few times a year
- (2) Once a month
- (3) 2-3 times a month
- (4) Weekly
- (5) 2-4 times a week
- (6) 4-6 times a week
- (7) Daily

4. How often do you engage in strengthening exercise (i.e., weight lifting)

- (0) Never
- (1) A few times a year
- (2) Once a month
- (3) 2-3 times a month
- (4) Weekly
- (5) 2-4 times a week
- (6) 4-6 times a week
- (7) Daily

5. Please indicate the number of servings of each of the following food groups you eat on a typical day?

- Vegetables (e.g., broccoli, zucchini, peas)
- Fruits (e.g., apples, bananas, oranges)
- Protein (e.g., meat, beans, eggs, nuts)
- Dairy (e.g., milk, cheese, yogurt)
- Fats (e.g., sweets, fried foods)

6. Would you say that you are:

- (1) Underweight
- (2) Average weight
- (3) Overweight

7. How many cigarettes do you smoke?

- (0) None
- (1) less than 10
- (2) about half a pack
- (3) a pack
- (4) more than a pack

APPENDIX D

Timeline Followback

We would like you to recall your drinking over the past **30 days**. This may sound hard to do, but it actually is not difficult, especially when you use a calendar for a reference. Calendars have been found to be very useful in helping people recall their drinking. Listed below are instructions and hints for using the calendar.

Instructions:

This and the following page contain directions that refer to writing on a calendar that is provided. The calendars are located directly after the two direction pages. While reading through the directions, please flip to the calendar sheets and write on them as necessary. You'll see that some days on the calendars have been crossed through. You only need to mark on the days that have not been crossed out.

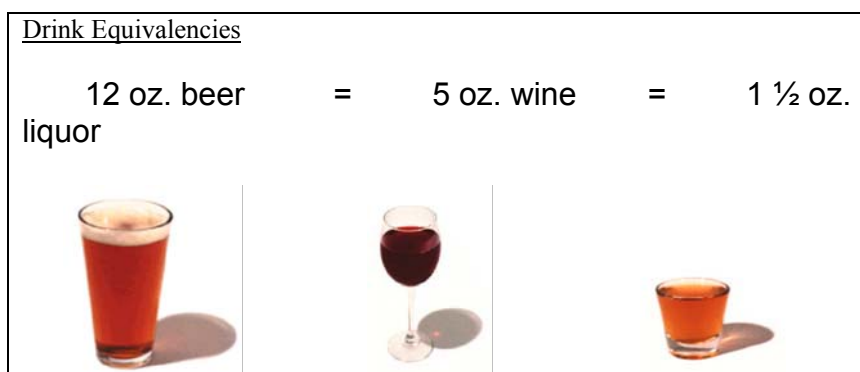
Filling in the Calendar

1. First mark events on the calendar provided. Marking events will help you remember what has been going on in your life which will then help you remember times that you might have drank alcohol. The following is a list of hints or suggestions for marking events on the calendar:
 - a. Mark days on the calendar that are specific to you, such as days you had tests, went to a party, birthdays, trips, doctor's appointments, when you were sick, etc.
 - b. Sometimes people have certain patterns to their life, such as always studying on certain nights or always going out with friends on certain nights. Marking these patterns may also help you recall your drinking.
 - c. If you have a planner or appointment book, you may use it to help you recall events that have occurred over the past month.

***Many people find it's easier to fill out the calendar starting with yesterday and then work their way backwards from there.**

Recording Your Alcohol Use

- Now that you have the events marked on the calendar, you can use them to recall if you drank on certain days. While a precise day-by-day account of your drinking would be great, all we expect you to do is estimate how much you've consumed daily. So if you're not sure how much you drank on a certain day, use your best estimate.
- For each day on the calendar, please write in the number of drinks you consumed. Our definition of one drink is **one 12 ounce beer, one 5 ounce wine, or 1 ½ ounces of liquor** (straight or in a drink).



- On any day in which you drank, write the total number of drinks you had, which means adding across different types of drinks. For example, if you had two 12-ounce beers and a drink with 1 ½ ounces of liquor, you would list that as 3 drinks.
- On days you did not drink, please write in a “0”.

		Tuesday Apr. 1st	Wednesday Apr. 2nd	Thursday Apr. 3rd	Friday Apr. 4th	Saturday Apr. 5th
Sunday Apr. 6th	Monday Apr. 7th	Tuesday Apr. 8th	Wednesday Apr. 9th	Thursday Apr. 10th	Friday Apr. 11th	Saturday Apr. 12th
Sunday Apr. 13th	Monday Apr. 14th	Tuesday Apr. 15th	Wednesday Apr. 16th	Thursday Apr. 17th	Friday Apr. 18th	Saturday Apr. 19th
Sunday Apr. 20th	Monday Apr. 21st	Tuesday Apr. 22nd	Wednesday Apr. 23rd	Thursday Apr. 24th	Friday Apr. 25th	Saturday Apr. 26th
Sunday Apr. 27th	Monday Apr. 28th	Tuesday Apr. 29th	Wednesday Apr. 30th			

APPENDIX E

RAPI

Different things happen to people when they are drinking alcohol or as a result of their alcohol use. Some of these things are listed below. Please indicate **how many times** each has happened to you during the **past six months** *while* you were drinking alcohol or *as the result of* your alcohol use. Please circle the most accurate response using the rating system provided below.

If you did not drink at all during the past 6 months, check this box and then circle "0" for "Never" for all of the questions.

How many times did the following things happen to you while you were drinking or because of your alcohol use during the **past six months**?

0	Never				
	1	One to two times			
		2	Three to five times		
			3	Six to ten times	
				4	
0	1	2	3	4	Not able to do your homework or study for a test?
0	1	2	3	4	Got into fights, acted bad, or did mean things?
0	1	2	3	4	Missed out on other things because you spent too much money on alcohol?
0	1	2	3	4	Went to work or school high or drunk?
0	1	2	3	4	Caused shame or embarrassment to someone?
0	1	2	3	4	Neglected your responsibilities?
0	1	2	3	4	Relative avoided you?
0	1	2	3	4	Felt that you needed more alcohol than you used to use in order to get the same effect?
0	1	2	3	4	Tried to control your drinking by trying to drink only at certain times of the day or certain places?
0	1	2	3	4	Had withdrawal symptoms, that is felt sick because you stopped or cut down on drinking?
0	1	2	3	4	Noticed a change in your personality?
0	1	2	3	4	Felt you had a problem with alcohol?
0	1	2	3	4	Missed a day (or part of a day) of school or work?
0	1	2	3	4	Tried to cut down or quit drinking?
0	1	2	3	4	Suddenly found yourself in a place that you could not remember getting to?
0	1	2	3	4	Passed out or fainted suddenly?
0	1	2	3	4	Had a fight, argument or bad feelings with a friend?
0	1	2	3	4	Had a fight argument or bad feelings with a family member?
0	1	2	3	4	Kept drinking when you promised yourself not to?
0	1	2	3	4	Felt you were going crazy?
0	1	2	3	4	Had a bad time?
0	1	2	3	4	Felt physically or psychologically dependent on alcohol?
0	1	2	3	4	Was told by a friend or neighbor to stop or cut down drinking?
0	1	2	3	4	Drove shortly after having more than 2 drinks?
0	1	2	3	4	Drove shortly after having more than 4 drinks?

APPENDIX F

IAS

The following statements ask about some different views you may have regarding alcohol use. Please use the scale below to indicate how much you agree or disagree with each of the statements.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. It is acceptable for others to drink, but it is not something I do	1	2	3	4	5
2. It is acceptable for me to have a drink on occasion	1	2	3	4	5
3. I have a goal of complete abstinence from alcohol	1	2	3	4	5
4. It is acceptable for me to drink enough to get a "buzz"	1	2	3	4	5
5. It is acceptable for me to get drunk	1	2	3	4	5

The following statements ask about your typical plans regarding alcohol use.

6. How many drinks do you plan to consume on a typical weekday?

- (0) 0
- (1) 1-2
- (2) 3-4
- (3) 5-6
- (4) 7-8
- (5) 9-10
- (6) more than 10

7. How many drinks do you plan to consume on a typical weekend day?

- (0) 0
- (1) 1-2
- (2) 3-4
- (3) 5-6
- (4) 7-8
- (5) 9-10
- (6) more than 10

8. How many days per week you typically plan to drink?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7

APPENDIX G

DSRQ

Directions: We are interested in the various strategies college students use to either avoid drinking altogether or to avoid drinking heavily.

Even if you do not drink, you can still answer these questions. Many of these strategies may be used for avoiding alcohol use altogether. However, if you do not feel that an item applies to you, circle N/A for “Not Applicable.”

Using the scale below, please indicate how often you have used each of the following strategies in the past 30 days:

0	1	2	3	4
Never	Rarely	Occasionally	Most of the time	Always

1. Think about how I am acting	0	1	2	3	4	N/A
2. The next day, I think about what I did	0	1	2	3	4	N/A
3. Think about bad experiences in the past that were associated with alcohol	0	1	2	3	4	N/A
4. Think about how I'll feel the next day if I drink too much	0	1	2	3	4	N/A
5. I tell myself when I've had enough	0	1	2	3	4	N/A
6. I tell myself that I don't want to look stupid	0	1	2	3	4	N/A
7. Think about how I will feel in an hour	0	1	2	3	4	N/A
8. Think about times when I drank too much and how bad I felt	0	1	2	3	4	N/A
9. Think about doing something I would regret	0	1	2	3	4	N/A
10. Drink slowly	0	1	2	3	4	N/A
11. Limit the number of drinks I consume	0	1	2	3	4	N/A
12. Throw my cup away after I've reached my limit	0	1	2	3	4	N/A
13. Pace myself/drink only a certain amount per hour	0	1	2	3	4	N/A
14. Sip my drink	0	1	2	3	4	N/A
15. Count how many drinks I've had	0	1	2	3	4	N/A
16. Give drinks away	0	1	2	3	4	N/A
17. Nurse my drink	0	1	2	3	4	N/A
18. Refuse drinks	0	1	2	3	4	N/A

	0 Never	1 Rarely	2 Occasionally	3 Most of the time	4 Always	
19. Punish myself for drinking too much (e.g. not allowing myself to drink/go out the next night; forcing myself to work through a hangover)	0	1	2	3	4	N/A
20. Only go out once a week	0	1	2	3	4	N/A
21. Stop drinking when I feel sick	0	1	2	3	4	N/A
22. Go to places where there is no alcohol	0	1	2	3	4	N/A
23. Leave/avoid places where people pressure me to drink	0	1	2	3	4	N/A
24. Don't drink with people I don't know	0	1	2	3	4	N/A
25. Avoid places where people will be taking shots	0	1	2	3	4	N/A
26. Avoid places where people will be drinking heavily	0	1	2	3	4	N/A
27. Avoid drinking with people who drink heavily	0	1	2	3	4	N/A
28. Drink only in small groups	0	1	2	3	4	N/A
29. Avoid drinking in places that I don't feel comfortable or am unfamiliar with	0	1	2	3	4	N/A
30. Avoid going to bars	0	1	2	3	4	N/A
31. Don't play drinking games	0	1	2	3	4	N/A
32. Avoid fraternity/sorority parties	0	1	2	3	4	N/A
33. Avoid standing near the keg or bar	0	1	2	3	4	N/A
34. Avoid places where I drink heavily	0	1	2	3	4	N/A
35. Avoid "free beer" parties	0	1	2	3	4	N/A
36. Tell my friends how much I'm planning on drinking	0	1	2	3	4	N/A
37. Don't go bar or party "hopping"-stay in one place	0	1	2	3	4	N/A
38. Go to a room/section of the bar where people are not drinking	0	1	2	3	4	N/A

APPENDIX H

SCQ

Directions: Listed below are a number of situations or events in which some people experience difficulty in avoiding heavy drinking. Imagine yourself in each of these situations and indicate how confident you are that you would be able to *resist the urge to drink heavily* (heavily means 5 or more drinks for men, 4 or more for women) according to the following scale:

not at all confident						very confident
0%	20%	40%	60%	80%		100%

I would be able to resist the urge to drink *heavily*:

1. if I felt uneasy in the presence of someone	0%	20%	40%	60%	80%	100%
2. if I unexpectedly found a bottle of my favorite booze	0%	20%	40%	60%	80%	100%
3. if I were at a party and other people were drinking	0%	20%	40%	60%	80%	100%
4. if I felt I had let myself down	0%	20%	40%	60%	80%	100%
5. if I broke up with my significant other	0%	20%	40%	60%	80%	100%
6. if I were talking to an attractive member of the opposite sex	0%	20%	40%	60%	80%	100%
7. if I suddenly had the urge to drink	0%	20%	40%	60%	80%	100%
8. if I angry at the way something had turned out	0%	20%	40%	60%	80%	100%
9. if other people didn't seem to like me	0%	20%	40%	60%	80%	100%
10. if I were at a friend's place and they were playing drinking games	0%	20%	40%	60%	80%	100%
11. if someone pressured me to be a "good sport" and have a drink	0%	20%	40%	60%	80%	100%
12. if I was at a fraternity party	0%	20%	40%	60%	80%	100%
13. if someone criticized me	0%	20%	40%	60%	80%	100%
14. if I were on a date and my date was drinking	0%	20%	40%	60%	80%	100%
15. if I had just finished a long day of classes or work	0%	20%	40%	60%	80%	100%

	not at all confident 0%	20%	40%	60%	80%	very confident 100%
I would be able to resist the urge to drink <i>heavily</i>:						
16. if it was a weekend	0%	20%	40%	60%	80%	100%
17. if I felt lonely	0%	20%	40%	60%	80%	100%
18. if I was at a casual get together	0%	20%	40%	60%	80%	100%
19. if I had some extra money	0%	20%	40%	60%	80%	100%
20. if a friend was buying me drinks	0%	20%	40%	60%	80%	100%
21. if I felt anxious and wanted to relax	0%	20%	40%	60%	80%	100%
22. if I had an argument with a friend or roommate	0%	20%	40%	60%	80%	100%
23. if I were in a restaurant and the people with me ordered pitchers of beer and mixed drinks	0%	20%	40%	60%	80%	100%
24. if I were at tailgate party for a football game	0%	20%	40%	60%	80%	100%
25. if someone I was attracted to was drinking	0%	20%	40%	60%	80%	100%
26. if there were problems at school or work	0%	20%	40%	60%	80%	100%
27. if other people made me tense	0%	20%	40%	60%	80%	100%
28. if I was with friends watching TV	0%	20%	40%	60%	80%	100%
29. if I were at happy hour with a group of friends	0%	20%	40%	60%	80%	100%
30. if I was bored	0%	20%	40%	60%	80%	100%
31. if I had just gotten a good grade on a test	0%	20%	40%	60%	80%	100%
32. if I were at a bar having a good time	0%	20%	40%	60%	80%	100%
33. if I was at a party where I didn't know many people	0%	20%	40%	60%	80%	100%
34. if I wanted to celebrate with a friend	0%	20%	40%	60%	80%	100%
35. if I was talking to someone I didn't know well	0%	20%	40%	60%	80%	100%
36. if I were enjoying myself at a party and wanted to feel even better	0%	20%	40%	60%	80%	100%

APPENDIX I

AOES

Directions: The following is a list of some effects or consequences that some people experience after drinking alcohol. Using the scale below, indicate the likelihood that these various things would happen to you when you drink *heavily* (5 or more drinks for men, 4 or more for women)?

Even if you do not drink at all, you can still fill this out. Just answer according to what you think would happen to you if you did drink.

When I drink alcohol <i>heavily</i> ...	No Chance	Very Unlikely	Unlikely	Likely	Very Likely	Certain to happen
1. I am more accepted socially	1	2	3	4	5	6
2. I become aggressive	1	2	3	4	5	6
3. I am less alert	1	2	3	4	5	6
4. I feel ashamed of myself	1	2	3	4	5	6
5. I enjoy the buzz	1	2	3	4	5	6
6. I become clumsy or uncoordinated	1	2	3	4	5	6
7. I feel good	1	2	3	4	5	6
8. I get into fights	1	2	3	4	5	6
9. I can't concentrate	1	2	3	4	5	6
10. I have a good time	1	2	3	4	5	6
11. I have problems driving	1	2	3	4	5	6
12. I feel guilty	1	2	3	4	5	6
13. I get a hangover	1	2	3	4	5	6
14. I feel happy	1	2	3	4	5	6
15. I get a headache	1	2	3	4	5	6
16. I am more sexually assertive	1	2	3	4	5	6
17. It is fun	1	2	3	4	5	6
18. I get mean	1	2	3	4	5	6
19. I have problems with memory and concentration	1	2	3	4	5	6
20. It takes away my negative moods and feelings	1	2	3	4	5	6
21. I have more desire for sex	1	2	3	4	5	6
22. It is easier for me to socialize	1	2	3	4	5	6
23. I experience unpleasant physical effects	1	2	3	4	5	6
24. I am more sexually responsive	1	2	3	4	5	6
25. I feel more social	1	2	3	4	5	6
26. I feel sad or depressed	1	2	3	4	5	6
27. I am able to talk more freely	1	2	3	4	5	6
28. I become more sexually active	1	2	3	4	5	6
29. I feel sick	1	2	3	4	5	6
30. I feel less stressed	1	2	3	4	5	6
31. I am friendlier	1	2	3	4	5	6
32. I feel pleasant physical effects	1	2	3	4	5	6
33. I am able to take my mind off my problems	1	2	3	4	5	6
34. I am more outgoing	1	2	3	4	5	6

APPENDIX J

Following are questions about your religious/spiritual beliefs and experiences. Remember that your answers are completely confidential, so please answer the questions as honestly as you can.

Religious Preference

1. Do you currently identify with any religion or religious belief system?

_____ (0) No (Atheist or Agnostic)

If no, go to next page

_____ (1) Yes

If yes, answer the following questions:

1a. Please indicate your current religious preference (please mark only one):

- | | |
|--|---|
| <p>_____ (1) Catholic</p> <p>_____ (2) Orthodox</p> <p>_____ (3) Jewish</p> <p>_____ (4) Episcopal</p> <p>_____ (5) Lutheran</p> <p>_____ (6) Methodist</p> <p>_____ (7) Presbyterian</p> <p>_____ (8) Baptist</p> <p>_____ (9) United Church of Christ</p> <p>_____ (10) Christian Churches (e.g. Disciples of Christ; any modifier such as First, Community)</p> <p>_____ (11) Churches of Christ (not United Church of Christ)</p> <p>_____ (12) Evangelical Free Church</p> <p>_____ (13) Full Gospel Fellowship</p> <p>_____ (14) Foursquare Gospel</p> <p>_____ (15) Nazarene</p> <p>_____ (16) Bible Church</p> <p>_____ (17) Churches of God</p> <p>_____ (18) Christian and Missionary Alliance</p> <p>_____ (19) Mennonite</p> | <p>_____ (20) Quaker</p> <p>_____ (21) Amish</p> <p>_____ (22) Assemblies of God</p> <p>_____ (23) Church of God in Christ</p> <p>_____ (24) Pentecostal</p> <p>_____ (25) Holiness</p> <p>_____ (26) Apostolic</p> <p>_____ (27) Other charismatic</p> <p>_____ (28) Adventist</p> <p>_____ (29) Mormon</p> <p>_____ (30) Jehovah's Witness</p> <p>_____ (31) Christian Scientist</p> <p>_____ (32) Non-denominational church (other than charismatic)</p> <p>_____ (33) Other Protestant</p> <p>_____ (34) Other Christian</p> <p>_____ (35) Islamic/Muslim</p> <p>_____ (36) Hindu</p> <p>_____ (37) Buddhist</p> <p>_____ (38) Other religion:</p> <p>_____</p> |
|--|---|

1b. Are you currently actively involved in a religious organization or fellowship (include campus fellowships)?

_____ (0) No

_____ (1) Yes

APPENDIX K

RPQ

1. How often do you attend religious services?

- (0) never
- (1) less than once a year
- (2) about once or twice a year
- (3) several times a year
- (4) about once a month
- (5) 2-3 times a month
- (6) nearly every week
- (7) every week
- (8) several times a week

2. Besides religious services, how often do you take part in other activities at a place of worship?

- (0) never
- (1) less than once a year
- (2) about once or twice a year
- (3) several times a year
- (4) about once a month
- (5) 2-3 times a month
- (6) nearly every week
- (7) every week
- (8) several times a week

3. How often do you pray privately in places other than at church or synagogue?

- (0) never
- (1) less than once a month
- (2) once a month
- (3) a few times a month
- (4) once a week
- (5) a few times a week
- (6) once a day
- (7) several times a day

4. How often do you watch or listen to religious programs on TV or radio?

- (0) never
- (1) less than once a month
- (2) once a month
- (3) a few times a month
- (4) once a week
- (5) a few times a week
- (6) once a day
- (7) several times a day

5. How often do you read the Bible or other religious literature?

- (0) never
- (1) less than once a month
- (2) once a month
- (3) a few times a month
- (4) once a week
- (5) a few times a week
- (6) once a day
- (7) several times a day

APPENDIX L

RMQ

Directions: Below are some statements about different roles that religion and spirituality might play in your life.

- **There are a few statements that refer to God-please answer these according to your view of God.**
- ***Even if you are atheist or agnostic, you can still answer the questions. For example, to the statement “The goals of my life grow out of my understanding of God”, you might answer 1, strongly disagree. However, if there are items that you feel you can’t answer, circle N/A for Not Applicable.***

Please use the scale below to indicate how much you agree or disagree with each of the statements

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. My spiritual beliefs give meaning to my life’s joys and sorrows	1	2	3	4	5	N/A
2. The goals of my life grow out of my understanding of God	1	2	3	4	5	N/A
3. Without a sense of spirituality, my daily life would be meaningless	1	2	3	4	5	N/A
4. My religious beliefs help me find a purpose in even the most painful and confusing events in my life	1	2	3	4	5	N/A
5. When I lose touch with God, I have a harder time feeling that there is purpose and meaning in life	1	2	3	4	5	N/A
6. My spiritual beliefs give my life a sense of significance and purpose	1	2	3	4	5	N/A
7. My mission in life is guided/shaped by my faith in God	1	2	3	4	5	N/A
8. When I am disconnected from the spiritual dimension of my life, I lose my sense of purpose	1	2	3	4	5	N/A
9. My relationship with God helps me find meaning in the ups and downs of life	1	2	3	4	5	N/A
10. My life is significant because I am part of God’s plan	1	2	3	4	5	N/A
11. What I try to do in my day-to-day life is important to me from a spiritual point of view	1	2	3	4	5	N/A
12. I am trying to fulfill my God-given purpose in life	1	2	3	4	5	N/A
13. Looking at the most troubling or confusing events from a spiritual perspective adds meaning to my life	1	2	3	4	5	N/A

Please use the scale below to indicate how much you agree or disagree with each of the statements

1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
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14. My purpose in life reflects what I believe God wants for me	1	2	3	4	5	N/A
15. Without my religious foundation, my life would be meaningless	1	2	3	4	5	N/A
16. My feelings of spirituality add meaning to the events in my life	1	2	3	4	5	N/A
17. God plays a role in how I choose my path in life	1	2	3	4	5	N/A
18. My spirituality helps define the goals I set for myself	1	2	3	4	5	N/A
19. My faith involves all of my life	1	2	3	4	5	N/A
20. One should seek God's guidance when making every important decision	1	2	3	4	5	N/A
21. In my life I experience the presence of the Divine	1	2	3	4	5	N/A
22. My faith sometimes restricts my actions	1	2	3	4	5	N/A
23. Nothing is as important to me as serving God as best I know how	1	2	3	4	5	N/A
24. I try hard to carry my religion over into all my other dealings in life	1	2	3	4	5	N/A
25. My religious beliefs are what really lie behind my whole approach to life	1	2	3	4	5	N/A

APPENDIX M

Brief RCOPE

Directions: Think about how you try to understand and deal with major problems in your life. Please use the scale below to indicate the extent to which you use each of the following methods of coping to deal with problems.

1	2	3	4	5
Not at all				A great deal

1. Looked for a stronger connection with God	1	2	3	4	5
2. Sought God's love and care	1	2	3	4	5
3. Sought help from God in letting go of my anger	1	2	3	4	5
4. Tried to put my plans into action together with God	1	2	3	4	5
5. Tried to see how God might be trying to strengthen me in this situation	1	2	3	4	5
6. Asked forgiveness for my sins	1	2	3	4	5
7. Focused on religion to stop worrying about my problems	1	2	3	4	5
8. Wondered whether God had abandoned me	1	2	3	4	5
9. Felt punished by God for my lack of devotion	1	2	3	4	5
10. Wondered what I did for God to punish me	1	2	3	4	5
11. Questioned God's love for me	1	2	3	4	5
12. Wondered whether my church had abandoned me	1	2	3	4	5
13. Decided the devil made this happen	1	2	3	4	5
14. Questioned the power of God	1	2	3	4	5

APPENDIX N

RSSQ

Directions: Below are some questions about the kind of help and support people who share your religious beliefs offer you in coping with your life at present. If you do not hold any religious beliefs, please circle N/A for Not Applicable.

Please use the scale below to answer questions 1-9

1 Never	2 Once in a While	3 Fairly Often	4 Very Often
------------	----------------------	-------------------	-----------------

1. How often do people who share your religious beliefs make you feel loved and cared for?	1	2	3	4	N/A
2. How often do people who share your religious beliefs listen to you talk about your private problems and concerns?	1	2	3	4	N/A
3. How often do people who share your religious beliefs express interest and concern in your well-being?	1	2	3	4	N/A
4. How often do you make people who share your religious beliefs feel loved and cared for?	1	2	3	4	N/A
5. How often do you listen to people who share your religious beliefs talk about their private problems and concerns?	1	2	3	4	N/A
6. How often do you express interest and concern in the well-being of people who share your religious beliefs?	1	2	3	4	N/A
7. How often do people who share your religious beliefs make too many demands on you?	1	2	3	4	N/A
8. How often are people who share your religious beliefs critical of you and the things you do?	1	2	3	4	N/A
9. How often do people who share your religious beliefs try to take advantage of you?	1	2	3	4	N/A

APPENDIX O

RSEQ

Directions: Please answer the following questions about the social interactions you have with those who share your religious beliefs.

1. I enjoy spending time with others who share my religious beliefs.

- (1) Not at all true
 (2) Somewhat true
 (3) Moderately true
 (4) Mostly true
 (5) Totally true
 (-8) Not applicable (I don't hold any religious beliefs)

2. I enjoy being with people who share my religious beliefs more than people who do not.

- (1) Not at all true
 (2) Somewhat true
 (3) Moderately true
 (4) Mostly true
 (5) Totally true
 (-8) Not applicable (I don't hold any religious beliefs)

3. Generally speaking, would you say most of the people you regularly associate with in social activities outside of church affairs do or do not share your religious beliefs?

- (1) Most share my religious beliefs
 (2) About half do and half don't
 (3) Most do not share my religious beliefs
 (-8) Not Applicable (I don't hold any religious beliefs)

4. In the past month, how often did you socialize with people who share your religious beliefs, outside of church activities?

- (0) Never
 (1) 1-3 times
 (2) Weekly
 (3) 2-3 times a week
 (4) 4-6 times a week
 (5) daily
 (-8) Not applicable (I don't hold any religious beliefs)

APPENDIX P

ROPRA

Directions: Please use the scale below to indicate how true each of the following statements is of your religious organization's/fellowship's position regarding alcohol use:

1	2	3	4	5
Not at all true	Somewhat true	Moderately true	Mostly true	Totally true

I believe that my religious organization feels that:

1. Any alcohol use is sinful	1	2	3	4	5	N/A
2. Alcohol use as part of religious ceremonies is acceptable	1	2	3	4	5	N/A
3. Alcohol use in moderation is acceptable	1	2	3	4	5	N/A
4. Occasionally getting drunk is acceptable	1	2	3	4	5	N/A
5. Alcohol defiles the body, which is God's temple	1	2	3	4	5	N/A
6. Excessive alcohol use replaces God as being the central focus of one's life	1	2	3	4	5	N/A
7. Alcoholism is a sin	1	2	3	4	5	N/A

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EDUCATION

- 1997-2004 **Virginia Polytechnic Institute and State University, Blacksburg, Virginia.**
Program: Clinical Psychology (APA accredited)
Specialization: Clinical-Adult Psychology
Degree Conferred (Feb 2004): Doctor of Philosophy
 Dissertation: *Examining the Role of Social Cognitive Constructs in Religion's Effect on Alcohol Use*
Degree Conferred (May 2000): Master of Science
 Thesis: *The Self-Regulation of Drinking in College Students: Scale Development and Validation and Relationship to Academic Performance*
Advisor: Robert S. Stephens, Ph.D.
- 1993-1997 **University of South Carolina, Columbia, South Carolina**
Major: Psychology
Degree Conferred: Bachelor of Arts, Magna Cum Laude

RESEARCH EXPERIENCE

- 8/03-present **Research Associate.** Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
 - Data analysis and manuscript preparation from Marijuana Check-Up (see description below)
- 8/97-8/03 Supervisor: Robert S. Stephens, Ph.D.
Graduate Research Assistant. Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

- Doctoral Dissertation: “Examining the Role of Social Cognitive Constructs in Religion’s Effect on Alcohol Use”
 - Design of original study investigating the relationships between various dimensions of religion, social cognitive constructs, and alcohol use in college students.
 - Development of study protocol and assessment battery
 - Collection of original data
 - Supervision of undergraduate research assistants
 - Analysis of data

- Master’s Thesis: “The Self-Regulation of Drinking in College Students: Scale Development and Validation and Relationship to Academic Performance”
 - Design of original study investigating college students’ use of self-regulatory strategies to control their drinking.
 - Development of study protocol and assessment battery
 - Supervision of undergraduate research assistants
 - Data collection, entry and analysis
 - Manuscript preparation

- The Marijuana Check-Up II (Roffman and Stephens): a NIDA-funded study comparing the effectiveness of a two vs. a six-session motivational enhancement therapy. Responsibilities:
 - Assist with the writing of the grant proposal
 - Assist with the development of the study’s protocols, interventions, assessment battery, research manual, and recruitment strategies
 - Train assessors in the administration of the Structured Clinical Interview for the DSM-IV (SCID; substance abuse and dependence modules), the Timeline Followback, and a number of self-report assessments
 - Supervise assessors and therapists via coding of taped assessment and therapy sessions
 - Construct data entry screens and codebooks
 - Data management, quality assurance, and analysis

- The Marijuana Check-Up (Roffman and Stephens): a NIDA-funded study examining the effectiveness of motivational enhancement therapy as a brief intervention for marijuana dependent adults. Responsibilities:
 - Assist with the development of the study’s protocols, interventions, assessment battery
 - Assist with data management and analysis
 - Supervise tape coding by undergraduate and graduate research assistants

- Supervise assessors and therapists via audio-taped assessment and therapy sessions,
 - Assist with the preparation of manuscripts
- The Teen Marijuana Check-Up (Roffman and Stephens): NIDA-funded Stage 1a and Stage 1b trials examining the effectiveness of motivational interviewing as a brief intervention for marijuana dependent adolescents.
Responsibilities:
 - Assist with the writing of the grant proposals
 - Assist with the development of protocol, recruitment strategies, intervention, and assessment batteries
- Improving Substance Abuse Treatment Aftercare Adherence and Outcome (Lash and Stephens): a VAMC-funded study examining the efficacy of an intervention designed to increase aftercare participation in substance users who completed a substance abuse treatment program at the Salem, Virginia VAMC.
 - Assist with the writing of the grant proposal
 - Assist with the development of protocol, recruitment strategies, and assessment battery
 - Train graduate students to administer the Timeline Followback.
 - Received training in administration of the Addiction Severity Index.

Supervisor: Robert S. Stephens, Ph.D.

1996

Undergraduate Research Assistant. Department of Psychology, University of South Carolina, Columbia, South Carolina
Research area: Sports Psychology. Responsibilities: Developed and conducted preliminary interviews with college athletes regarding the development and influence of athletics in their lives.

Supervisor: Robert Heckel, Ph.D.

1994-1996

Undergraduate Research Assistant. Department of Psychology, University of South Carolina, Columbia, South Carolina
Research area: Object permanence, A-not-B task, and EEG in infants. Responsibilities: Assist in the development of a study comparing two versions of the A-not-B task, contact and schedule participants for studies, collect demographic information from participants, run participants, code videotapes, enter data. Trained and supervised other undergraduates in videotape coding.

Completed honors thesis, “Eight-Month olds’ performance on looking vs. reaching versions of A-not-B”.

Supervisor: Martha Ann Bell, Ph.D.

CLINICAL EXPERIENCE

5/02-Present

Psychology Intern. Greater Hartford Clinical Psychology Internship Consortium, Newington, CT VAMC and University of Connecticut Health Center. Rotations/Responsibilities:

- Health Psychology.
 - Coordinated and conducted four-session smoking cessation groups consisting of motivational enhancement, behavioral and pharmacological interventions.
 - Conducted smoking history assessments.
 - Conducted brief, individual smoking cessation interventions.
 - Conducted psychological assessments for organ transplant candidates.
 - Conducted psychotherapy with health psychology patients. Presenting problems included irritable bowel syndrome, dermatitis, erectile dysfunction, and depression resulting from chronic, severe cardiac problems.

Supervisors: Judith Cooney, Ph.D., Larry Gaupp, Ph.D.

- Substance Abuse.
 - Conducted psychological assessments of substance abusing and dually diagnosed patients presenting to a substance abuse day treatment program (SADP).
 - Case manager/therapist for individual patients admitted to the SADP.
 - Conducted outpatient and day program psychoeducational coping skills groups.
 - Participated in multidisciplinary treatment team meetings.

Supervisor: Judith Cooney, Ph.D.; Ned Cooney, Ph.D.

- Clinical Neuropsychology
 - Conducted clinical neuropsychological assessments to evaluate a variety of referral questions.

Supervisor: Larry Gaupp, Ph.D.

- Alcohol and Drug Abuse Psychiatric Treatment Program (ADAPT)
 - Therapist and co-therapist for psychotherapy process groups for patients with substance abuse or psychiatric disorders, or both.

Supervisor: Ronald Kadden, Ph.D.

- In addition to these rotations, I conducted ongoing long-term individual psychotherapy with veterans whose presenting problems included PTSD, MDD, anger management, interpersonal difficulties, terminal illness, and substance abuse.

Supervisor: Larry Gaupp, Ph.D.

8/97-5/98;
8/98-5/99;
8/00-5/01

Graduate Clinician. Clinical Practica, Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

- Conducted psychotherapy with adult, adolescent, and child clients in an outpatient clinic. Presenting problems included substance abuse disorders, major depressive disorder, post-traumatic stress disorder, obsessive-compulsive disorder, attention deficit-hyperactivity disorder, interpersonal difficulties, marital problems, bereavement, social skills deficits, and academic difficulties. Treatment modalities included cognitive-behavioral, motivational enhancement, and systems-based approaches.
- Co-therapist for a juvenile detention group; therapy focused on various life skills (e.g. anger management, substance use, social skills, etc.)
- Conducted intellectual and personality assessments
- As a fourth-year graduate student, supervised second-year clinical psychology graduate students' psychotherapy cases.

Supervisors: Robert S. Stephens, Ph.D., Angela Scarpa-Friedman, Ph.D., Russell Jones, Ph.D.

5/99-8/99

Psychology Extern. Veterans Administration Medical Center, Augusta, Georgia. Substance Abuse Treatment Program.

- Co-therapist for process groups and aftercare groups

- Therapist for six individual adult substance-dependent clients
- Co-therapist for group family therapy
- Conducted QuitSmart smoking cessation program
- Conducted psychoeducational groups
- Received training on administration of the Addiction Severity Index

Supervisors: William P. Nolan, Ph.D., Arthur Sullwold, M.D.

TEACHING EXPERIENCE

8/97-5/98

Graduate Teaching Assistant. Department of Psychology, Virginia Polytechnic Institute and State University Blacksburg, Virginia. Responsibilities:

- Present material and facilitate class discussions in two Introductory Psychology recitation sections
- Develop and administer bi-weekly quizzes, grade assigned essays.

Supervisor: Jack Finney, Ph.D., Chair, Department of Psychology

Group Affiliations:

2000-present

American Psychological Association, student member

1998-present

Association for the Advancement of Behavior Therapy, student member

PUBLICATIONS (Please note that some publications were submitted under my maiden name, Adams):

Bell, M.A. & Adams, S.E. (1999). Comparable performance on looking and reaching versions of the A-Not-B task at 8 months of age.

Infant Behavior and Development, 22(2), 221-235.

Stephens, R.S., Roffman, R., Fearer, S.A., Williams, C.D., Picciano, J., & Burke, R. The marijuana check-up: Reaching users who are ambivalent about change. *Under revision*.

PRESENTATIONS (Please note that some presentations were submitted under my maiden name, Adams):

- Adams, S., Burke, R., Mitten, L., & Stephens, R. (1998). Characteristics of Individuals attending college and community-based HIV anonymous testing clinics. Poster presented at the Second Annual Virginia Collegiate Psychology Conference.
- Adams, S.E., Burke, R.S., & Stephens, R.S. (1999). Drinking and unsafe sex in a college sample attending HIV anonymous testing clinics. Poster presented at the 33rd Annual Convention of the Association for Advancement of Behavior Therapy, Toronto.
- Adams, S.E., Stephens, R.S., & Williams, C.D. (2000). The Self-Regulation of Drinking in College Students: Scale Development and Validation. Poster presented at the 34th Annual Convention of the Association for Advancement of Behavior Therapy, New Orleans.
- Adams, S.E., Williams, C.D., Stephens, R.S., Roffman, R., Burke, R.S., Campbell, A., & Swan, M. (1999). The marijuana check-up. Poster presented at the 33rd Annual Convention of the Association for Advancement of Behavior Therapy, Toronto.
- Bell, M.A. & Adams, S.E. (1997, April). Looking versus reaching: Sex differences in permanence performance. Paper presented at the Society for Research in Child Development, Washington D.C.
- Fearer, S., & Stephens, R., (2002). Understanding the Relationship Between Religion and Alcohol Use. Poster presented at the 36th Annual Convention of the Association for the Advancement of Behavior Therapy, Reno, NV.
- Fearer, S., Walker, N.R., Stephens, R., Roffman, R., & Williams, C. (2002). Predicting Change in the Marijuana Check-Up. Poster presented at the 36th Annual Convention of the Association for the Advancement of Behavior Therapy, Reno, NV.
- Stephens, R., Roffman, R., Burke, R., Williams, C., Adams, S., Campbell, A. & Swan, M. (1998). The Marijuana Check-Up. Poster presented at the 32nd Annual Convention of the Association for the Advancement of Behavior Therapy, Washington, D.C.
- Stephens, R., Roffman, R., Fearer, S., Walker, N.R., & Williams, C. (2002). The Marijuana Check-Up: Augmenting the Impact of a Brief Intervention for Ambivalent Marijuana Users. Poster presented at the 36th Annual Convention of the Association for the Advancement of Behavior Therapy, Reno, NV.
- Stephens, R.S, Roffman, R.A., Williams, C.D., Adams, S.E., & Burke, R. (2000). The Marijuana Check-Up Outcomes. Poster presented at the 34th Annual Convention of the Association for Advancement of Behavior Therapy, New Orleans.
- Walker, N.R., Fearer, S., & Stephens, R., Roffman, R., & Williams, C.

- (2002). Measuring Motivation for Marijuana Change. Poster presented at the 36th Annual Convention of the Association for the Advancement of Behavior Therapy, Reno, NV.
- Williams, C. D., Adams, S. E., Stephens, R. S., & Roffman, R. A. (2000). Varied methods of assessing marijuana use and related problems: Validity analyses. Poster presented at the 34th Annual Convention of the Association for Advancement of Behavior Therapy, New Orleans.
- Williams, C., Adams, S., Stephens, R., Roffman, R., Campbell, A., & Swan, M (1999). Characteristics of a Non-Treatment Seeking Sample of Marijuana Users. Poster presented at the Society for Behavioral Medicine, San Diego.
- Williams, C.D., Stephens, R.S., Burke, R.S., & Adams, S.E. (1999). Personal projects and alcohol use in college students: An integrative approach. Poster presented at the 33rd Annual Convention of the Association for Advancement of Behavior Therapy, Toronto.