

Article 1

Article 1 (for Quiz 1)

University Students' Reasons for ~~Not~~ Drinking: Relationship to Alcohol Consumption Level

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ABSTRACT. The present study investigated the reasons university students have for *not* drinking on those occasions when they choose *not* to drink and whether those reasons differ with students' differing levels of alcohol consumption. Volunteer participants for the study were students (158 males, 245 females) from a mid-South state university. These students anonymously answered questions about the quantity and frequency of their alcohol consumption, and on this basis, four alcohol consumption level groups were formed (80.4% of the sample) in addition to abstainers (19.6% of the sample). Each student also responded to the question, "On those occasions when you *do not* drink (or drink very little), what is the *main* reason you make that decision?" A chi square test of independence indicated that reason for *not* drinking was significantly related to alcohol consumption level group, and separate chi square tests for goodness-of-fit revealed distinctly different reasons given for *not* drinking depending on the group's alcohol consumption level. Light drinkers endorsed religious-moral reasons significantly more often than the other groups, moderate drinkers chose safety reasons, while heavy drinkers indicated expense as their main reason for *not* drinking. The results of this unique study inform social and legislative policies for alcohol abuse prevention and intervention by indicating strategies that target the beliefs of the various alcohol consumption levels.

From *Journal of Alcohol and Drug Education*, 42, 83-102.
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Introduction

While data suggest that drinking on college campuses has declined somewhat over the past 15 years, alcohol abuse and the proportion of heavy drinkers (18-20%) in this population remain unchanged (Engs & Hanson, 1988; Johnston, O'Malley, & Bachman, 1991; O'Hare, 1990). Alcohol appears to be the drug of choice on today's college campuses, predominantly due to the growing intolerance of and unavailability of "harder" drugs (Haberman, 1994; Johnson, Amatetti, Funkhouser, & Johnson, 1988). From 80-90% of college students drink alcohol on a regular basis, many of whom meet criteria as alcohol abusers (Engs & Han-

son, 1988; Haberman, 1994; Johnston et al., 1991). The number of alcohol users does not decline with age during college, as studies have found that the percentage of users tends to grow over each of the college years for traditional students (O'Hare, 1990; Werch, Gorman, & Marty, 1987; Wiggins & Wiggins, 1987) with an increase in the percentage of heavy drinkers as students progress through college (O'Hare, 1990). Of further concern is the finding that alcohol abuse in youth can be positively correlated with alcohol abuse in adulthood (Coate & Grossman, 1988). Although there may be more abstainers among the younger students, among those who do drink, there is little, if any, difference in levels of alcohol consumption and in total reported alcohol-related problems between those who are under age 21 years and those who are 21 years or older (Engs & Hanson, 1988; O'Hare, 1990).

Currently in use are several presumed deterrents to alcohol abuse. Even though quite effective in teaching pertinent alcohol-related facts to youth, traditional alcohol abuse prevention programs of a didactic nature that attempt to increase knowledge or change attitudes have not proven effective in changing drinking behavior (Moskowitz, 1989; Schall, Kemeny, & Maltzman, 1992; Smith & McCauley, 1991). Informing under-age students that drinking is illegal and that they will be arrested for drinking also has little impact on alcohol practices (Engs & Hanson, 1988).

Religion is a social institution that has been found repeatedly to be a deterrent to alcohol use (Cochran, 1988; Hawks & Bahr, 1992; Schall et al., 1992), especially where secular controls are weak, such as at a state university (Tittle & Welch, 1983). Further, it appears that religiosity has a stable inhibitory influence on a wide range of deviant behaviors (Cochran, 1991), particularly with regard to certain denominations (Hawks & Bahr, 1992).

Various legislative issues that attempt to control the availability of alcohol compose other potential deterrents to alcohol abuse. The Federal Uniform Drinking Age Act of July 1984 persuaded states that had previously lowered their drinking age to raise the legal age to 21 years by October 1986 or lose thousands of dol-

lars in federal highway construction funds. However, even after this act officially took effect, no difference was found in alcohol consumption levels between those who were of legal age and those who were not (O'Hare, 1990).

A second legislative measure that can impact availability of alcohol is higher cost of alcoholic beverages. Studies have found that even small increases in state taxes on alcohol decrease statewide alcohol consumption level (Johnson et al., 1988; Lockhart, Beck, & Summons, 1993) as well as the number of alcohol-related traffic fatalities (Moskowitz, 1989; Nathan, 1988), and the number of youth who drive while intoxicated (Lockhart et al., 1993). However, many states continue to ignore this potential deterrent.

Finally, it has been reported that the national campaign against drunk driving which peaked around 1985 had a significant impact on youth problem drinking, resulting in fewer alcohol-related traffic fatalities (Coate & Grossman, 1988; Hingson, Howland, & Levenson, 1988; Tyron, 1992). While residual effects continue with those who passed through this age category in the early to mid 1980s, newer drivers have not been exposed to such strong informal social pressure to not drive drunk (Hingson et al., 1988).

Many studies have considered the reasons why college students drink. These studies have investigated such variables as students' living situations and the contexts in which they drink (O'Hare, 1990), perceived risk of alcohol-related misfortune (Smith & McCauley, 1991), internal attitudes that predict drinking (McCarty, Morrison, & Mills, 1983), students' attitudes toward alcohol (Tyron, 1992), situational determinants, such as social pressure or pleasant times, as triggers for drinking (Carey, 1993), positive alcohol expectancies for drinking (Thombs, 1993), family background (Engs, 1990), family modeling (Bradley, Carman, & Petree, 1992), an avoidant, rather than problem-focused, style of coping (Fromme & Rivet, 1994), and time of day of drinking (Cutter & O'Farrell, 1984), to name a few. In spite of this plethora of research on reasons for drinking in the college population, few relevant studies have considered reasons for not drinking among college students.

In an early study, Demone (1973) found the major reasons for not drinking in his sample of adolescent high school males were health, safety, and expense. Later Barnes' (1981) study of high school adolescents revealed other reasons for not drinking such as problems with the law, loss of self-control, and problems with employment or school. Reeves and Draper (1984), again using a high school adolescent sample, found six reasons for not drinking, or reducing consumption, endorsed by the majority of their subjects who consumed alcohol: maintain health, maintain self-respect, avoid parental disapproval, avoid disappointing family, maintain self-control, and maintain positive self-esteem. The abstainers in this study selected religion,

bad taste, and dislike for the effects of drinking as their major reasons for not drinking (Reeves & Draper, 1984).

Another offering found in the literature is one that considers reasons for not drinking in adult Hawaiians of various cultural backgrounds (Johnson, Schwitters, Wilson, Nagoshi, & McClearn, 1985). In this study whites and Hawaiians living in Hawaii listed health and expense most often as reasons for not drinking, while Chinese Hawaiians and Japanese Hawaiians, for example, listed dislike of taste and lack of benefit from drinking as their major reasons for not drinking.

Finally, Greenfield, Guydish, and Temple (1989) completed a study of West Coast universities through which they explored reasons for limiting drinking. They eliminated self-reported abstainers from their analyses because those who abstain from drinking as a lifestyle tend to have markedly different reasons for doing so than do students who periodically limit their drinking. From their 17 survey questions, four factors emerged as reasons for not drinking: self-control (i.e., "I like to feel in control of myself," "It's bad for my health," "I'm concerned about what people might think"), upbringing (i.e., "My religion discourages [or is against] drinking," "I'm part of a group that doesn't drink much," "I'm not old enough to drink legally"), self-reform ("Someone suggested that I drink less," "I was embarrassed by something I said or did when drinking"), and performance ("Drinking interferes with my studies," "I wouldn't want to disappoint my parents"). Although not included in their survey, these authors also found that intention to drive was the reason given as most important for not drinking by 77% of their sample. A second important reason, but one that they also omitted from their survey factor analysis, was taste of alcohol as a motive for not drinking.

Prevention techniques have proliferated as attempts have been made to find a means for reduction of the serious situation of problem drinking on university campuses. Given the potential usefulness, in terms of prevention, of discovering reasons for *not* drinking, it was decided to investigate these reasons in a university population where drinking is the norm. This type of investigation is particularly important when attempting to build a prevention model (Reeves & Draper, 1984).

The *purposes of the present study* were to: (a) examine current patterns of alcohol use in a mid-South university population, (b) discover which reasons university students endorse for *not* drinking on those occasions when they chose *not* to drink, (c) further discern whether students at varying levels of alcohol consumption have significantly different reasons for *not* drinking, and (d) synthesize this information in light of current or potential alcohol abuse prevention measures that are viable for university students.

Method

Subjects

170 Participants in this study were 403 volunteer stu-
 dents from various psychology classes at a mid-South
 state university with enrollment of 17,000 students.
 These included psychology majors and minors as well
 as those students who were taking psychology classes
 175 to fulfill general studies requirements of the university
 or of their major. The group generally represented a
 cross section of all students at this university as most
 students are required to or voluntarily take classes in
 psychology. Because it is a state, not private, institu-
 tion, most of the students who are enrolled at this uni-
 180 versity are from the middle socioeconomic class. The
 sample consisted of 39.2% males ($n = 158$) and 60.8%
 females ($n = 245$). Ethnic makeup was 84.7% white (n
 = 341), 12.9% African American ($n = 52$), and 2.4%
 from other ethnic backgrounds (mostly Asian, Hispanic
 185 American, Native American, and East Indian; $n = 10$).
 Ages of participants were as follows: 17-18 years:
 19.1% ($n = 77$), 19-20 years: 17.9% ($n = 72$), 21-23
 years: 40.2% ($n = 162$), 24-30 years: 12.9% ($n = 52$),
 and over 30 years: 9.9% ($n = 40$). The average age of
 190 all students at this university in the years studied was
 24.1. There were 28.1% freshmen ($n = 112$), 14.5%
 sophomores ($n = 58$), 25.3% juniors ($n = 101$), 28.8%
 seniors ($n = 115$), and 3.3% graduate students ($n = 13$).
 Four students did not indicate their class status at the
 195 university. These percentages correspond to the univer-
 sity percentages as a whole.

Measures

Each participant completed an anonymous survey
 which included demographic information plus a ques-
 tion that asked, "On those occasions when you DO
 200 NOT drink (or drink very little) what is the MAIN
 reason you make this decision?" (See the Appendix at the
 end of this article.) The choices available were those
 that appeared most frequently in the literature as hav-
 ing been selected by a wide range of alcohol consump-
 205 tion level groups, thereby lending validity to their in-
 clusion (Barnes, 1981; Greenfield et al., 1989; Johnson
 et al., 1985; Reeves & Draper, 1984). Additional items
 were generated by a similar sample in a prior pilot
 study by this investigator. This technique has previ-
 210 ously been used successfully as a valid method of
 questionnaire construction (Reeves & Draper, 1984).

The students were also asked to report on their own
 alcohol consumption levels. This was completed by
 querying their frequency of drinking and the quantity
 215 of alcohol consumed at each occasion. On the basis of
 their responses, students were then classified into alco-
 hol consumption level groups. While some investiga-
 tors have used other more detailed and possibly more
 precise methods for this type of grouping (i.e., the
 220 time-line follow-back interview procedure), the quan-
 tity-frequency method from simple questionnaire self-
 report appears to result in similar grouping (Carey,

1993). Rules for division into groups were taken from
 Barnes (1978, 1981, 1984) with the exception of com-
 225 bining her two lightest drinking groups (infrequent and
 light) into one (light). Reliability and validity of this
 classification system have been demonstrated repeat-
 edly by Barnes (1978, 1981, 1984). Internal consis-
 230 tency reliability (coefficient alpha) for the present clas-
 sification system has been found at .83-.88 for older
 adolescents (including university students), with test-
 retest reliability at .85 for a two-week intervening time
 interval (university students; Slicker, 1996). Four con-
 235 sumption level groups resulted from the classification
 system in addition to the abstainers who were not used
 in the main chi square statistical analyses.

Procedure

Data collection extended over a three-week period
 early in the fall semester of 1993. Participants were
 asked to complete the questionnaire after they were
 240 informed that their participation was voluntary, that
 their responses were anonymous and confidential, and
 that results would be reported in group format only. All
 signed informed consent forms were separated from
 their response sheets. The questionnaire took approxi-
 245 mately 10 minutes to complete, and participation rate
 was nearly 95%.

Results

The four consumption level groups were: light
 drinkers, moderate drinkers, moderately heavy drink-
 ers, and heavy drinkers (Barnes, 1978, 1981, 1984).
 250 The *abstinent group* ($n = 79$; 19.6% of the total sam-
 ple) consisted of those individuals who indicated that
 they never drink alcohol, leaving 80.4% who indicated
 that they do drink. For this study, *light drinkers* ($n =$
 159; 39.4% of total) were designated as those who
 255 drink an average of 0-4 drinks once a month or less
 often or 0-2 drinks more often than once a month, but
 less often than once a week. *Moderate drinkers* ($n =$
 53; 13.2% of total) were those who drink 1-2 drinks at
 a frequency of once a week or more often (i.e., daily),
 260 3-4 drinks more often than once a month, but less than
 once a week, or 5 or more drinks once a month or less
 often. *Moderately heavy drinkers* ($n = 70$; 17.4% of
 total) were those who drink 3-4 drinks once a week or
 more, but not daily, or those who drink 5-10 drinks
 265 more often than once a month, but less than once a
 week. Finally, *heavy drinkers* ($n = 42$; 10.4% of total)
 were those whose consumption levels exceeded the
 criteria already mentioned both in frequency and
 amount consumed. This included drinking 3-4 drinks
 270 daily, 5-10 drinks once a week or more often, or
 drinking more than 10 drinks more often than once a
 month (i.e., weekly, daily). In this study, 18.9% ($n =$
 76) of the total sample indicated that they have con-
 275 sumed (at any frequency) six or more drinks in one
 sitting (commonly referred to in the literature as "binge
 drinking").

Because of the sample size and the variety of com-

parisons made, a conservative alpha level of .005 was adopted to minimize Type I familywise errors. Initial analyses considered correlations among variables of interest such as alcohol consumption level and its components, quantity and frequency, and the demographic variables: age, gender, and ethnicity (see Table 1). Both alcohol consumption level and quantity of drinking at each occasion were significantly related to both age and gender, but neither was related to ethnicity. While frequency of drinking was related to quantity consumed at each sitting, frequency lacked a significant relationship to any of three demographic variables of interest: age, gender, or ethnicity.

Table 1
Correlation Matrix with Alcohol Consumption Variables and Demographic Variables

	1	2	3
1. Frequency of drinking			
2. Quantity at each occasion	.46**		
3. Alcohol consumption level	.81**	.80**	
4. Age	-.01	-.31**	-.21*
5. Gender ^a	-.21*	-.28**	-.31**
6. Ethnicity ^b	-.09	-.18	-.17

Note. $N = 324$; abstainers excluded. * $p < .001$ ** $p < .0001$
^aMale = 0, female = 1 ^bWhite = 0, African American = 1, "other" ethnic groups excluded

Of the total university sample ($N = 403$), 80.4% considered themselves to be drinkers (82.2% of the males and 79.2% of the females) while 19.6% considered themselves abstainers (17.8% of the males and 20.8% of the females). Although only 6.1% of all females in the study (7.7% of the drinking females) were found to be heavy drinkers, 17.1% of all the males (20.9% of the drinking males) fell in this category. The highly significant chi square for gender among the drinkers, $\chi^2(3, N = 323) = 33.85, p < .0001$, suggested that gender and alcohol consumption level were not independent variables, but were significantly related (see Table 2). Heavy drinking was nearly three times as prevalent in males as it was in females. In addition, there was no relationship found between abstainer versus drinker status and gender, $\chi^2(1, N = 402) = .54, p > .10$. This indicates that while females in this sample do not abstain in any greater proportions than do males, when they drink they do so more in moderation.

In order to consider the relationship between ethnicity and consumption level, it was necessary to exclude the "other" ethnic groups due to the small numbers in these groups. Only whites and African Americans were compared resulting in a chi square of $(3, N = 317) = 15.73, p < .001$ which suggested a significant relationship between alcohol consumption level and ethnicity (see Table 2). In fact, there were 5½ times as

many white heavy drinkers as there were African Americans (14.4% vs. 2.6%). Proportionately, however, there were fewer than 1½ times as many African American abstainers as white (25.0% vs. 18.1%). The relationship between abstainers vs. drinker status and ethnicity was not significant, $\chi^2(1, N = 393) = 1.36, p > .10$. In summary, while they do not necessarily abstain in greater proportions, African Americans in this sample drink more moderately than do whites. This difference in consumption levels appears to be related to the devout religious involvement of African Americans in the middle-South. Religion has been shown to serve as a protective factor against alcohol abuse in this population (Barnes, Farrell, & Banerjee, 1994).

In regard to age influences, there was no significant difference in consumption levels between those who were under age 21 years (the legal drinking age for this state) and those who were 21 years or older, $\chi^2(3, N = 324) = 6.25, p > .10$. This lack of relationship between age range and consumption level suggests that those students under age 21 years have drinking patterns that are similar to students 21 years of age and older. The relationship between abstainer vs. drinker status and age range resulted in $\chi^2(1, N = 403) = 5.22, p > .01$, suggesting no significant relationship between drinking status and age range. When broken down into the five smaller age groups, the chi square that emerged, $\chi^2(12, N = 324) = 26.50, p < .01$, suggested only a weak relationship between consumption level and age group (see Table 2), but no relationship emerged between drinking status (abstainer vs. drinker) and age group, $\chi^2(4, N = 403) = 7.96, p > .05$. These results show little difference overall in drinking patterns among the various age groups and no difference in proportion of abstainers among the five age groups. In viewing only those who drink, the age group with the greatest percentage of drinkers falling within the light consumption level was the over-30-years-of-age group, while the age group with the greatest percentage of heavy drinkers was the group of 19–20-year-olds. Observation suggests that as students in this sample age they are increasingly likely to be light to moderate drinkers. This result appears to be counter to the prior research indicating that young heavy drinkers often become older heavy drinkers (Coate & Grossman, 1988), but is consistent with Peele (1995) who noted that many people mature out of heavy drinking patterns.

A chi square procedure for independence was used to discover the relationship among the four consumption level groups and reasons for not drinking (see Table 3). Abstainers were excluded from these analyses due to a belief that there are theoretically divergent, more enduring, reasons for their abstention than are the more situational reasons mentioned by the drinkers. To combine the abstainers with the drinkers would unnecessarily confound the results. The overall chi square for independence, $\chi^2(27, N = 324) = 71.64, p < .0001$, sug-

Table 2
Sample Characteristics in Percent (and Frequency) by Consumption Level for Drinkers with Chi Square Tests for Independence on Each Characteristic

Characteristic	Alcohol Consumption Level				Total (N = 324)
	Light (n = 159)	Moderate (n = 53)	Mod/Heavy (n = 70)	Heavy (n = 42)	
Male	34.1 (44)	12.4 (16)	32.6 (42)	20.9 (27)	39.9 (129)
Female	58.8 (114)	19.1 (37)	14.4 (28)	7.7 (15)	60.1 (194)
$\chi^2(3, N = 323) = 33.85, p < .0001$					
White	44.8 (125)	18.6 (52)	22.2 (62)	14.4 (40)	88.0 (279)
African American	76.3 (29)	2.6 (1)	18.5 (7)	2.6 (1)	12.0 (38)
$\chi^2(3, N = 317) = 15.73, p < .001^a$					
17-18 years	38.2 (21)	14.5 (8)	29.1 (16)	18.2 (10)	17.0 (55)
19-20 years	46.4 (26)	17.9 (10)	16.1 (9)	19.6 (11)	17.3 (56)
21-23 years	47.1 (66)	13.6 (19)	27.9 (39)	11.4 (16)	43.2 (140)
24-30 years	58.2 (25)	18.6 (8)	11.6 (5)	11.6 (5)	13.3 (43)
> 30 years	70.0 (21)	26.7 (8)	3.3 (1)	0.0 (0)	9.2 (30)
$\chi^2(12, N = 324) = 26.50, p < .01$					
Age < 21 years	42.3 (47)	16.2 (18)	22.5 (25)	18.9 (21)	34.4 (111)
Age 21 or older	52.6 (112)	16.4 (35)	21.1 (45)	9.9 (21)	65.7 (213)
$\chi^2(3, N = 324) = 6.25, p > .10$					
TOTAL	49.1 (159)	16.4 (53)	21.6 (70)	12.9 (42)	100.0 (324)

^a "Other" ethnic groups excluded

375 gested that consumption level group and reason for not
drinking were strongly related, and that there was a
highly significant difference among consumption level
groups in regard to main reason endorsed for not
drinking when considering both genders together. This
380 model further suggested that 27% of the variance
(Cramer's V) in reasons for not drinking, among the
drinkers, was explained by level of alcohol consump-
tion. Gender and reason for not drinking were them-
selves independent, $\chi^2(9, N = 323) = 10.20, p > .10$,
385 which suggests that no one reason was more attractive
to one gender than it was to the other. In addition, eth-
nicity, age range, and university class status were also
unrelated to reason for not drinking.

Further investigation via a series of individual chi
square tests for goodness-of-fit on each reason for not
drinking indicated whether a particular reason was sig-
nificantly more pertinent to one consumption level
group than it was to the others (see Table 3). While
overall, the *safety* reason was cited more than any other
395 reason (chosen by 24.7% of the total sample and 29.9%
of the drinkers), it was most prevalent for the moderate
drinkers (chosen by 35.9% of this group). All drinking
groups chose this reason more often than did the ab-
stainers (chosen by only 2.6%). The second most
400 popular reason given for choosing not to drink (chosen
by 15.5% of the total sample and 17.9% of the drink-
ers) was need for *control* of one's self. A relatively
equal distribution of respondents from each drinking
group chose this reason, again, more often than did the
405 abstainers (chosen by 5.2% of the abstainers). The third
most often chosen reason for not drinking among the

410 drinkers (chosen by 13.9%, but by only 11.2% of the
total sample) involved need for *alertness*. This reason
was chosen significantly less by the abstainers (0.0%)
than by the moderately heavy (21.7%) and heavy
415 drinkers (21.4%), those who clearly are more likely to
be affected by the potential for passing out. The fourth
most popular reason for not drinking among drinkers
(chosen by 11.1% of the drinkers and by 13.5% of the
total sample) was *health* concern. Health concern was
420 the *second* most popular reason chosen by the abstain-
ers (chosen by 23.4% of them), who chose this reason
more often than did any of the drinking groups.

Although all other reasons were chosen by less than
425 10% of the drinkers, two additional reasons for not
drinking produced significant results in the goodness-
of-fit tests (see Table 3). First, *religious-moral* taboos,
chosen by 15.2% of the total sample and by only 7.4%
of the drinkers, was chosen by 46.8% of the abstainers
430 (their number one reason for not drinking). While
35.7% of abstaining men (6.4% of all males) chose
religious beliefs, 53.1% of abstaining women (10.7%
of all women) selected this as their main reason for not
drinking. Among the drinkers, a significant chi square
435 goodness-of-fit test, $\chi^2(3, N = 324) = 15.36, p < .005$,
indicated that alcohol consumption level was signifi-
cantly related to this particular reason for not drinking,
with the light drinkers choosing religious-moral taboos
(chosen by 13.7% of them) significantly more often
than did the other drinking level groups.

The *second* reason for not drinking that produced a
highly significant chi square goodness-of-fit test
among the drinkers (chosen by 8.3% of the drinkers)

Table 3
Relationship of Reasons for Not Drinking to Alcohol Consumption Level in Percent (and Frequency) with Chi Square Tests for Goodness-of-fit

Reasons	Alcohol Consumption Level					χ^2 ^a
	Light (n = 159)	Moderate (n = 53)	Mod/Heavy (n = 70)	Heavy (n = 42)	Total (N = 324)	
Religious-moral	13.7 (22)	3.8 (2)	1.5 (1)	0.0 (0)	7.4	15.36*
Taste	10.6 (17)	3.8 (2)	2.9 (2)	2.4 (1)	6.8	6.91
Health	13.7 (22)	13.2 (7)	5.8 (4)	7.1 (3)	11.4	3.58
Safety	31.3 (50)	35.9 (19)	29.0 (20)	19.1 (8)	29.9	2.44
Self-Control	15.0 (24)	20.7 (11)	20.3 (14)	21.4 (9)	17.9	1.51
Alertness	8.8 (14)	13.2 (7)	21.7 (15)	21.4 (9)	13.9	7.82
Expense	1.9 (3)	7.5 (4)	13.0 (9)	26.2 (11)	8.3	25.87**
Other ^b						1.61
Social Image	0.6 (1)	0.0 (0)	2.9 (2)	0.0 (0)	0.9	
Peers, family	2.5 (4)	1.9 (1)	0.0 (0)	0.0 (0)	1.5	
Availability	1.9 (3)	0.0 (0)	2.9 (2)	2.4 (1)	1.9	
Column Totals	100.0	100.0	100.0	100.0	100.0	

Chi Square test for independence, total model: $\chi^2(27, N = 324) = 71.64^{**}$

^aChi square test for goodness-of-fit for each reason; *df* = 3

^bDue to excessively small observed counts, the last three categories were collapsed into one for the goodness-of-fit test.

p* < .05/10 tests = .005 *p* < .0001

440 was expense, $\chi^2(3, N = 324) = 25.87, p < .0001$. Although this reason was chosen by only 6.7% of the total sample, it was endorsed significantly more often by the heavy drinkers (26.2%) than by any of the other consumption level groups, a finding that strongly suggests that university students who are heavy drinkers are highly affected by the price of alcoholic beverages.

445 When considering reasons for not drinking by consumption level group, each group tended to have characteristic reasons for choosing not to drink. The most popular reasons (those endorsed by more than 15% of any group) were: for light drinkers—safety only; for moderate drinkers—safety and self-control; for moderately heavy drinkers—safety, alertness, and self-control; and for heavy drinkers—expense, alertness, self-control, and safety. Very few respondents from any of the drinking groups chose the following reasons for not drinking: dislike of *taste* (the third most often chosen reason by the abstainers, chosen by 20.8% of them), preservation of *social image*, *peer or family pressure* NOT to drink, and *lack of availability* because of being underage. Because the last three reasons were chosen so infrequently, these three were collapsed into one category for the goodness-of-fit test (see Table 3).

Discussion

Comparability of this Sample

465 The results of this study tend to concur with those of many prior studies, attesting to the reliability and validity of the alcohol consumption classification system used. The comparability of these results also suggests that the campus surveyed in the present study is similar to those campuses studied in the past, even though it is located in the Bible Belt South. For exam-

470 ple, results of the present study find that 80.4% of the total sample drink alcohol as compared to 78.8% (Engs & Hanson, 1988), 90% (Haberman, 1994), 89% (Johnston et al., 1991), 81.5% (O'Hare, 1990), and 81.5% (Werch et al., 1987) in other studies. The percentages of men (82.2%) and women (79.2%) in this sample who drink are also similar to the findings of O'Hare (1990; 81.1% men, 81.6% women) and Werch et al. (1987; 80.3% men, 82.7% women). In addition, the absence of a significant difference in alcohol consumption levels between those age 21 years and older and those who are not yet 21 concurs with earlier results (O'Hare, 1990). The percentage of abstainers in the present study (19.6%) compares favorably to the results of Engs and Hanson (1988; 21.1%), O'Hare (1990; 18.5%), Werch et al. (1987; 18.5%), and Wiggins and Wiggins (1987; 20%). The present study finds that 17.8% of males and 20.8% of females abstain compared to O'Hare's (1990) 18.9% of males and 18.4% of females and Werch et al.'s (1987) 19.7% male and 17.3% female abstention. As in the Engs (1990) study, sophomores (typically 19 to 20 years of age) are the heaviest drinkers, and significant differences occur in alcohol consumption level due to gender and ethnicity. Whites are found to be heavier drinkers than African Americans both in the present study and in prior studies (O'Hare, 1990; Wechsler & McFadden, 1979). Werch et al. (1987) found three times as many heavy drinking males (21.3%) as females (7.1%) which compares proportionately to the present study (male heavy drinkers: 17.1%, female: 6.1%). Other studies designate binge drinking in similar terms (six or more drinks at one sitting, any frequency) which also lends itself to comparison. In the present study, 18.9% of the

total sample are binge drinkers, compared to 20% in the Engs and Hanson (1988) study.

Implication of Reasons for Not Drinking

While numerous studies have considered university students' reasons for drinking, the present study sought to ascertain these students' reasons for *not* drinking on those occasions when they choose not to drink. By discerning their motivations for not drinking we are able to gain insight into possible preventative measures for reducing alcohol abuse among university students. Implication of these discovered relationships follow.

First, the need for *safety* (i.e., not driving after drinking) is clearly of major importance to all alcohol consumption level groups as it is the number one reason for not drinking listed overall as well as the number one reason listed by each of the drinking groups (with the exception of the heavy drinkers). This suggests a strong belief that injury of self or others is imminent when driving while intoxicated, in all groups except the heavy drinkers. The finding is also consistent with the Greenfield et al. (1989) study in that both samples revealed safety as their most important reason for not drinking. While there is not a significant difference among the various age groups nor among the consumption level groups regarding this reason, the moderate drinkers and those age 21–23 years tend to designate safety as most important more often than do all the other groups. This particular age cohort appears to have been affected most profoundly by the pronounced public media campaign of 10 years ago against drunk driving.

Since this safety reason for not drinking is the most powerful one, it seems logical to capitalize on this information in our efforts against alcohol abuse. First, some states have increased penalties for and enforcement of drunk driving laws. The sentences not only involve suspension or revocation of drivers' licenses, but also attendance at Victim Impact Panel meetings where the loved ones of those killed by drunk drivers confront the convicted offenders. Such programs, aimed at first-time offenders and those who have recently begun *experiencing* problems at home, at work, or at school, show promise (Nathan, 1988). Second, since the media campaign of 10 years ago had such apparent impact (Hingson et al., 1988), reawakening that channel to the intensity it once had would further inoculate the current cohort of young drivers, as well as future drivers, against driving drunk. Community organizations and consistent media presence with this message would keep public attention and social pressure focused on this issue in order to sustain behavioral change in the area of drunk driving as it has in other public areas (Hingson et al., 1988).

The second finding implicates underage drinking. Although the present study finds that 9.9% of the sample of students over age 21 years are heavy drinkers, a full 18.9% of the underage sample falls into this heavy

drinking category as well. Only 1.5% (6 students) of the entire sample said that lack of *availability* of alcohol due to being underage was a problem. Clearly, the minimum drinking age legislation is not being adequately enforced. These laws are not significantly impacting this younger age range as demonstrated by the fact that almost twice as many of them are heavy drinkers as are those students who can buy alcohol legally. While lowering the drinking age apparently raises highway fatalities, raising the drinking age has had little positive impact on the university population in regard to alcohol consumption level. More effective enforcement of minimum drinking age laws both on and off campus could help curb this unrestricted accessibility as behavioral theories of choice suggest that alcohol consumption level varies inversely with direct constraints placed on access of alcohol (Vuchinich & Tucker, 1988).

Third, this axiom proffered by Vuchinich & Tucker (1988) can be applied not only to age eligibility for access, but also to the *affordability* of alcohol. It should not be surprising that raising the cost of alcoholic beverages has shown definitive promise as an alcohol abuse prevention measure (Coate & Grossman, 1988; Grossman, Coate, & Arluck, 1987). Results of the present study substantiate these findings as they indicate that there is a significant positive relationship between heavy drinking and endorsement of expense as a reason not to drink. Incidence of heavy and frequent drinking by youth is significantly and inversely related to the price of alcohol, affecting the frequent heavy drinkers even more than those who drink infrequently (Coate & Grossman, 1988; Cook & Tauchen, 1982; Grossman et al., 1987). Specifically, the heavy drinkers choose this as their reason for not drinking significantly more often than do any of the other groups. This means that if we were to substantially raise state and federal excise taxes on alcoholic beverages, the heavy drinkers (our main target group) would be most affected. Lockhart and colleagues (1993) have suggested that \$7.50 per six-pack of beer is the point at which purchases drop off markedly. The raising of alcohol prices via heavier taxation could substantially impact the consumption level of this problem heavy drinking group, the group for which intervention is most needed.

The final implication that can be drawn from this study involves the impact of *religiosity* on alcohol consumption. Since nearly half of the abstinent group and 14% of the light drinkers cited a religious-moral reason for not drinking, it follows that self-reported religiosity apparently provides resiliency against alcohol use and abuse in a university population. This phenomenon is particularly evident in the Bible Belt South (Cochran, 1988; Sneed & Slicker, 1997). Although the mechanism of this connection between religion and abstinence is not evident from the present study, it has been suggested that the means through which religion works may be that of family values. For example, families

620 who value components of a strong parent-adolescent relationship such as effective supervision of the adolescent, clear parent-adolescent communication, parental responsiveness to the adolescents (Barnes et al., 1994; Slicker, 1996), and appropriate parental modeling of drinking/nondrinking behaviors (Barnes, 1984) are significantly more likely to be high in religiosity than 625 are families who are deficit in one or more of these values. Repeatedly studies have demonstrated that these components work to deter problem behaviors, such as alcohol abuse, in older adolescents (Barnes et al., 1994; Reeves & Draper, 1984; Slicker, 1996; Sneed & Slicker, 1997). Indirect intervention, intervention whose results will be evident only over time, involves bolstering parents and families with the skills for developing strong parent-adolescent relationships. Further study is warranted of the specific familial and parenting behaviors involved in providing this resiliency 635 against alcohol abuse and of the mechanism of connection between religiosity and effective parenting.

640 Despite its demonstrated similarity to university populations from other parts of the country, caution should be exercised when generalizing the results of this study using psychology students from one mid-South university in the Bible Belt to other populations in other universities located in other regions of the country. That limitation aside, the results of this study 645 can enlighten those who are in a position to create, to fund, and to enforce local programs.

Conclusions

650 The present study determined that significantly different reasons for not drinking are endorsed by various university alcohol consumption level groups. By capitalizing on these reasons, we can link students' belief systems to prevention/intervention programs. It has been found that interventions that increase perceived risk of negative effects in heavy drinkers may cause these drinkers to modify their beliefs about the consequences of their heavy drinking (McCarty et al., 1983). 655 Currently, we are doing little to increase these perceived risks of negative effects as evidenced by a recent study indicating that although 36% of older adolescents admit to driving while intoxicated, only 3% have ever been arrested for this offense (Slicker, 1996). 660 Rekindling persistent media presence and strengthening community action and legal action against driving drunk coupled with more effective and predicted enforcement of drunk driving laws could serve to increase heavy drinkers' beliefs in the inadvisability of driving drunk. 665

670 Legislation that increases excise taxes on alcohol, making its purchase economically prohibitive for heavy drinking university students, is another environmental technique that has been shown by economists to be effective in preventing alcohol abuse. Currently, a six-pack of beer (the favorite beverage of college students) can be purchased in grocery stores for little more

675 than a six-pack of cola. The present study suggests that raising the price of alcohol would limit its availability to university students and would hit hardest in the heavy drinking group. Since it is clear that lack of availability of alcohol is an effective deterrent against alcohol abuse, limiting access to alcoholic beverages of underage drinkers is an option that is open for improved enforcement as well. Results of the present study suggest that few students under age 21 years currently feel the effect of restrictions on their ability to procure alcohol. Stiffer penalties for selling alcohol to, 680 and buying alcohol for, minors is legislatively possible and could limit availability of alcohol to this underage population.

690 Finally, this study links periodic nondrinking in the light drinkers (and abstainers) predominantly to their religious/moral beliefs. Unlike the previously mentioned interventions, however, religion cannot be legislated. Change in the personal belief system of these students and their families will need to be made over the long term through consistent public school and community interventions with families of children and pre-adolescents, teaching parent-child relationship skills and effective parental monitoring skills.

700 Legislative and social strategies suggested by this research provide alternate prevention and intervention techniques that are our best defense against alcohol abuse. This study demonstrates for the first time that looking at students' reasons for *not* drinking is a viable direction from which to approach the widespread problem of alcohol abuse on university campuses.

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