Identifying Mediators of the Relationship Between Religiousness/Spirituality and Alcohol Use*

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ABSTRACT. Objective: Religiousness is known to be inversely related to alcohol use and problems, but few studies have attempted to identify mediators of this relationship. We examined beliefs about alcohol, social influences, well-being, and motives for drinking as potential mediators of the relationship between religiousness/spirituality and alcohol use and problems. Method: Participants were 315 female and 197 male college students who responded to a survey sent to a stratified (by gender and year in school) random sample. We used path analysis to test models specifying hypothesized mediators of the relationship between several religious/spiritual constructs (identified via factor analysis in previous studies) and alcohol use and problems. Models were tested in the full sample and a subsample consisting of alcohol users only. Results: The effect of religious/spiritual involvement on alcohol use was mediated by negative beliefs about alcohol, social influences, and spiritual well-being. The effect of religious struggle on alcohol problems was mediated by spiritual well-being. Search for meaning had both direct and indirect (via negative beliefs about alcohol) effects on use and problems. Negative beliefs about alcohol and social influences were related to alcohol use via enhancement motives and, in some models, social motives for drinking. Spiritual well-being was related to alcohol problems via coping motives. Social influences also had direct effects on alcohol use. Conclusions: Although future studies using longitudinal designs are needed, the study identified several plausible mechanisms by which religiousness/spirituality could causally impact alcohol use and problems. Results also provide further support for the motivational model of alcohol use. (J. Stud. Alcohol Drugs 69: 160-170, 2008)

Religion is often thought of as an organized social system of beliefs and practices, whereas spirituality refers to individuals’ unique, subjective existential concerns; sense of meaning; and/or transcendent experiences (Miller and Thoresen, 1999; Pargament, 1997). Higher levels of religiousness and spirituality (R/S) are consistently associated with lower alcohol consumption and fewer alcohol-related problems (Gorsuch, 1995; Humphries and Gifford 2006; Koenig et al., 2001; Miller, 1998), although religious distress or struggle may predict increased problems (Gorsuch, 1995). Hypotheses for how R/S might reduce alcohol use and problems have included the following three points: (1) impacting social influences, (2) promoting specific values/beliefs about alcohol, and (3) enhancing well-being or meaning in life and/or protecting against negative well-being (Gorsuch, 1995; Koenig et al., 2001; Miller, 1998). Relatively few studies have attempted to test these proposals, and those that have typically examine only one potential mediator at a time (Koenig et al., 2001; Miller, 1998), perhaps because of the lack of a theoretical framework to specify how different proposed causes might simultaneously affect alcohol use and problems. Cox and Klinger’s (1988) motivational model of alcohol use may provide such a framework.

Motives for drinking

Cox and Klinger (1988) proposed that motives for drinking and not drinking are the “final common pathways to alcohol use” (p. 168). Situational and/or personal factors that lead to the expectation that drinking will increase positive affect or decrease negative affect will result in increased probability of drinking. Factors associated with a decrease in positive affect or an increase in negative affect should reduce the likelihood of drinking. Cooper (1994) developed a measure of four types of drinking motives, three of which have been the focus of subsequent research: (1) enhancement (enhancing positive affect via the pleasurable pharmacological effects of alcohol), (2) social (enhancing positive affect via social reinforcement associated with use), and (3) coping (escaping from negative affect via the sedating properties of alcohol). Social and enhancement motives directly predict alcohol use, whereas coping directly predicts alcohol problems and sometimes alcohol use as well (Cooper et al., 1995, 2000; Read et al., 2003; Simons...
Motives mediate the effects of various distal predictors—such as personality, outcome expectancies, social influences, and affect/well-being (Cooper et al., 1995; Kuntsche et al., 2007; Read et al., 2003; Simons et al., 2005)—but social influences also directly affect alcohol use in college students (Read et al., 2003). Two of the known predictors of drinking motives (social influences and affect/well-being) have been suggested as mediators of the effects of R/S on alcohol use. Furthermore, Galen and Rogers (2004) reported that the relationship between R/S and alcohol use was mediated by motives for drinking but did not examine other proposed mediators. Thus, the motivational model may be useful in helping understand how different dimensions of R/S are related to alcohol use and problems.

**Dimensions of religiousness/spirituality**

Most studies of R/S and substance-use disorders have used single items, such as service attendance, but R/S is considered to be multidimensional (Hill and Pargament, 2003; Miller, 1998). Many aspects of traditional R/S (e.g., service attendance, frequency of prayer/meditation) load on a broad factor (Johnson et al., in press; Kendler et al., 2003; MacDonald, 2000; Stewart and Koeske, 2006) interpretable as general or dispositional religiousness (Gorsuch, 1984; Tsang and McCullough, 2003). However, other dimensions, such as meaning in life or a search for such meaning, have been identified as separate from general religiousness (Johnson et al., in press; Kendler et al., 2003; MacDonald, 2000; Neff, 2006; Stewart and Koeske, 2006). R/S struggle is also a separate dimension (Exline and Rose, 2005; Johnson et al., in press; Stewart and Koeske, 2006) related to poor physical health and emotional well-being (Ano and Vasconelles, 2005; Pargament, 2002).

In previous work (Johnson et al., 2004, in press), we used exploratory principal components analysis of 29 R/S subscales (subsequently verified with confirmatory factor analysis) and identified five dimensions of R/S: (1) religious/spiritual involvement (general religiousness); (2) search for meaning (attempting to find meaning in life or establishing meaningful goals); (3) spiritual well-being (feeling that life has meaning, experiencing inner peace, feeling connected to God and others); (4) religious struggle (feeling anger at God, having religious doubts, feeling punished by God); and (5) religious quest (viewing R/S doubts and change as part of R/S growth). We used only the first four dimensions in the current study because they were all significantly related to alcohol use or problems after controlling for gender, personality, and affect (Johnson et al., in press). We propose specific pathways linking these four R/S dimensions to alcohol use and problems via the mediators described previously (beliefs, social influences, well-being) and motives for drinking.

**Motives for drinking and potential mediators of the effects of R/S on alcohol use**

**Religiousness/spirituality and negative beliefs about alcohol.** Most major world religions disapprove of excessive drinking, and measures of R/S are associated with various negative beliefs (e.g., drinking alcohol is a sin, excessive drinking is hedonistic or dangerous) about alcohol use (Francis, 1992, 1997; Johnson and Cohen, 2004). Thus, religious views of alcohol use tend to be diametrically opposed to concepts of drinking as a way to have fun (enhancement motives for drinking) or as an important part of social interaction (social motives). Two studies suggest that attitudes toward or disproval of drinking may mediate the relationship between religiosity and alcohol use (Bachman et al., 2002; Chawla et al., 2007). Based on the previously described data, we predicted that higher levels of R/S should lead to stronger negative beliefs about alcohol and that such beliefs would predict lower levels of enhancement and social motives for drinking (see Figure 1).

**Religiousness/spirituality and social influences.** Religious involvement may exert several forms of social influence (e.g., impacting perceived norms, limiting access to substances and/or substance-using peers; Burkett, 1980, 1993; Chawla et al., 2007; Cochran et al., 1992). Read et al. (2003) found that social influences (modeling of heavy drinking and being offered alcohol) had both direct and indirect (i.e., mediated by social motives for drinking) effects on student drinking. Therefore, we hypothesized that higher levels of R/S should lead to lower levels of social influences that would have direct and indirect paths to alcohol use (see Figure 1).

**Religiousness/spirituality and well-being/meaning in life.** Religious involvement might also decrease substance use as a result of relationships between R/S and various aspects of well-being, including meaning or purpose in life (Koenig et al., 2001). Gorsuch (1976, 1995) explicitly proposed that the experiential dimensions of R/S might meet needs—including a need for purpose—that reduce motivations to use alcohol, but we know of no studies that have tested this. Religiously oriented authors have theorized that substance use represents an attempt to cope with a lack of meaning or perceived connection to God (Doweiko, 1999; Mercadante, 1996; Piedmont, 2004), both of which are represented in our spiritual well-being factor (Johnson et al., in press). We hypothesized that R/S should lead to higher levels of spiritual well-being and thus to lower levels of coping motives for drinking (see Figure 1). We also hypothesized that individuals actively engaged in a search for meaning might view alcohol use as counter to their search and thus report negative beliefs about alcohol use (path from search for meaning to negative beliefs).

**Religious struggle and alcohol use.** Several authors have reported the clinical observation that punitive religious
experiences, belief in a vengeful God, and/or associated religious struggles lead to later alcohol problems (Doweiko, 1999; Gorsuch, 1995). We hypothesized that higher levels of religious struggle would predict more alcohol-related problems and that this relationship would be mediated by spiritual well-being and coping motives (see Figure 1).

The current study

We used path analysis to test the relationships described previously in a college sample. Gender differences exist in both R/S (Spilka et al., 2003) and alcohol use (Jung, 2001). Therefore, gender was included as an exogenous predictor of alcohol use via negative beliefs about alcohol, social influences, and spiritual well-being (see Figure 1). Cooper et al. (1995, 2000) included only drinkers in their analyses, whereas Read et al. (2003) did not indicate whether they included only drinkers or both drinkers and nondrinkers. Because some religious groups prohibit alcohol use (e.g., Latter Day Saints, some Baptists), it is possible that the relationship between R/S and alcohol use is accounted for largely by high R/S in nondrinkers. Therefore, we tested our hypothesized model in both the full sample and a subsample of students who drank alcohol during the previous year. In addition, in the drinkers-only subsample, we tested a series of models that included other known predictors of motives for drinking to determine if inclusion of these variables affected any observed pathways for the R/S variables.

Method

Participants

Participants were 315 female (mean [SD] age = 20.53 [1.73] years) and 197 male (mean age = 20.75 [1.60] years) college students (88% white, 7% black; 28% freshmen, 21% sophomores, 25% juniors, and 26% seniors) who were paid $15. Seventy-seven percent of the women and 81% of the men had consumed alcohol during the current academic year (mean drinks/week for women = 6.42 [8.32]; mean drinks/week for men = 14.62 [15.22]). All recruitment, informed consent, and methodological procedures had institutional review board approval. The return rate from an initial randomly selected pool of 1,200 students who were mailed questionnaires was 50%. Only students age 26 and younger were included in the current study. More than 80% of the students identified themselves as Christians, and less than 5% as atheists, agnostics, or of non-Christian faiths.

Measures

Religious/spiritual involvement. This composite, reflecting general religiousness (Tsang and McCullough, 2003), was computed as the mean of standardized scores on variables loading on the first factor in our previous work (Johnson et al., in press): (1) Intrinsic Religiousness subscale of the Intrinsic/Extrinsic Religiousness Scale-Revised (8 items reflecting attempts to live one’s entire life according
to the tenets of one’s faith; Gorsuch and McPherson, 1989); (2) Daily Spiritual Experiences Scale (16 items reflecting common spiritual experiences such as experiences of God’s love, etc.; Underwood and Teresi, 2002); (3) positive religious coping from the Brief RCOPE (5 items reflecting religious coping methods empirically associated with positive health outcomes; Pargament, 1999); (4-6) active religious surrender (3 items reflecting attempts to discern and follow God’s will), passive religious deferral (3 items reflecting doing nothing to manage stress and assuming God will provide help), and religious distraction (3 items reflecting using religious practices as a way to avoid thinking about one’s problems) from the RCOPE (Pargament, 1999); (7) positive religious support (6 items reflecting positive social support provided by one’s congregation; Krause, 1999); (8) the Faith subscale of the Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being Scale, Non-illness version (FACIT-Sp; 4 items reflecting use of spirituality in dealing with life problems; Peterman et al., 2002); (9) organizational religiousness (2 items reflecting frequency of attending religious services and taking part in other activities at a place of worship; Idler, 1999); (10) private religious practices (4 items reflecting frequency of praying outside of church or synagogue, watching or listening to religious programs, reading religious literature, and saying prayers before meals; Levin, 1999); and (11-12) subjective religiousness (“How religious are you?”) and spirituality (“How spiritual are you?”) from the Brief Multidimensional Measure of Religiousness and Spirituality (Fetzer Institute, 1999). Internal consistency of the composite was excellent ($\alpha = .95$).

**Search for meaning.** We used a composite of four subscales identified as a factor in our previous work (Johnson et al., in press; $\alpha = .79$): (1-2) Will to Meaning (6 items reflecting concern for finding meaning in life; e.g., “I am seeking a meaning, purpose, or mission for my life”) and Goal Seeking (5 items concerning attempts to set personally meaningful goals; e.g., “I think of achieving new goals in the future”) subscales of the Life Attitude Profile (LAP; Recker and Peacock, 1981); and (3-4) Personal Growth Life Goals (7 items reflecting goals related to self-improvement and growth; e.g., “wanting to develop a personal philosophy of life”) and Altruistic Life Goals (4 items reflecting a desire to help others; e.g., “wanting to help others in need”) subscales of the Personal Commitments Scale (Novacek and Lazarus, 1990).

**Spiritual well-being.** This composite was computed as the mean of standardized scores on three scales identified by Johnson et al. (in press; $\alpha = .69$) as loading on this factor: (1-2) Meaning and Peace (8 items reflecting feelings of inner peace and purpose/meaning in life) and Connectedness (10 items reflecting feeling connected to others and God, feeling forgiven and forgiving of others, and having experiences of compassion and thankfulness) subscales of the FACIT-Sp (Brady et al., 1999; Peterman et al., 2002); and (3) the Existential Vacuum subscale of the LAP (reversed scored; 7 items reflecting a lack of meaning in life; Reker and Peacock, 1981).

**Religious struggle.** Religious struggle was computed as the mean of standardized scores on two measures ($\alpha = .81$): (1) Negative Religious Coping subscale of the Brief RCOPE (5 items reflecting anger at God, feeling abandoned by God, or questioning God’s existence in response to negative life events; Pargament, 1999); and (2) Punishing God Reappraisal subscale of the RCOPE (3 items interpreting negative life events as punishment from God; Pargament, 1999).

**Alcohol use and problems.** Participants reported typical frequency of drinking occasions during both the current school year and the past month (from “never” to “six or seven days per week”) and typical quantity consumed per drinking occasion during the current school year and past month (from 1 standard drink to 13 or more). Responses from the 2 items were multiplied to yield estimates of typical number of drinks per week during both time periods. Participants reported their peak drinking amount (adapted from Dimeff et al., 1999) during the same time periods (from none to 19 drinks or more). We created an alcohol consumption variable as the mean of the standardized scores on current school year and past month drinks per week and peak quantity ($\alpha = .91$). The Young Adult Alcohol Problems Screening Test (Hurlbut and Sher, 1992) was used to assess the frequency of alcohol-related problems during the current school year ($\alpha = .88$).

**MOTIVES FOR DRINKING.** We used Cooper’s (1994) measure of enhancement ($\alpha = .90$), social ($\alpha = .91$), and coping ($\alpha = .81$) motives for drinking (5 items per subscale). Items were preceded by the following stem: “How often would you say that you drink for each of the following reasons?” (from 1 = “never or almost never” to 5 = “almost always or always”). Nondrinkers were instructed to mark “never or almost never.”

**NEGATIVE BELIEFS ABOUT ALCOHOL.** Negative beliefs about alcohol use were assessed using 8 items ($\alpha = .86$) adapted from Francis (1992) and Stritzke and Butt (2001; e.g., “drinking alcohol is a sin,” “drinking is one of the main causes of immoral behavior”). Participants rated each statement on a 5-point scale (from 1 = “disagree strongly” to 5 = “agree strongly”).

**SOCIAL INFLUENCES.** Graham et al. (1991) distinguished between active (e.g., direct offers of alcohol) and passive (e.g., social modeling, perception of peer use) influences. Our social influences variable was a composite ($\alpha = .86$) of five passive influence items from Read et al. (2003; friends’ approval of drinking, friends’ approval of getting drunk, pressure from friends to drink, and both quantity and frequency of close friends’ consumption) and 1 item asking how often participants had been offered a drink during the previous year (adapted from Graham et al., 1991).
Other measures. Additional measures were included to test paths found in previous research. We used expectancy strength scores on the Tension Reduction (α = .70) and Social Lubrication (α = .89) subscales of the Comprehensive Effects of Alcohol scale (Fromme et al., 1993), because both predict motives for drinking (Read et al., 2003); the Negative Affect subscale (α = .83) of the Positive Affect/Negative Affect Scales (Watson et al., 1988), which predicted coping motives (Read et al., 2003); and the Impulsive Sensation Seeking Scale (Zuckerman, 1994; α = .87), which Read et al. found to predict enhancement motives.

Results

Analyses

Skewness and kurtosis values for all variables in the full sample and drinkers-only subsample were within acceptable limits for path analysis (Kline, 1998). A series of path models were created and tested using EQS software (Bentler, 1995). The first series of models tested the hypothesized pathways in the full sample and the second in the drinkers-only subsample. All models were estimated using maximum likelihood. Covariances were estimated among all exogenous variables. Following Cooper et al. (1995, 2000) and Read et al. (2003), we also estimated covariances among errors for drinking motives. We examined model fit using the normed fit index (NFI) and comparative fit index (CFI) (Bentler, 1990; Bentler and Bonett, 1980). We also report chi-square statistics and chi-square change for nested models (Kline, 1998).

Given our interest in identifying mediators of the relationship between R/S and alcohol use and problems, we decided a priori to test a series of four different models in both the total sample and the drinkers-only subsample. Model 1 included only the hypothesized paths. In Model 2, we added nonhypothesized direct paths to alcohol use or problems based on a multivariate LaGrange multiplier test from Model 1. In Model 3, we added additional nonhypothesized indirect paths to alcohol consumption or problems based on the multivariate LaGrange test from Model 2. In Model 4, nonsignificant paths from Model 3 were dropped.

Test of paths in the full sample

Table 1 shows the fit indices and proportion of variance in alcohol consumption and problems accounted for in each of the four models using the full sample. All pathways specified by our primary hypotheses (see Figure 1) were significant in Model 1. Search for meaning had a positive path to negative beliefs about alcohol. Religious/spiritual involvement had positive paths to negative beliefs and spiritual well-being and a negative path to social influences. Religious struggle had a negative path to spiritual well-being. Model fit for the initial model (Model 1) was good (NFI and CFI both above .90), but adding nonhypothesized direct and indirect paths (Models 2 and 3) improved fit significantly.

In Model 2, four direct paths were added: (1) gender to alcohol consumption (men drinking more than women), (2) search for meaning to alcohol consumption, (3) search for meaning to alcohol problems, and (4) religious struggle to alcohol problems. In Model 3, two indirect paths to alcohol use were added: (1) religious struggle to social influences and (2) religious struggle to social motives. In Model 4, our final model, all hypothesized paths remained significant (Figure 2).

Table 1. Model fit indices

<table>
<thead>
<tr>
<th>Model</th>
<th>χ²</th>
<th>df</th>
<th>χ² change</th>
<th>df for change</th>
<th>NFI</th>
<th>CFI</th>
<th>R² Alcohol use</th>
<th>R² Alcohol problems</th>
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<tr>
<td>Full sample (N = 512)</td>
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<tr>
<td>Model 1</td>
<td>216.27</td>
<td>39</td>
<td>–</td>
<td>–</td>
<td>.91</td>
<td>.92</td>
<td>.47</td>
<td>.54</td>
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<tr>
<td>Model 2</td>
<td>172.11</td>
<td>35</td>
<td>144.16†</td>
<td>4</td>
<td>.94</td>
<td>.94</td>
<td>.50</td>
<td>.56</td>
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<tr>
<td>Model 3</td>
<td>158.13</td>
<td>33</td>
<td>13.98</td>
<td>2</td>
<td>.95</td>
<td>.95</td>
<td>.50</td>
<td>.56</td>
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<tr>
<td>Model 4 (see Figure 2)</td>
<td>159.41</td>
<td>35</td>
<td>1.28</td>
<td>2</td>
<td>.95</td>
<td>.95</td>
<td>.50</td>
<td>.56</td>
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<td>Drinkers-only subsample (n = 405)</td>
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<tr>
<td>Model 1</td>
<td>167.72</td>
<td>39</td>
<td>–</td>
<td>–</td>
<td>.89</td>
<td>.91</td>
<td>.41</td>
<td>.48</td>
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<tr>
<td>Model 2</td>
<td>110.10</td>
<td>35</td>
<td>57.62†</td>
<td>4</td>
<td>.93</td>
<td>.95</td>
<td>.47</td>
<td>.50</td>
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<tr>
<td>Model 3</td>
<td>90.11</td>
<td>32</td>
<td>19.99†</td>
<td>3</td>
<td>.94</td>
<td>.97</td>
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</tr>
<tr>
<td>Model 4 (see Figure 2)</td>
<td>96.30</td>
<td>36</td>
<td>6.19</td>
<td>4</td>
<td>.94</td>
<td>.96</td>
<td>.47</td>
<td>.50</td>
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Notes: Model 1 = hypothesized paths; Model 2 = adding nonhypothesized direct paths based on multivariate LaGrange Multiplier test; Model 3 = adding nonhypothesized indirect paths based on multivariate LaGrange Multiplier test; Model 4 = deleting nonsignificant paths. NFI = normed fit index; CFI = comparative fit index. †p < .001 for tests of significance of χ² change.
Drinkers-only subsample

Table 1 shows fit indices (NFI and CFI) and proportion of variance in consumption and problems accounted for in each model for the drinkers-only subsample. As with the full sample, fit for Model 1 was adequate, but adding nonhypothesized direct and indirect paths improved fit significantly. Figure 2 shows the path coefficients for Model 4 for the drinkers-only subsample. The added direct and indirect paths were identical to those found in the full sample, with the exception that this sample also yielded a significant path from gender to social motives. Except for nonsignificant paths from negative beliefs about alcohol to social motives and from social motives to consumption, all pathways specified in the primary hypotheses remained significant.

To examine the robustness of Model 4, we added pathways to the final model to reflect pathways identified by other researchers. Cooper et al. (1995) and Read et al. (2003) obtained significant paths from impulsive sensation seeking to enhancement motives for drinking and from tension-reduction expectancies and negative affect to coping motives. Read et al. (2003) also reported a significant path from social-lubrication expectancies to enhancement motives. Impulsive sensation seeking, negative affect, and social-lubrication and tension-reduction expectancies were added as exogenous variables with paths as specified previously. Fit was less than optimal after adding these initial paths ($\chi^2 = 398.06$, 63 df; NFI = .87; CFI = .88), but none of the paths from the previous model was eliminated. Even after we overfit the model by repeatedly running the analyses and adding all paths suggested by a series of multivariate LaGrange modifier tests, the pathways from religious/spiritual involvement, search for meaning, and religious struggle were still present, with relatively small changes to their path coefficients (e.g., the coefficient for the path from religious/spiritual involvement to negative beliefs about alcohol remained unchanged, the path from religious/spiritual involvement to spiritual well-being decreased from .41 in Model 4 to .32 in the overfit model). Thus, the effects of R/S on alcohol use and alcohol problems do not appear to be the result of correlations between R/S and other constructs known to predict drinking motives.
Discussion

Religious/spirituality and alcohol use and alcohol problems

Religious/spiritual involvement. Religious/spiritual involvement was inversely related to alcohol consumption via social influences and negative beliefs about alcohol and to alcohol problems via consumption and spiritual well-being. The bulk of the effect of R/S on alcohol use occurred via the impact of R/S on social influences. Whereas the size of the path coefficients from R/S involvement to negative beliefs was similar to the coefficients from religious/spiritual involvement to social influences, social influences had much stronger indirect as well as direct effects on alcohol use than did negative beliefs. Cooney et al. (2003) noted that, in treatment samples from Project MATCH (Matching Alcoholism Treatments to Client Heterogeneity), the effect of Alcoholics Anonymous attendance on treatment outcome was mediated by participants’ establishing nondrinking social networks. Studies in nonclinical populations have suggested that R/S may impact drinking via parental or family influences (Mason and Windle, 2002; Stewart and Bolland, 2002). Thus, at least part of the effect of R/S on alcohol and other drug use appears to be the result of the effect of R/S on social influence processes. Future work could compare the relative effects of R/S on different types of social influence (e.g., parents, peers) as well as an attempt to clarify whether these effects involve self-selection into specific peer groups and/or socialization into particular (non-)drinking patterns.

The path from religious/spiritual involvement to negative beliefs was smaller in drinkers than in the full sample. Beliefs may be more important in impacting decisions about whether to drink than about how much to drink. However, such beliefs do not seem to be particularly effective in protecting against problem drinking if someone with those beliefs actually begins using alcohol. Relative to the general population, both rates of abstinence from alcohol and rates of problematic drinking are higher among members of some faiths that ban all alcohol use (Booth and Martin, 1998). This could be the result of guilt about drinking, lack of social norms for moderate drinking, or punishing reactions to drinking from other members (Booth and Martin, 1998; Rivers, 1994).

Given that alcohol consumption accounted for much of the variance in alcohol problems, it is noteworthy that religious/spiritual involvement still had a moderate effect on problems via spiritual well-being and coping motives. Other studies also suggest that the effects of R/S on meaning or well-being are important. Changes in life purpose may occur over the course of treatment for substance-use disorders and predict treatment outcome (Carroll, 1993; Robinson et al., 2007). R/S also reduces the effect of various life stressors on substance use (Jang and Johnson, 2001; Wills et al., 2003).

Search for meaning. As hypothesized, individuals who endorsed higher levels of search for meaning reported more negative beliefs about alcohol. However, there were also small, direct negative paths from search for meaning to alcohol consumption and alcohol problems. The presence of direct paths may suggest direct effects or could simply indicate that the model did not include some variable(s) that could potentially mediate those paths. If, as we hypothesized, individuals involved in trying to find purpose in life view drinking alcohol as likely to interfere with such a search, then search for meaning might have more impact on motives not to drink (e.g., not drinking to avoid interference with their search for meaning) than on motives for drinking.

Religious struggle. Religious struggle was positively related to alcohol problems via spiritual well-being and coping motives for drinking. Religious struggle also had a direct path to alcohol problems, along with paths to social influences and social motives. Although religious struggle can be a response to negative life events (Año and Vasconcelles, 2005), in college students such struggle might be a normative part of spiritual development, thus reflecting a process of examining beliefs and practices learned from parents or family and forming one’s own religious identity (Fowler, 1981; Parks, 2000). In addition, religious struggle may be related to social experiences, such as encountering peers with different patterns of belief or practice (Johnson et al., 2005) or becoming dissatisfied with one’s own religious group. The paths from religious struggle to social influences and social motives could be related to such experiences.

Implications for the motivational model of alcohol use

Enhancement and social motives. As in Read et al. (2003), enhancement motives were a stronger predictor of consumption than social motives. Internalized motivational processes may primarily involve using alcohol for pharmacological effects (enhancement motives or getting a buzz), whereas environmental social influences impact consumption more directly (e.g., facilitating access to alcohol, being offered alcohol). Enhancement and social motives also reflect different sources of reinforcement (i.e., pleasure from the pharmacological properties of alcohol versus social rewards; Cooper, 1994). One can enjoy a party (social motives) while holding a drink and never consuming it, but someone who desires to get a buzz (enhancement motives) would not expect to do so without drinking.

Coping motives. As in Read et al. (2003), coping motives predicted alcohol problems directly, rather than indirectly via consumption (as in Cooper et al. [1995] and Simons et al. [2005]). This might be related to the fact that
both our study and the study by Read et al. included social motives, whereas the studies by Cooper et al. and Simons et al. did not. The direct path from coping motives to alcohol problems might reflect impaired voluntary control over drinking, perhaps related to dependence (Cooper et al., 1995). Alternatively, individuals who endorse coping motives might differ from other individuals in the rate or pattern of their drinking or in the social contexts in which they drink.

Limitations

Given the correlational nature of path modeling, any given set of results can, at most, be interpreted as consistent with a causal relationship. Although we controlled for several potential confounds, future studies should gather longitudinal data (to establish a sequence of presumed cause and presumed effect) and include other constructs that could plausibly account for the connections between R/S and alcohol use. Whereas Cooper et al. (1995) concluded that their path models were invariant for gender and race (i.e., white vs black), gender differences in the relative strengths of different types of motives seem to exist in some age groups (Kuntsche et al., 2007). The small proportion of nonwhites and non-Christians in our sample prevents generalizing to other racial, ethnic, or faith groups. Black people are often affiliated with denominations that prohibit alcohol use (e.g., Pentecostal groups, Baptists; Wolfe, 2003), but the relationship between R/S and drug use may be smaller in black populations than in white populations (Amey et al., 1996). Social aspects of religious involvement have been suggested to be particularly important in the black population (Moore, 1992). Given the previous data, black population samples might yield different mediational pathways than those observed in our sample. Future studies may benefit from examining path models separately in men and women, in individuals from different age groups or religious denominations, and in the black population and other racial or ethnic groups.

The 50% response rate in our study could represent self-selection into or out of the study by individuals with particular R/S backgrounds or patterns of alcohol use. However, it is not immediately clear if or how such self-selection could affect our results. Although the proportions of women and minorities in our sample approximate those at our institution, replication in samples that more comprehensively sample a given population would be desirable to help determine if our results could overestimate or underestimate the size or nature of relationships among R/S, alcohol use and alcohol problems, and our hypothesized mediators.

Meta-analyses indicate that religious struggle is positively related to depressive symptoms (Ano and Vasconcelles, 2005; Smith et al., 2003). Koenig et al. (2001) noted that measures of spiritual well-being could be confounded with affect or clinical depression. Although our pathways remained relatively unchanged when negative affect was added to the model, future studies should include broader assessment of affect and/or clinical syndromes to help clarify how these constructs may be related to religious struggle and/or spiritual well-being. For theoretical reasons, positive affect has not typically been examined as a predictor of coping motives (Simons et al., 2005). Because we found that spiritual well-being was inversely related to coping motives, it may be worth examining if low levels of positive affect could be related to coping motives.

Based on previous research and theory, we treated religious/spiritual involvement, search for meaning, and religious struggle as exogenous variables, and we treated spiritual well-being as a mediator of religious/spiritual involvement. However, it is possible that alternative relationships could exist among the religious/spiritual variables (e.g., religious/spiritual involvement or religious struggle causing or being caused by search for meaning). Longitudinal studies could help clarify if such relationships are plausible.

Conclusions and potential implications

R/S could plausibly impact alcohol use and alcohol problems via beliefs, social influence processes, and meaning/well-being. These variables may directly affect alcohol use and/or impact motives for drinking. The connection between religious struggle and alcohol problems may be of clinical interest. Although we tested religious struggle as a “cause” of problems, struggle could be a consequence of (or reciprocally related to) alcohol use among individuals whose faith tradition condemns drinking. Furthermore, stigma associated with problem drinking could prevent individuals from some faith traditions from seeking help (Spiegel and Kravitz, 2001; Stoltzfus, 2006; Suliman, 1983). The higher impact of social influences relative to beliefs about alcohol similarly points to the importance of religious groups’ focusing on creating caring communities in which individuals can openly discuss struggles with substance-use disorders and feel supported in efforts at recovery (Allem and Merrill, 2004). Providing positive role modeling of desired behaviors may be more effective than messages that condemn undesired behaviors. For those who are not traditionally religious, the pivotal role of social support in this and other studies may underscore the importance of secular alternatives to Alcoholics Anonymous such as Secular Organizations for Sobriety (SOS) or Self-Management And Recovery Training (SMART).

R/S has traditionally been a powerful source of meaning. In religious individuals, awareness of a discrepancy between current and desired levels of meaning or spirituality might provide a motive for change (Saunders et al., 2007). Even secular treatment approaches or nonreligious
clients might benefit from examining sources of meaning and values as they relate to well-being and motivation for change (Emmons, 1999; Wagner and Sanchez, 2002).

The clergy typically lack training and information about substance-use disorders, and mental health professionals often do not share the same commitment to R/S as their clients (CASA, 2001; Richards and Bergin, 2005). Further investigation of plausible connections between R/S and substance-use disorders may help researchers gain a better understanding of social and motivational processes related to such disorders and provide information useful to the clergy and faith communities.

References


