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TOBACCO AND ALCOHOL USE AMONG YOUNG ADULTS

Exploring Religious Faith, Locus of Health Control, and Coping Strategies as Predictors

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Discovering the predictors of tobacco and alcohol use is an important stage in understanding, preventing, and modifying health-compromising behavior of adolescents and young adults. The health attitudes and behaviors of college students, who are in transition between adolescence and adulthood, have enormous impact on later quality of life. Health promotion and prevention programs target this population to prevent the adoption of health-compromising behaviors that may lead to chronic disease later in life. The purpose of this chapter is to examine individual differences in religiosity, perceived control over health, and coping factors that place young adults at risk for initiating and regularly using tobacco and alcohol. In doing so, we may gain insight into psychosocial factors that may have protective value.

Prevalence statistics from the Monitoring the Future study (Johnston, 1996) showed that 39.3% of college students had smoked in the past year, 26.9% in the past month. Statistics are similar for young adults of the same age who do not attend college. Sixty-two million people in the United States

(29% of the population aged 12 and older) use tobacco. According to the National Center for Health Statistics (Centers for Disease Control and Prevention [CDC], 1998), 43% of men 18 and older and 33% of women above the age of 18 smoke. Although adult smoking has declined sharply over the last quarter century, especially among educated people, smoking has made a partial comeback (1990–1996) among high school seniors (Johnston, 1996). Sax (1997) found that the incidence of smoking among college freshmen nationwide increased over a 30-year period. In a Virginia college sample, white females with lower grade point averages and low life satisfaction have emerged as the most frequent users of tobacco among the different gender and ethnic groups (Schorling, Gutgesell, Klas & Smith, 1994). Cigarette smoking, compared with other types of substance use, showed the least decline from adolescent initiation to usage in young adulthood (Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 1997).

Fifty-one percent of Americans aged 12 and above admitted to drinking alcohol in the previous month. Of these, 15% binged (five or more drinks in a short period of time) at least once in the previous month (CDC, 1998). Though several researchers (see Prendergast, 1994, for review) report a 9–12% decline in heavy drinking (use of more than one ounce of alcohol per day during the past 30 days) within adolescent and young adult populations between 1980 and 1992, some report that college students showed less than a 1% decline (Johnston, O'Malley, & Bachman, 1993) and that the percentage of heavy drinkers among college students remained constant at 20% (Engs & Hanson, 1988).

Although they have higher levels of education, usually associated with more readily adopting health-enhancing behaviors, college students show high levels of alcohol use. They do, however, show a lower prevalence of smoking behaviors, are less likely to be overweight, and more likely to use seat belts than young adults not enrolled in college. Social norms that support alcohol use on and in proximity to college campuses still exist (Wechsler & Issac, 1991). Concern associated with excessive alcohol use is based on problems with immediate consequences and development of long-term patterns of alcohol use. Globetti, Stem, Morasco, and Haworth-Hoeppner (1988) review studies of college students and report percentage ranges for the following alcohol-related problems: drinking and driving, 33–41%; destruction of property, 6–7%; loss of friends, 7–8%; academic problems, 17–23%; problems with authorities, 3–15%; and student judiciary problems, 20–60%. Kim, Larimer, Walker, and Marlatt (1997) discovered more frequent use of tobacco and other drugs and more frequent sexual activity among heavy drinkers in college as compared with students who were abstinent or light to moderate alcohol consumers; however, no associations were found for heavy drinking and psychological health.

This chapter considers the role of religious/spiritual beliefs, perceptions

of control over health, and coping mechanisms that may confer protection to older adolescents and young adults faced with choices concerning smoking and drinking. We offer a brief review of past research on religiousness and substance use among adolescents and young adults in the first section. The second section of the chapter reviews research concerning health and perceived control and religious and nonreligious coping strategies. We discuss new questions relevant to previous research and propose a conceptual model to explain how the effects of religiosity on health may be mediated by various dimensions of health locus of control and coping. In an attempt to begin to answer the questions posed, the third section reports research from the Health Beliefs and Behaviors Study (HBBS; Willis et al., 1999; Willis, 1999, 2000) of tobacco and alcohol use behaviors in a religiously and geographically diverse sample of black and white college students between the ages of 16 and 23. Subsequent sections include a discussion of the HBBS findings, support for the proposed model, and resultant evidence for risk and protective factors. The chapter concludes by examining the application of religion/spirituality to health promotion and intervention programs designed for adolescents and young adults.

FACTORS INFLUENCING TOBACCO AND ALCOHOL USE IN YOUNG PEOPLE

Religiosity

The effects of religious beliefs and involvement on the physical and mental well-being and coping strategies of elderly adults have been relatively well researched (Koenig, George, & Siegler, 1988; Langer & Rodin, 1976; Levin, 1994). More recently, attention has been focused on the effects of religious factors in the lives of adolescents and their impact on decision-making processes involved in engaging in the potentially health-compromising behaviors of tobacco and alcohol use. In a review of research on religion and health-compromising behaviors, Wallace and Williams (1997) report that studies on adolescent health show inverse relationships between religion and both sexual involvement and drug use; however, most researchers have not included religiosity as a focal variable when exploring factors associated with risk and protection and have viewed it primarily as a form of social control against delinquency or deviance.

Recent studies have explored religiosity as a potential protective factor. Dryfoos (1990) and Hawkins, Catalano, and Miller (1992) identified lack of religiosity or low religiosity as a risk factor for adolescent problem behaviors. Yarnold (1998) reported that religion was unrelated to alcohol use, whereas other researchers (e.g., Kunz & Giesbrecht, 1999; Patlock-

Peckham, Hutchinson, Cheong, & Nagoshi, 1998; Perkins, 1987) have found significant associations. In the Patlock-Peckham et al. (1998) study, college students with no religious affiliation used alcohol more often and in greater quantity than did Protestants or Catholics. Two-thirds of a national sample of college students (Hanson & Engs, 1986) reported using alcohol, whereas 90% of those who deemed religion unimportant used alcohol. Foshee and Hollinger (1996) report that maternal religiosity and religious attendance (more so than religious importance) is negatively related to alcohol use in young adolescents (aged 12–14). Pullen, Modrcin-Talbott, West, and Muenchen (1999) examined church attendance and drug use in adolescents ranging from 12 to 19 years of age. Their findings indicated that as frequency of church attendance increased, alcohol and other substance use decreased. Similar results have also been found in a study of religious attitudes, belief in God, and church attendance among 1,500 students in the Netherlands (Mullen & Francis, 1995).

Social support, a salient part of religious involvement, also emerges as a protective factor in the form of connectedness to family and school community. Resnick et al. (1997) reported that parent–family connectedness, perceived school connectedness, and parental expectations of school achievement were associated with lower levels of risky behaviors. Additional research found an inverse relationship between health-compromising behaviors and protective factors such as stronger emotional well-being, higher self-esteem, school connectedness and achievement, family connectedness, and more conventional family structure, as well as religiosity (Neumark-Sztainer, Story, French, & Resnick, 1997). Hardesty and Kirby (1995) examined 475 students who had disciplinary problems and/or who had dropped out of high school and were presumed to be at higher risk for substance abuse. Students from actively religious families, who attended church services, prayed, and observed religious holidays, were less likely to use drugs and more likely to choose drug-abstinent friends. This positive relationship remained when controlling for the family climate (family cohesion, expressiveness, and conflict). The investigators contend that their results are encouraging given the strong influence that peer pressure may have on initiating and maintaining substance use in this age group. Gorsuch (1995) reported that nurturing and supportive religious experiences are associated with decreased substance use, whereas religiosity characterized by restrictiveness, harshness, and punishment may be associated with substance abuse.

Perceived Control of Health

Individuals' perceived control over their health has been examined extensively to discover the nature and extent of its relationship to health knowl-

edge, health behavior, and health status. Given the influence of conformity to peer norms for substance use behavior among adolescents and young adults, perceived control over health status is a relevant factor to investigate. Wallston, Wallston, and DeVellis (1978) developed the Multidimensional Health Locus of Control (MHLC) scale to measure three loci of control over one's health: internal, chance, and powerful others. Internality refers to the belief that a person's own behaviors influence his or her health status. Powerful others, in this schema, refer to health professionals, such as physicians, nurses, or therapists, but also encompass friends, co-workers, and family members. Those with a chance health locus of control orientation do not see their health status as controllable; rather, they believe their health status is determined by random factors such as fate, luck, or chance (Wallston et al., 1978).

Many researchers have found correlations between the MHLC scales and health practices. Bennett, Norman, Moore, Murphy, and Tudor-Smith (1997), using a random sample of Welsh adults, found some support for the Wallstons' health locus of control model as related to smoking behavior: Smokers held higher internal, chance, and powerful others beliefs than those who never smoked, though chance locus alone emerged as a significant predictor of smoking frequency. Lemos-Gir ldez and Fidalgo-Aliste (1997) found that the MHLC scale was not an adequate predictor of health-related behaviors and attitudes in college students. However, several other studies (Chassin, Presson, Pitts, & Sherman, 2000; Eiser, Eiser, Gammage, & Morgan, 1989) found a significant negative relationship between smoking and internal locus of control in adolescents.

In the past, the MHLC scales assessed only three loci of health control—internality, powerful others, and chance. Welton, Adkins, Ingle, and Dixon (1996) hypothesized that beliefs in God control constituted a fourth dimension. They developed scales to assess God control in general, as well as God control over health, and administered their measures to two samples of college students, along with a measure of health habits and lifestyles. Both the general internal and general God control scales predicted a composite of measures of health habits, but only in one of their two samples did they find that health control beliefs predicted health habits (Welton et al., 1996). Interestingly, it was the God control of health subscale that was predictive in that instance. Coincidentally, unaware of the work by Welton et al., Wallston and his colleagues (1999) had developed their own version of a God locus of health control scale and had been using it in a longitudinal study of persons with rheumatoid arthritis. Those participants were considerably older and less healthy than the college students studied by Welton et al. (1996). Later in this chapter, we present data relating the God control scale developed by Wallston to health behaviors of college students. It is possible that part of the reason for the inconsistent findings relating MHLC

scores to health behaviors is that the path from health beliefs (such as those assessed by the MHLC) to health behaviors is mediated by a variety of coping strategies that the participants use when confronted with health-related stressors. Thus we turn now to a discussion of coping strategies and the role they may play in determining specific health behaviors.

Religious and Nonreligious Coping Strategies

A variety of coping strategies used by adolescents may influence their engagement in risky behavior. Individuals of all ages have long claimed that relief from stress is one of their motivations for smoking and drinking. Research on coping strategies has yielded two general categories of coping: problem focused, used to alter the source of stress when an individual believes that a constructive solution exists, and emotion focused, used to reduce distress associated with a problem that an individual believes will be enduring (Carver, Scheier & Weintraub, 1989; Folkman & Lazarus, 1980). Carver et al. (1989; Carver, 1997) developed a tool called the COPE Inventory as an assessment for several distinctive aspects of both problem-focused and emotion-focused strategies.

In general, research evidence supports the idea that problem-focused coping tends to be more adaptive in the long run than emotion-focused coping (McCrae & Costa, 1986; Rippetoe & Rogers, 1987), though individual and situational differences should be taken into account (Lehman, Ellard, & Wortman, 1986). Problem-focused strategies attempt to remove or reduce the effects of a stressor. These mechanisms include active coping (executing direct action), planning (thinking of a plan for an active strategy after appraising the stressor), and seeking instrumental support (requesting information or assistance in solving the problem). Emotion-focused coping strategies include seeking emotional support (looking for emotional comfort and understanding), venting (releasing emotions related to the stressor), reframing (appraising the stressor in a more positive light), and humor (making jokes about the stressor). Acceptance (awareness of the reality of the stressor) and denial (refusing to accept the reality of the stressor) may represent two ends of the same coping dimension. Using self-blame, some individuals tend to criticize themselves as a response to stress. Behavioral disengagement (reducing efforts or giving up attempts to deal with the stressor), self-distraction (using cognitive tactics to mentally disengage from the stressor), and substance use are also considered to be less adaptive emotion-focused strategies (Carver et al., 1989).

Turning to religion for support is also categorized as an emotion-focused coping mechanism. One of the subscales of the COPE assesses this construct. To distinguish types of religious coping, Boudreaux, Catz, Ryan,

Amaral-Melendez, and Brantley (1995) designed a scale to measure external/social religious coping, focused on social support within the religious community, and internal/private religious coping, emphasizing coping through one's personal relationship with God.

Most research on religious coping strategies of adolescents and young adults has focused on the study of well-being, adjustment-related factors, and stress (Maton, 1989; Park, Cohen, & Herb, 1990). Maton (1989) found that spiritual support, defined as "the perceived, personally supportive components of an individual's relationship with God," was positively related to college adjustment in freshmen undergoing high stress but that spiritual support was not related to well-being in students encountering low levels of stress. Researchers have investigated the use of substances as a method of coping with stress (e.g., Cooper, Russell, Skinner, & Windle, 1992). McKee, Hinson, Wall, and Spriel (1998), as well as Williams and Clark (1998), have found substance use as a coping strategy to be predictive of frequency of alcohol use. Use of substances may sometimes function as an avoidant coping strategy, along with denial and behavioral disengagement. MacLean, Lecci, and Croteau (1999) report that substance use, denial, and "partying" were strongly predictive of alcohol-related problems.

Emotion-focused and avoidance coping strategies have been found to predict alcohol use (Karwacki & Bradley, 1996; McCreary & Sadava, 1998). In other studies (Evans & Dunn, 1995; Simpson & Arroyo, 1998; Windle & Windle, 1996), avoidance coping was associated with alcohol-related problems but not with quantity or frequency of alcohol consumption. Protective strategies include religious coping by females and males (MacLean et al., 1999), religious coping by females and suppression of competing activities by males (McKee et al., 1998), and problem-solving coping (McCreary & Sadava, 1998). However, several studies have failed to support any coping strategy as a predictor of not using substances (Evans & Dunn, 1995; Karwacki & Bradley, 1996; Williams & Clark, 1998).

WHY ARE RELIGIOUS/SPIRITUAL BELIEFS ASSOCIATED WITH REDUCED ALCOHOL AND TOBACCO USE?

Evidence from the majority of studies reviewed supports religiosity as conferring a salutary effect on adolescents and young adults. If religious faith and involvement are negatively related to adoption of tobacco and alcohol use, how can we explain these effects? Religiosity may act as a protective factor by offering contextual coping mechanisms, for example, positive reframing or seeking emotional and instrumental support. Do youth strong

in faith use more adaptive coping mechanisms than nonreligious youth, for example, active, problem-solving strategies as opposed to venting, denial, and disengagement?

Religious/spiritual beliefs within an organized system may provide protection by offering contextual coping mechanisms, but it is likely that other mediating factors are operating as well. Is strong faith associated with the perception that God's omnipotence includes control over health? Are religious youth more likely to place the control of their health in God's hands? If so, how does this perception influence adolescents' and young adults' decision making regarding their health? If adolescents have a strong belief that God controls their health status, are they less likely to engage in potentially health-compromising behaviors? Conversely, might religious youth with strong beliefs that God controls their health feel protected to the point that they perceive themselves invulnerable to health risks, thus making them more likely to engage in tobacco and alcohol use? See Figure 9.1 for a representation of the conceptual framework guiding these questions.

THE HEALTH BELIEFS AND BEHAVIORS STUDY (HBBS)

As a means of addressing the questions posed in the previous section, this study (Willis et al., 1999) examined several variables that might predict tobacco and alcohol use among currently healthy college students. We examined strength of religious faith, four health control loci (God, Internal, Powerful Others, and Chance), and use of religious and nonreligious coping strategies. Religious/spiritual factors, including strength of faith, God locus of health control beliefs, and religious coping strategies were hypothesized to operate as protective factors, such that high levels would be associated with healthier behaviors concerning tobacco and alcohol use—for example,

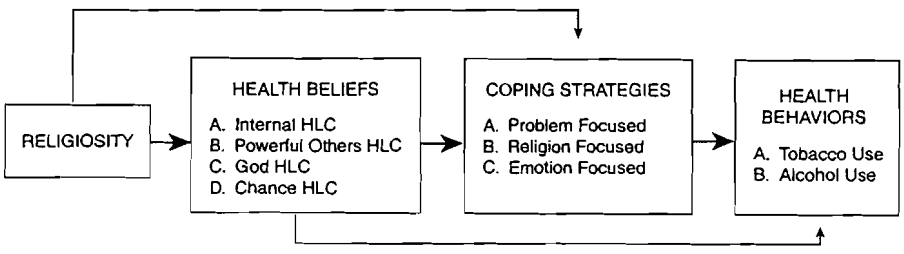

FIGURE 9.1. Coping–Control Model.

the avoidance of substance use, a lowered frequency of tobacco and alcohol use in regular users, attempts to stop using tobacco, and lower frequency of driving when drinking or riding with a drinking driver. It was also expected that college students high in internal locus of health control would be less likely to initiate smoking and more likely to stop tobacco use after beginning and less likely to use substances as a coping mechanism. It was further hypothesized that emotion-focused and avoidance-based coping strategies would be associated with increased college student drinking; therefore, the use of such coping strategies may be viewed as a risk factor.

Undergraduate students (N = 551; 69.5% female, 30.5% male) attending selected universities in north central Alabama, central Tennessee, Washington, DC, northern Iowa, and central coastal California were surveyed. The combined sample included students randomly selected across university majors and students recruited from introductory psychology courses. For results reported in this chapter, the age of the participants ranged from 16 to 23 years (M = 19.17, SD = 1.35). Participants' ethnic backgrounds were diverse: 52.3% white, 42.6% black, 2.0% Hispanic, 1.6% Asian, and 1.5% from other ethnic groups. Participants were asked to complete the HBBS battery of questionnaires as a mail-in survey or in a classroom setting in which they received extra credit points as incentive.

Predictor and Mediator Measures

Religiosity was operationalized by the Santa Clara Strength of Religious Faith Scale (SCSORF; Plante & Boccaccini, 1997). With these 10 items, participants used a 5-option response scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*) to indicate their level of agreement with statements designed to measure their strength of religious faith (e.g., "My religious faith is extremely important to me"). In the current sample, the alpha reliability of the SCSORF was .92.

Perceived control of health was measured by the three subscales—Powerful Other (PHLC), Internal (IHLC), and Chance (CHLC)—from Form A of the Multidimensional Health Locus of Control (MHLC) scale (Wallston et al., 1978). Interspersed throughout were items from the recently developed God Locus of Health Control (GLHC) subscale (Wallston et al., 1999). These 24 items (6 per subscale) have a 6-option response format (ranging from 1 = *strongly disagree* to 6 = *strongly agree*) to measure participants' beliefs in the loci of control of their health status. The GLHC contains items such as, "Whatever happens to my health is God's will," whereas a prototypical PHLC item states, "When I recover from an illness, it's usually because other people (for example, doctors, nurses, family friends) have taken good care of me." A typical IHLC item reads, "The main thing that affects my health is what I myself do"; a sample item from the CHLC sub-

scale is, "My good health is largely a matter of good fortune." High scores on each of the MHLC/GLHC subscales signify agreement with that particular belief. The Cronbach alphas for the subscales were .93, .65, .68, and .59 respectively.

Both nonreligious and religious coping strategies were assessed in this study. The main instrument for assessing nonreligious coping was the Brief COPE (Carver, 1997). The shortened version of the COPE consists of two items for each of 14 strategies that people might use when they confront difficult or stressful events in their lives. These coping strategies range from Use of Humor (e.g., "I make fun of the situation") to Active Coping (e.g., "I try to come up with a strategy about what to do"). Other strategies such as planning, seeking instrumental support, seeking emotional support, venting emotions, reframing, acceptance, denial, self-blame, behavioral disengagement, self-distraction, and substance use were also assessed with the Brief COPE. Participants responded to each of the 28 items with a rating from 1 ("I usually *don't* do this *at all*") to 4 ("I usually do this *a lot*"). According to Carver (1997), Cronbach's alpha for the subscales ranges between .50 (Venting) and .90 (Substance Use).

The Brief COPE also contains a subscale assessing Turning to Religion (e.g., "I've been praying or meditating"). Because this subscale contained only two items, we also administered the 40-item Ways of Religious Coping Scale (WORCS; Boudreaux et al., 1995), to bolster our assessment of religious coping strategies. The WORCS was specifically designed to determine how participants used religion to cope with stressful events. The participants indicated how often they engaged in 40 religious behaviors by circling a number from 0 = *not used at all/does not apply* to 4 = *used always*. Two subscales are derived for the WORCS: one designed to measure external/social religious coping (e.g., "I talk to church/mosque/temple members") and one that measures internal/private religious coping (e.g., "I pray for strength").

To provide aggregate measures of coping strategies, a principal-components factor analysis with orthogonal rotation was conducted on the data from this sample using the 14 subscales from the Brief COPE and the two subscales from the WORCS. The best solution resulted in three factors: Problem-Focused Coping, consisting of Active Coping (loading = .72), Planning (.73), Behavioral Disengagement (—.60), and Positive Reframing (.53); Religious-Focused Coping, consisting of Internal/Private Religious Coping (.90); External/Social Religious Coping (.83), and Turning to Religion (.80); and Emotion-Focused Coping [consisting of Seeking Instrumental Support (.62), Seeking Emotional Support (.61), Venting Emotions (.57), Denial (.52), Self-Blame (.50), and Self-Distraction (.47). Three scales from the Brief COPE (Acceptance, Humor, and Substance Use) did not load on any of these three factors.

Measures of the Use of Tobacco and Alcohol

Six items adapted from questions on the Youth Risk Behavior Survey (Alabama State Department of Education, 1998; CDC, 1998) assessed tobacco use. The items included trying smoking, age at initiation of smoking, days of smoking each month, cigarettes smoked daily, and attempts to quit smoking. A smoking behavior index was also formed by multiplying the number of days the individual smoked in the past month by the average number of cigarettes smoked daily. The two components of this index correlated .70.

Alcohol-related behaviors were assessed with five items: age at first drink, number of days in which an alcoholic drink was consumed within the previous 30, number of days in which five or more alcoholic drinks were consumed over a short time period (i.e., "binge drinking") within the previous 30 days, frequency of drinking when driving, and frequency of riding with a drinking driver. The number of days out of the previous 30 that the student reported having at least one drink of alcohol and the number of times the student reported binging (i.e., having 5 or more drinks in a short period of time) were highly correlated (r = .77), so the two measures were standardized and combined into an index of drinking frequency. In this sample, the index of drinking frequency was positively correlated (r = .26; p < .001) with the index of smoking behavior, indicating that among college students the use of tobacco and alcohol go hand in hand.

Characteristics of HBBS Sample

Sixty-one percent of the sample had tried smoking; 12% of the sample had tried smoking before the age of 13. The mean age for smoking for the first time was 15.66 (SD = 2.47). Forty-one percent had smoked in the previous 30 days. For those who smoked on at least one day out of the previous 30, the number of cigarettes smoked daily was relatively low, averaging four per day. For respondents who had tried alcohol (approximately 80% of the sample), the mean age at drinking their first alcoholic beverage was 15.64 (SD = 3.54). Almost 10% had tried alcohol before the age of 13. Sixty-two percent of the sample had consumed alcohol within the previous 30 days (M = 3.46, SD = 5.3). Over half of this percentage (31.7%) reported that they had had five or more drinks in sequence on at least one occasion (M = 1.41; SD = 3.3) in the previous 30 days. Within the previous 30 days, 17% of the sample had driven a vehicle while drinking alcohol (M = .49 times, SD = 2.08) and 32% had ridden in a vehicle driven by someone who had been drinking (M = 1.14 times, SD = 2.99). Refer to Figures 9.2 and 9.3 for a comparison of alcohol and tobacco use between the Youth Risk Behavior Surveillance national sample (grades 9–12; CDC, 1997) and the Health Beliefs and Behaviors Survey sample (ages 16–23; Willis et al., 1999).

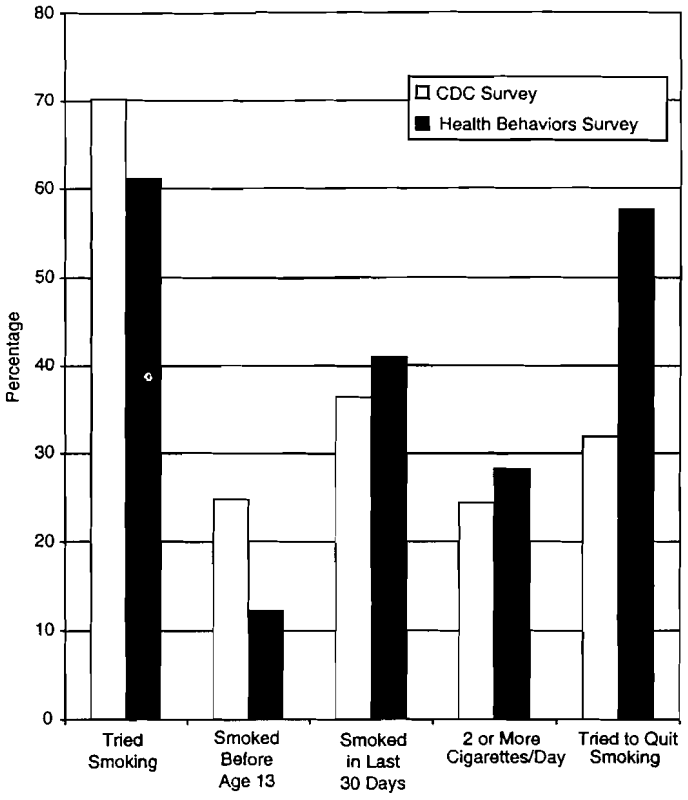

FIGURE 9.2. Comparison of smoking behaviors in CDC Youth Risk Behavior Survey (CDC, 1997) and HBBS (Willis et al., 1999) samples.

Multivariate analysis of variance revealed differences between races in rates of alcohol consumed monthly and in binge drinking, such that whites drank on more days in the previous 30 than blacks and that whites engaged in more binge drinking than blacks. There were race differences in God locus: blacks had a stronger God locus than whites. Chance locus was also perceived to a different extent: Whites had stronger beliefs in chance than blacks. The only sex difference was in God locus, such that women were lower in God locus. A single difference in coping strategies was noted between races in that blacks reported greater use of religion. Females were significantly more likely than males to use emotional support as a coping strategy.

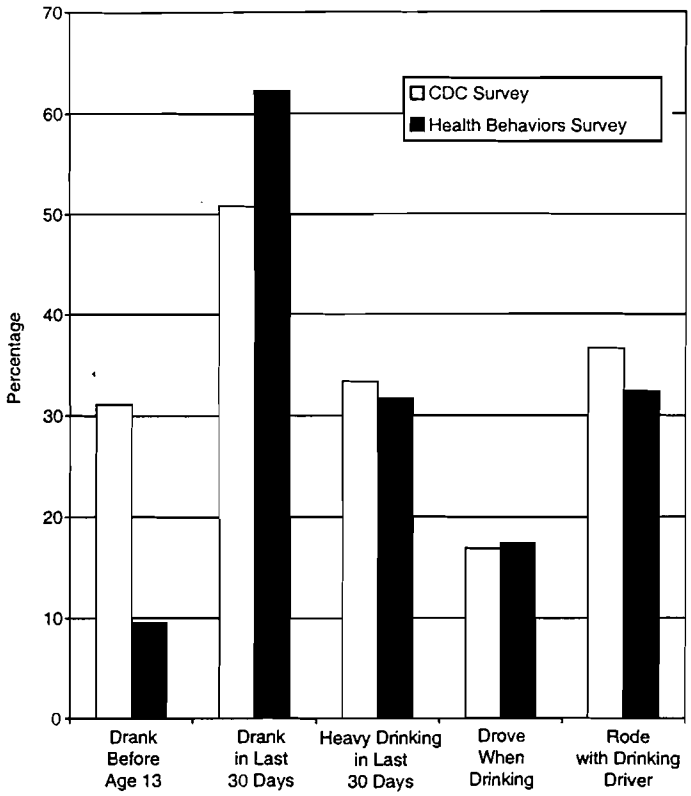

FIGURE 9.3. Comparison of drinking behaviors in CDC Youth Risk Behavior Survey (CDC, 1997) and HBBS (Willis et al., 1999) samples.

Tobacco Use Behaviors

Initiating Smoking

Table 9.1 contains Pearson product–moment correlations between various measures of tobacco use and all of the individual difference measures. Whether the student had ever tried smoking was negatively associated with strength of religious faith, God locus of health control beliefs, and the use of religion-focused coping strategies. Positive associations with having tried smoking were found for the use of emotion-focused coping and for the use of humor, substances, and self-blame as coping mechanisms.

TABLE 9.1. Pearson Correlations between Tobacco Use and Strength of Religious Faith, Multiple Dimensions of Health, Locus of Control, and Coping Strategies

	Ever tried smoking	Age at first try	Smoking frequency	Ever tried quitting
Strength of Faith	−.20**	.06	−.19**	.01
God LHC	−.14**	.03	−.13*	.08
Internal LHC	.03	.04	.02	.06
Powerful Others LHC	−.05	.02	.01	−.03
Chance LHC	.00	−.03	.21***	.01
Problem-Focused	−.05	−.05	−.28***	−.02
Religion-Focused	−.18***	.02	−.17**	.03
Emotion-Focused	.09*	.01	.11	.06
Active Coping	−.01	−.06	−.22***	−.02
Planning	−.07	−.08	−.13*	.04
Positive Reframing	−.05	.00	−.13*	.03
Acceptance	.06	−.06	−.13*	−.02
Humor	.13**	.01	.10*	−.05
Religion	−.18***	.03	−.21***	−.02
Emotional Support	.02	.04	−.01	−.01
Instrumental Support	−.03	−.03	−.05	.05
Self-Distraction	−.01	.13*	−.06	−.05
Denial	.00	−.02	.04	−.04
Venting	.03	.04	.06	.16*
Substance Use	.28***	−.03	.34***	.07
Behavioral Disengagement	.01	.02	.04	.04
Self-Blame	.08*	−.02	.07	.00
External WORC	−.15**	.08	−.18**	.07
Internal WORC	−.15**	.07	−.16**	.07

Note. Boldface is used to indicate aggregate coping strategies.
*$p < .05$; **$p < .01$; ***$p < .001$.

Extent of Smoking

The index of smoking frequency was negatively correlated with strength of religious faith, God locus of health control beliefs, and the use of both problem-focused and religion-focused coping strategies. Young adults who smoked more often had stronger beliefs in chance factors and were more likely to use substances in general as a way to cope. None of the individual difference measures were significantly associated with ever having attempted to quit smoking.

Alcohol Use and Exposure to Alcohol-Related Risks

Table 9.2 presents the Pearson product–moment correlations between the various measures of alcohol use (including exposure to alcohol-related risks) and the individual difference measures examined in these analyses of the

HBBS data. With the exception of ILHC, many of the individual difference measures were significantly related to the index of alcohol use. Those measures having a religious orientation (i.e., strength of faith, God locus, and the use of religion-focused coping strategies) had the strongest negative associations. Individuals who consumed less alcohol were also more likely to believe that powerful others controlled their health. Conversely, strong beliefs that random factors (CHLC) determined health status were related to increased drinking among students.

Several of the specific coping strategies assessed by the Brief COPE were differentially related to drinking in the previous 30 days and to binge drinking in the previous month. Behavioral disengagement and not realistically accepting the elements of a stressful situation were associated with increased binge drinking only. Being less likely to positively reframe a stressful situation was associated with drinking more but not with binge drinking.

TABLE 9.2. Pearson Correlations between Alcohol Use and Strength of Religious Faith, Multiple Dimensions of Health Locus of Control, and Coping Variables

	Age at first drink	Frequency of drinking/ 30 days	Frequency of binge drinking/ 30 days	Times/ 30 days drove drunk	Times/30 days rode with drunk driver
Strength of Faith	.05	−.26***	−.22***	−.04	−.08*
God LHC	.00	−.25***	−.22***	−.03	−.07
Internal LHC	−.02	.02	.01	.03	.04
Powerful Others LHC	.06	−.12**	−.12**	−.06	−.02
Chance LHC	−.01	.04	.05	.04	.05
Problem-Focused	.00	−.24***	−.13**	−.19**	−.21**
Religion-Focused	.04	−.27***	−.30***	−.03	−.04
Emotion-Focused	−.03	.11*	−.02	.03	.15**
Active Coping	.01	−.13**	−.13**	−.01	−.06
Planning	−.01	−.18***	−.16***	−.13**	−.12**
Positive Reframing	−.05	−.11**	−.08	−.06	−.04
Acceptance	.00	−.06	−.10*	−.10*	−.05
Humot	.00	.12**	.13**	.04	.07
Religion	.07	−.30***	−.29***	−.08	−.12**
Emotional Support	.01	−.05	−.07	−.04	−.04
Instrumental Support	.05	−.09*	−.09*	−.11*	−.07
Self-Distraction	.01	−.04	−.04	−.01	−.04
Denial	−.12*	.11**	.10*	.17***	.16***
Venting	−.03	−.02	−.07	−.05	.00
Substance Use	−.06	.44***	.43***	.28***	.38***
Behavioral Disengagement	.04	.05	.10*	.11*	.14**
Self-Blame	−.04	.13**	.13**	.05	.08
External WORC	.05	−.21***	−.21***	−.04	−.06
Internal WORC	.04	−.25***	−.26***	−.08	−.08

Note. Boldface is used to indicate aggregate coping strategies.

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

Driving Behaviors and Alcohol Use

Surprisingly, none of the locus of control or religion-oriented variables was related to driving choices (see Table 9.2). As expected, students who used problem-focused coping were less likely to drive after drinking or ride with a driver who had been drinking. Use of emotion-focused coping was associated with riding with a driver who had been drinking, but not with driving after drinking.

The number of times in the previous 30 days that the students reported riding with a driver who had been drinking was strongly correlated ($r = .71$; $p < .001$) with the number of times they admitted driving while drinking. Thus these two items were standardized and summed to create an index of alcohol-related risk exposure. Among the coping subscales from the Brief COPE, the strongest predictor of alcohol-related risk exposure was substance use, followed by denial, behavioral disengagement, and lack of planning.

Tests of the Coping–Control Model

The conceptual framework guiding these analyses suggests that college students' use of tobacco and alcohol is most proximately mediated by their use of coping strategies. These coping strategies are, in turn, partially mediated by the students' control beliefs. If this model is correct, the influence of religiosity, which appears to be associated with the use of tobacco and alcohol, will become insignificant once control beliefs and coping strategies are accounted for. To more fully test this conceptual model, a series of path analyses (using hierarchical regression analysis) was conducted. The dependent variables for these path analyses were the initiation of smoking, the two indices of smoking behavior and alcohol use already described, and alcohol-related driving behaviors. The three coping factors were entered on the first step of the analyses; the four health locus of control subscales were entered on the second step; and, finally, the third step contained the measure of religious faith.

For initiation of smoking, 4% of the variance was explained by religion-focused coping ($ß = -.19$; $p < .001$); other factors did not contribute significantly. Approximately 9% of the variance in the index of smoking behavior (number of days smoked times number of cigarettes per day) was explained by the coping strategies that students typically utilized for handling stressors, with problem-focused coping ($ß = -.23$; $p < .001$) contributing more weight than religious-focused coping ($ß = -.14$; $p = .02$) and emotion-focused coping ($ß = .14$; $p = .02$) in explaining the use of tobacco. Only one of the health locus of control scores, Chance ($ß = .18$; $p = .005$), contributed significantly, explaining an additional 2.8% of the variance. Strength of faith made no further contribution to the explanation of the smoking behaviors.

When the dependent variable was the index of alcohol use (i.e., number of days drinking plus binging), the three coping strategy factors together explained about 13% of the variance. The standardized regression weights for problem-focused (ß = –.08, p = .06) and emotion-focused (ß = .04, p = ns) coping were not significant; however, the use of religion-focused coping strategies emerged as a striking predictor (ß = –.30, $p < .0001$) of alcohol use. Compared with frequency of tobacco use, a different pattern also emerged in Step 2 of the alcohol use analysis. Whereas the Chance health locus of control scores contributed to explanation of smoking frequency, Powerful Others (ß = –.11, p = .02) and God (ß = –.14, p = .009) loci contributed independently (an additional 2.6%, $p < .01$) to the explanation of the variance in alcohol consumption. Interestingly, the external locus of Powerful Others and God locus, typically considered external, accounted for drinking behavior over and above the variance explained by the coping measures, whereas the internal subscale (ß= .04; p = ns) did not add anything unique to the model. Coping strategies, however, remained the stronger mediators of both sets of substance use behaviors.

Thus there is support for the general conceptual model showing that the use of coping strategies, particularly those that are religion focused or problem focused, mediate the relationship between strength of religious faith and the health-compromising behaviors under consideration. There is also evidence that control beliefs contribute independently, though to a lesser degree and in different patterns, to the frequency of tobacco and alcohol use. In the case of alcohol-related driving behaviors, strength of belief in chance factors is the sole mediator. In sum, as predicted, having strong religious faith is, indeed, related to diminished smoking and drinking, but its effects upon these health behaviors are entirely explained by a combination of religious and nonreligious health beliefs and coping strategies.

THE COPING–CONTROL MODEL: EVIDENCE FOR PROTECTIVE AND RISK FACTORS

Findings from the HBBS suggest that coping strategy and control belief profiles may be useful in predicting smoking and drinking risk in adolescents and young adults.

Risk Factors

Students who smoked more frequently had stronger beliefs in chance factors as determinants of health. However, coping strategies explained more of the variance in health-compromising behavior. Students who initiated smoking were more likely to use emotion-focused coping, humor, and self-blame as ways of handling stress. Humor and self-blame were associated with more

frequent use of both tobacco and alcohol. The association between using humor to cope and using substances was unexpected. It was not, as one might presume, related to positive reframing in this sample. Humor may be functioning as an alternative form of self-distraction or disengagement. Self-blame is likely to be related to low self-efficacy and self-esteem. Adolescents may use substances to superficially enhance their image for the benefit of user-peers or may use substances to enhance mood.

Denial was revealed as an additional coping strategy associated with alcohol use and alcohol-related driving behaviors, but not with smoking. Lack of acceptance and behavioral disengagement were associated specifically with binge drinking. Youth who drink, and particularly drink heavily, apparently rely on emotion-focused, avoidance strategies for dealing with stress. More research is needed to determine whether youth under excessive stress are more likely to smoke and/or drink than those with less stressful lifestyles and to see if smoking and drinking are more frequent among adolescents with poor management skills. If so, substance use prevention programs should aim to inoculate young adults with problem-focused coping strategies and, when appropriate, religion-focused strategies as well.

Protective Factors

Young people who employed religion-focused coping were less likely to try smoking. Both religion-focused and problem-focused coping were associated with less frequent tobacco and alcohol use. Within these coping aggregates, active coping, planning, and positive reframing, in addition to religious coping, appeared to be most influential in mediating the protective effects of religious faith.

Individuals who believe that their health status is determined by parents and health practitioners, as well as by God, may be less likely to use alcohol. Use of alcohol, certainly no less risky than smoking in producing long-term ill effects, may be associated with stricter proscriptions from the religious community, schools, and parents due to the salience of alcohol's short-term effects on perceptual and motor skills.

Internal locus of control, hypothesized to be a protective factor, had less impact than God or powerful-others loci on substance use. Adolescents and young adults, as compared with older adults, may be developmentally unprepared to understand the potential long-term hazards of their current health-compromising behaviors. Perceptions of uniqueness or invulnerability, limited role commitments, and tendencies toward sensation-seeking may also account for these differences. People in this age group may be more responsive to immediate cues for substance use and react more impulsively. Conversely, these effects may be present as individual differences in smokers and drinkers regardless of age.

COMPONENTS OF RELIGIOSITY THAT CONTRIBUTE TO ITS PROTECTIVE VALUE

Why do certain coping strategies and perceived control over health mediate the salutary effects of religiosity on older adolescents' and young adults' use of tobacco and alcohol? Various aspects of religious context may be important.

Control Beliefs and Religious Proscriptions

Adolescents and young adults are concerned with issues of identity and impression management (Haden & Edmundson, 1991; Haworth-Hoeppner, Globetti, Stem, & Morasco, 1989). Engagement in risky behavior often follows the norms set by peers and/or family in which a risky behavior is part of a favorable image, making a young person more willing to engage in smoking and drinking (Gibbons, Gerrard, Blanton, & Russell, 1998). Religion, conceptualized as exercising control over members' behavior, especially that of youth, may provide specific proscriptions concerning inappropriate behavior. Strong religious beliefs and long-term participation in a religious community may create a prototypical model for a social image that is different from the one promoted by nonreligious peers, one that is accompanied by cognitions and behaviors that include engaging in healthy behaviors. The HBBS provides support for the God and powerful-others loci of health control dimensions within the coping–control model: Students who perceived that their health status was controlled by God and powerful others, which may include clergy and adult and peer members of a faith community, consumed less alcohol.

Adaptive Coping and Religion as a Source of Meaning and Support

The HBBS revealed religion-focused coping and problem-focused coping as protective factors associated with less frequent tobacco and alcohol use. Several contextual features of religious involvement may help to explain these relationships.

Religious affiliation and participation may offer a meaningful framework for the development of self-concept and purpose in life. Awareness of self as a loved, important person connected to a divine, omnipotent being and participation in religious endeavors, such as outreach missions and service to others, may enhance self-esteem and self-efficacy and may also promote the use of planning and active coping in one's own life. The variety of life situations encountered while providing services to others may provide a knowledge base for the adaptive use of positive reframing.

Spiritual support may influence well-being for those undergoing stressful life events in two ways: cognitive mediation and emotional support (Maton, 1989; Pargament, 1997; Pargament et al., 1990). Within the cognitive mediation model, spiritual support encourages positive appraisals of the meaning and implications of stressful life events, that is, the use of positive reframing. An atmosphere of emotional support may lead to general beliefs, such as enhanced self-esteem, and possibly to specific beliefs including those about God's and powerful others' control over health. In addition, religious involvement offers a support system that may enhance coping through the use of instrumental and emotional assistance, such as that provided by guidelines in Scripture or by support from congregation members and clergy.

Religion-Focused and Problem-Focused Coping Used in Tandem

Results from the HBBS revealed that religion-focused and problem-focused strategies were strongly related and, particularly in the case of smoking, are adaptive when used together. This finding supported our hypothesis that religious faith is not solely associated with emotion-based coping mechanisms aimed at reducing distress. In fact, coping associated with religiosity appears to be uniquely composed of adaptive strategies from both the problem-based and emotion-based coping aggregates, based on our factor analysis. Students with strong religious faith, in addition to using religious coping, were significantly more likely to engage in positive reframing, active coping, seeking instrumental support, seeking emotional support, and planning. Of these coping strategies, active coping, planning, and positive reframing (from the problem-focused component), in addition to religious coping, seem to be most influential in mediating the protective effects of religious faith on tobacco and alcohol use in older adolescents and young adults.

TOWARD INTERVENTION STRATEGIES

Integrating religiosity/spirituality into structured health promotion and intervention programs for adolescents and young adults has been of considerable interest (Kutter & McDermott, 1997; Pullen et al., 1999; Wallace & Forman, 1998). This interest has occurred in part due to the gradual acceptance by health professionals and the scientific community that spiritual factors may be salient in health and illness (McCullough, Hoyt, Larson, Koenig, & Thoreson, 2000). Pullen et al. (1999) suggest that the inclusion of spirituality in substance use programs may improve recovery and/or decrease relapse. Plante and Pardini (2000) found that strong religious faith was associated with greater resilience to stress and lower anxiety among

recovering substance abusers; denomination affiliation appeared to moderate the beneficial effects.

Within traditional 12-step programs, such as Alcoholics Anonymous (AA), spiritual awareness and growth are considered essential in helping members maintain sobriety (Thoreson et al., 1998). Members provide emotional and instrumental support during group meetings in which emotional disclosure is encouraged. AA emphasizes developing or strengthening spirituality and, tacitly, God locus of control concerning all matters, including health (see Step 11, AA, 2000). During the past 2 decades, 12-step programs have been increasingly likely to serve younger substance abusers. Beck and Olivet (1988) provide an abbreviated version of the traditional 12 steps for adolescents, focusing on three components: admit, accept, and surrender. Vaughn and Long (1999) conducted a qualitative study to examine the process and outcomes of an adolescent AA program. Adolescents in the group were observed to gradually surrender to a higher power, forgive themselves and others, and begin to live in the moment. Self-reflective prayer, company of recovering peers, and nurturing adults provided them the support necessary to confront their addiction and enhance their progression through the program. In general, these programs are considered successful by many, although it remains difficult to determine effectiveness empirically (Thoreson et al., 1998).

The continuing concern about increasing substance use among young people has led laypeople, as well as researchers and practitioners, to propose that religion and spirituality may enhance traditional health promotion and treatment regimens. Community-based spiritual interventions are drawing more attention (Schorling et al., 1997; Swaddiwudhipong, Chaovakiratipong, Ngunttra, Khumklum, & Silarug, 1993). Church congregations may consider prevention and reduction of alcohol and tobacco use among their youth membership as a major priority and may implement peer education programs to supplement and enrich health education in community school curricula. In turn, successful programs may be adopted as part of the outreach mission of churches and implemented in the wider community. Youth and parents should be encouraged to recognize who may be at risk due to their perceptions of control, coping choices, self-efficacy levels, and tendencies toward sensation seeking. Programs that integrate the learning and practiced use of problem-based coping strategies and that offer opportunities for instrumental and emotional support from trusted peers and older adults should be more effective than programs based primarily on presentation of health information. In addition to abstinence-based programs, religious organizations might also consider pragmatic models such as Marlatt's harm reduction approach (Dimeff, Baer, Kivlahan, & Marlatt, 1999; Marlatt, 1998).

Have we reached a point at which we can confidently disseminate pub-

lic health messages such as, "Just say no to drugs, yes to church and God"? Although many are eager to include spiritual factors in health promotion and prevention, using this adage would be premature. Empirical research to support the use of religion-infused programs is needed (Harris, Thoresen, McCullough, & Larson, 1999; Miller, 1999), and ethical issues require careful consideration (see Tan & Dong, Chapter 12, and Chirban, Chapter 11, this volume). There is a paucity of intervention studies that provide insight into effective integration of religion/spirituality into health promotion programs (for discussion of research suggestions and guidelines, see Airhihenbuwa, 1996; Harris et al., 1999; Worthington, Kurusu, McCullough, & Sandage, 1996). Hence, although research has consistently demonstrated that religion is related to decreased alcohol and tobacco use among adolescents and young adults, there is much to learn about how these findings may be effectively applied toward formulation of intervention strategies.

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