Controlling Underage Drinking: Fear of Law Enforcement or Internalized Normative Values?

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Abstract

Background: Previous research on alcohol control policies has generally taken a deterrence perspective. Whether internalized normative values, consistent with the changes intended by alcohol policies, were a potential base for securing public compliance with them has received little research attention. To fill this gap, this study examined whether under age young adult's support for underage drinking laws was associated with their alcohol use.

Methods: National Alcohol Surveys (NAS) data collected in 1995-2005 were used. Multivariate logistic regression analyses were conducted. Covariates included: sex, race, education level, household income, positive alcohol expectancies, the perceived likelihood of law enforcement, and the availability and affordability of alcohol.

Results: Controlling for other covariates, support for underage drinking laws was significantly associated with some drinking outcomes. Underage young adults who were not supportive of the minimum legal drinking age law were more likely to engage in frequent binge drinking (OR=3.08) and drinking driving (OR=4.17), and to have initiated drinking at age 16 or younger (OR=2.37). Those who indicated a lower degree of support for the zero-tolerance drunk driving law had higher odds of drinking driving (OR=4.36), as well as higher odds of having ever had alcohol (OR=5.46), current drinking (OR=5.36), and having initiated drinking at the age of 16 or younger (OR=3.09). The perceived likelihood of law enforcement was protective only from frequent binge drinking (OR=0.09).

Conclusion: A clear articulation of potential harms associated with underage drinking to help legitimize underage drinking laws, along with their rigorous enforcement, may help reduce underage drinking.

Introduction

Minimum legal drinking age (MLDA) laws and zero-tolerance (ZT) drunk driving laws have been the cornerstone of policy efforts to control underage drinking in the United States. Cumulative evidence points to the relative effectiveness of the policy of limiting youth access to alcohol through the MLDA law and reinforcing it with the ZT law. Underage drinking laws have been associated with decreases in alcohol-related traffic crashes, injuries and/or fatalities for the targeted age groups [1-4]. They are also linked with a decline in the proportion of underage drinkers who drive after drinking [5,6] and a reduction in heavy episodic drinking, especially among underage males [7]. Still, the prevalence of underage drinking has remained high. Between 2005 and 2011, about one in five high school seniors reported binge drinking, about one in ten reported extreme binge drinking of 10 drinks or a day, and about 6% reported even more extreme binge drinking of 15 drinks or more a day [8].

Previous research on alcohol control policy has generally taken the deterrence perspective, which postulates that the effectiveness of a law lies in the perceptions of a high likelihood of formal punishment following violation of that law. Research has thus found that limited enforcement of underage drinking laws allowed easy access to alcohol of underage youth, undercutting the effectiveness of these laws [9-12]. While this focus on enforcement is certainly appropriate, what may have been overlooked is that laws can affect behavior not just by instilling fear of formal sanction but also by changing normative values of citizens in a manner consistent with the intended goals of the laws.

Normative values have long been recognized by social theorists as a potential base for securing public compliance with laws. From this perspective, if people regard a law as legitimate and compliance with it appropriate, they will voluntarily abide by it [13]. Legal and social systems cannot function if they can influence citizens only through formal sanctions [14,15]. Enforcement requires a large expenditure of resources to have any noticeable effect on citizen's assessments on the likelihood of being detected and punished [16]. For behaviors like underage drinking that may often be considered socially acceptable and are likely to occur pervasively with little stigma, relying on enforcement alone may be impractical. The primary impact of laws may lie in changing behaviors by instilling fear of formal punishment, but over time laws may condition citizens to voluntarily modify their behavior by influencing their personal perceptions, values and norms [17].

The current study explores whether support for underage drinking laws—an indication that normative values consistent with such laws are internalized in underage young adults—is associated with underage drinking. Alcohol control policies including underage drinking laws are designed to modify the environment in a way to reduce or prevent drinking and drinking-related problem behaviors. However, policies are unlikely to determine behaviors in a mechanical way. Rather, their effects may be mediated or moderated by various cultural, social, and economic factors. In the current literature on alcohol policies, enforcement of policies has been identified as one of such factors, and a very prominent one [11,12,18]. An individual's normative judgment about (or support for) the laws—i.e. whether he (she)considers them legitimate or appropriate—or the behaviors the laws are intended to deter may be another. At the very least, some drinking behaviors may be addressed more effectively through coercion (i.e. by enforcement of laws), and others by instilling

normative values embodied in the law, in part by articulating and publicizing the health and social consequences of the very behaviors the laws are intended to deter. Recent research has investigated the influence of community disapproval of adolescents' alcohol use, as perceived by adolescents, and adolescents' own drinking beliefs (for example, perceived harm of alcohol use) [19,20]. However, little research has been reported on adolescent's or underage young adults' support for underage drinking laws or their judgments about specific behaviors the laws are intended to deter.

Three specific research questions are addressed in the current study: 1) to what extent those younger than 21 years support the MLDA and ZT laws; 2) to what extent underage drinking is associated with support for the laws and with the perceived likelihood of being subjected to enforcement of the laws; and 3) what specific underage drinking behaviors are associated with the former and what behaviors are associated with the latter. Covariates included in the multivariate models are other predictors of underage drinking that have been widely investigated—i.e. the influence of significant others, positive alcohol expectancies, and availability and affordability of alcohol. Demographic variables such as sex, race, education level, and annual household income are also included in those models.

Materials and Methods

Data

Data of the National Alcohol Surveys (NAS) conducted by the Alcohol Research Group in 1995, 2000, and 2005 were used for the current study. The 1995 NAS data were collected via in-person interviews of adults 18 ages or older sampled by a stratified, clustered, multi-stage design, and the 2000 and 2005 data through random-digit-dialing computer-assisted telephone interviews. Informed consent was obtained prior to each interview. The 1995, 2000, and 2005 NAS include nationwide probability samples of 4,936, 7,612, 6,919 respondents with response rates of 79%, 58%, and 50%, respectively. The 2000 and 2005 NAS response rates, although lower than those of many face-to-face surveys, are typical of recent U.S. telephone surveys in a time of increasing barriers to random-digit-dial studies [21]. Details on NAS methodology are provided elsewhere [22]. The 1995 underage adult sample included 255 persons ages 18-20, and the 2000 and 2005 samples included 402 and 223 persons, respectively, of the same age profile.

Measures

Drinking outcomes

Current alcohol use was assessed by the question whether the respondent had a whole drink of any alcoholic beverage in the last twelve months. *Frequent binge drinking* indicates that the respondent had at least five or six glasses (or twelve-ounce cans or bottles) more than half the time he (she) drank. *Drinking driving* was assessed by the combination of two questions: 1) whether the respondent had driven a motor vehicle in the last twelve months and 2) if so, whether he(she) had driven a car when he(she) had drunk enough to be trouble if the police had stopped him(her).

Predictors and covariates

Since support for the MLDA and ZT laws was not directly measured in the NAS, proxies were used in the current study. *Support for the MLDA law* was assessed using a dichotomous variable indicating the view that the legal drinking age "should be raised or

remain the same" *versus* "should be lowered." Categorical responses to the question, "How much drinking is all right when going to drive a car?" recoded into a dichotomous variable of "no drinking" *versus* "some drinking" was used as a proxy for *support for the ZT law*.

A composite index for *positive alcohol expectancies* was constructed using three questions that asked about the agreement or disagreement with the following statements: "Getting drunk is an innocent way of having fun"; "Having a drink is one of the pleasures of life"; and "Having a drink with someone is a way of being friendly." *Perceived likelihood of law enforcement* was assessed by the question whether "drinking can get you into trouble with the police or authorities" is an important reason for abstaining from alcoholic beverages or being careful about the amount of drinking. The *influence of significant other*s was assessed by the question whether "family or friends get upset when you drink" is an important reason for abstaining from or being careful about the amount of drinking. *Alcohol availability* was assessed by the question whether "it's easy to buy alcoholic beverages during the evening." *Alcohol affordability* was assessed by the question whether "alcohol's costing too much money" is an important reason for abstaining from or being careful about the amount of drinking.

Analytic strategy

Univariate analyses were conducted using the 1995-2005 NAS data to obtain point estimates to track the changes in the proportions of persons who supported underage drinking laws, as well as prevalence of underage drinking. Chi-square tests were conducted using the same data to examine the associations of demographic characteristics and other covariates with support for underage drinking laws. The 2000 NAS data were used to fit a series of logistic regression models to examine the associations of support for underage drinking laws with drinking behaviors. The 2000 NAS yielded a larger sample of underage young adults than the 2005 NAS. Additionally, key questions concerning opinions about alcohol-related laws were randomly balloted in the 2005 survey to reduce the time needed for interviews, which led to a sample too small for multivariate analyses. In all analyses, survey estimation procedure of STATA Version 10 was used to accommodate all design, non-response, and post-stratification weights.

Results

Underage drinking and support for the MLDA and ZT laws

As Table 1 shows, while the proportion of adults who supported the MLDA law decreased slightly from 92.2% in 1995 to 87.2% in 2005, the proportion of underage young adults who supported the MLDA law plunged from 87.4% in 1995 to just over 60 percent in 2005. (Given the overlaps in confidence intervals, the changes over time were not statistically significant.) In contrast, support for the ZT law remained overwhelmingly high in all three years. Support for the ZT law was particularly high among underage young adults, with close to 90 percent of them supporting it. While the proportion of persons who supported the ZT law slightly eroded from 1995 to 2005 among both adults of drinking ages and underage young adults, the change was significant only for adults and from 1995 to 2000.Therefore, it appears that the legitimacy of this law was firmly established among underage adults.

Prevalence of underage drinking in all three years is provided in Table 2. The estimated proportions of underage adults who had

ever had alcohol and were current drinkers rose from 2000 and 2005, from 62.5% to 73.7% and from 57.5% and 63.1%, respectively. The proportions of frequent binge drinkers among underage young adults hovered around 15%, with few significant changes over the years; so did those of underage young adults who engaged in drinking driving. Both of them peaked in 2000 at 18% and 16.3%, respectively, and then slightly decreased to 16.9% and 13.5% by 2005. The proportion of underage adults who had started drinking at age 16 or earlier decreased from 40.5% in 1995 to 29.3% in 2005. Given the overlaps of confidence intervals, these changes over time were not statistically significant.

As Table 3 and Table 4 show, underage adults with a higher degree of positive alcohol expectancies were less likely to support the 21-year MLDA (with the associations being significant in 2000 and 2005) and the ZT law (with the associations being significant in all three years). The perceived likelihood of law enforcement was significantly

Table 1: Support for Underage Drinking Laws, 1995-2005.

Law	Age	Year	Proportion (%)	95% CI	N
Minimum Legal Drinking Age	Younger than 21	1995	87.4	81.3 – 93.5	254
		2000	78.8	74.2 – 83.3	399
		2005	60.2	43.3 – 77.1	66
	21 years or older	1995	92.2	90.4 – 94.0	4,491
		2000	91.1	90.4 – 91.9	7,414
		2005	87.2	85.1 – 89.3	1,827
Zero-Tolerance for Drinking Driving	Younger than 21	1995	89.9	83.9 – 95.9	254
		2000	87.1	83.4 – 90.8	399
		2005	86.2	79.6 – 92.8	66
	21 years or older	1995	84.3	82.5 – 86.1	4,491
		2000	**78.1**	**77.1 – 79.3**	7,414
		2005	80.0	78.8 – 81.2	1,827

CI: Confidence Interval
Note: Significant changes are highlighted in bold

Table 2: Prevalence ofUnderage Drinking, 1995-2005.

Outcome	Year	Proportion (%)	95% CI	N
Ever had alcohol	1995	70.6	61.0 - 80.3	255
	2000	62.5	57.1 - 68.0	402
	2005	73.7	66.3 - 81.2	223
Current drinking	1995	53.9	41.5 - 66.3	255
	2000	57.5	52.0 - 63.1	402
	2005	63.1	54.9 - 71.4	223
Frequent binge drinking	1995	14.1	6.8 - 21.4	255
	2000	18.0	13.6 - 22.5	402
	2005	16.9	9.4 - 24.5	223
Drunk driving	1995	12.3	†	102
	2000	16.3	10.3 - 22.3	189
	2005	13.5	3.9 - 23.2	109
Initiate drinking <= age 16	1995	40.5	30.7 - 50.3	255
	2000	30.9	25.7 - 36.7	402
	2005	29.3	20.8 - 37.8	223

†Due to a stratum of the sample with a single sampling unit, standard errors could not be computed
CI: Confidence Interval

Table 3: Support for Minimum Legal Drinking Age Laws. By Demographic Characteristics and Other Covariates (%).

Variables	1995	2000	2005
Sex			
Male	87.8	73.3***	49.3
Female	86.9	85.6***	74.4
N	255	399	66
Race			
Native American	0	95.7	†
Asian American & Pacific Islander	0	63.6	80.2
Black	85.6	87.2	77.9
White	90.6	77.7	71.8
Hispanic	86.6	77.8	52.1
N	255	399	66
Education			
Did not graduatehigh school	92.3*	78.6	53.8
Graduated high school	92.3*	80.9	63.1
College education	75.4*	73.9	61.8
N	255	399	66
Annual household income			
<$20,000	85.6*	81.2	61.0
$20,000 or higher	89.9*	75.3	51.9
N	218	312	46
Alcohol availability			
No	76.3	84.0	61.0
Yes	90.0	77.3	57.9
N	247	375	66
Alcohol affordability			
No	89.8*	76.9*	††
Yes	86.2*	79.1*	††
N	255	397	0
Positive alcohol expectancies			
Low	90.2	87.1*****	82.9***
High	81.3	61.8*****	34.0***
N	255	399	66
Perceived likelihood of law enforcement			
Not important	88.6	65.1**	††
Important	87.0	80.5**	††
N	255	399	0
Influence of significant others			
Not important	84.5	72.8	69.3
Important	89.0	81.4	68.4
N	255	397	60

***** p< .0001; **** p < .001; *** p < .01; ** p < .05; *p < .10

† There was no underage Native American in the 2005 NAS who responded to the question on MLDA.

††Due to no or a small number of underage respondents randomly balloted for this question in 2005, estimates are unavailable.

Table 4: Normative Support for Zero Tolerance Drunk Driving Laws by Demographic Characteristics and Other Covariates (%).

Variables	1995	2000	2005
Sex			
Male	81.4*****	82.9***	81.4
Female	99.4*****	92.5***	91.9
N	255	401	223
Race			
Native American	100	38.4**	70.5
Asian American & Pacific Islander	100	94.3**	100
Black	84.5	85.1**	93.7
White	96.2	86.5**	97.0
Hispanic	89	88.2**	81.6
N	255	401	223
Education			
Did not graduatehigh school	94.5	92.4	80.6
Graduated high school	93.2	84.2	90.8
College education	80.9	93.0	83.2
N	255	401	222
Annual household income			
<$20,000	82.6	87.4	87.8
$20,000 or higher	95	82.5	83.6
N	218	312	157
Alcohol availability			
No	89.2	86.4	73.2
Yes	89.4	87.7	100
N	247	376	66
Alcohol affordability			
No	88.0	81.3*	†
Yes	90.9	88.9*	†
N	255	399	50
Positive alcohol expectancies			
Low	98.1*****	91.4*****	94.6***
High	72.3*****	78.5*****	74.9***
N	255	401	223
Perceived likelihood of law enforcement			
Not important	84.2	84.5	†
Important	91.7	87.5	†
N	255	401	53
Influence of significant others			
Not important	85.3	83.7	87.3
Important	92.4	88.6	87.8
N	255	379	209

***** p< .0001; **** p < .001; *** p < .01; ** p < .05; * p < .10
†Due to the small number of underage respondents randomly balloted for this question in 2005, estimates are unavailable.

associated with support for the MLDA (with the association being significant in 2000) but not with the support for the ZT law. A higher proportion of females than that of males supported the ZT law in all three years, and the associations were significant in 1995 and 2000.

Predictors of underage drinking

Table 5 presents the results of multivariate logistic regression analyses to examine the associations of support for underage drinking laws and drinking outcomes. Controlling for other covariates, the two variables each indicating a lower degree of support for the laws were significantly associated with some drinking outcomes. Those who indicated that "the minimum drinking age should be lowered" (thus not supportive of the MLDA) had significantly higher odds of frequent binge drinking (OR=3.08), drinking driving (OR=4.17), and having initiated drinking at age 16 or younger (OR=2.37). A lower degree of support for the ZT law was significantly associated with all outcomes but frequent binge drinking. Those who indicated that some drinking, as opposed to no drinking, may be allowed before driving (thus less supportive of the ZT law) had several times higher odds of having ever had alcohol (OR=5.46), being a current drinker (OR=5.36), drinking driving (OR=4.26), and having initiated drinking at the age of 16 or younger (OR=3.09). The perceived likelihood of law enforcement was highly protective from frequent binge drinking (OR=0.09), but it was not significantly associated with any other drinking outcomes. Positive alcohol expectancies were predictive of all drinking outcomes but drinking driving.

Discussion

The current study found that a lower degree of support for underage drinking laws was significantly associated with greater alcohol assumption. These findings suggest that internalized normative values may indeed influence underage drinking. Due to the cross-sectional design of the NAS, however, it is difficult to determine if support for underage drinking laws reduces drinking or the experience of drinking leads to a lower degree of support for the laws. Longitudinal research is warranted to address this limitation.

It is worth noting that only the two variables that serve as proxies of support for underage drinking laws are significantly associated with drinking driving. These findings suggest that normative judgments about drinking driving or the laws intended to prevent it may indeed be deterrents to such behaviors.

The findings that the lack of support for the ZT law was associated with increased odds of drinking driving, whereas the perceived likelihood of law enforcement was not, are highly significant. They suggest that what discourages underage drinking driving more effectively may not be a fear of legal sanction but, rather, internalized normative values that drinking driving is not acceptable. As previously suggested [23], the ultimate deterrent to behaviors with potentially grave moral, health, or social consequences, such as drinking driving that could harm oneself or others, may be the internalized values against such behaviors, rather than the perceived likelihood of formal sanctions. Results of the univariate analysis that normative support for the ZT law was overwhelmingly high among underage adults also suggest that normative values embodied in this law may have been internalized in the vast majority of underage of adults.

Still, the robust association between the perceived likelihood of law enforcement and frequent binge drinking should also be

Table 5: Predictors of Underage Drinking: Results of Multiple Logistic Regressions.

Predictors	Ever Had Alcohol (N=295)		Current Drinking (N=295)		Frequent Binge Drinking (N=295)		Drunk driving (N=295)		Early Onset of Drinking (N=295)	
	OR	CI (95%)	OR	CI (95%)	OR	CI (95%)	OR	CI (95%)	OR	CI (95%)
Positive expectancies	7.83***	2.85-21.49	12.44***	4.73-32.68	9.76***	4.28-22.29	1.81	0.54-6.10	2.63**	1.33-5.19
Alcohol availability	0.74	0.35-1.60	1.06	0.50-2.24	1.54	0.51-4.64	3.88	0.64-23.49	1.11	0.54-2.31
Alcohol affordability	0.80	0.34-1.89	1.26	0.57-2.78	3.44*	1.02-11.63	1.08	0.31-3.81	1.05	0.47-2.32
Male	1.18	0.60-2.33	1.00	0.51-1.98	4.09**	1.67-10.02	1.83	0.56-5.98	1.33	0.67-2.63
Black	0.25**	0.03-0.60	0.30*	0.12-0.75	0.04**	0.004-0.41	0.58	0.10-3.26	0.30*	0.11-0.78
Hispanic	1.51	0.69-3.29	1.90	0.89-4.03	0.53	0.21-1.33	1.86	0.62-5.55	1.14	0.56-2.31
Asian American & Pacific Islander	0.62	0.15-2.64	1.20	0.27-5.33	0.24	0.04-1.57	1.16	0.07-17.97	3.66	0.84-15.93
Did not graduate high school	0.52	0.21-1.27	0.59	0.24-1.43	1.13	0.36-3.52	0.65	0.15-2.83	3.44**	1.42-8.35
High school graduate	0.95	0.44-2.06	0.85	0.39-1.85	2.99*	1.07-8.41	0.16	0.33-4.03	2.98**	1.35-6.57
Low income (<$20,000)	1.20	0.58-2.49	1.13	0.56-2.26	1.73	0.66-4.53	0.86	0.29-2.49	1.29	0.67-2.45
Perceived likelihood of law enforcement	0.68	0.14-3.23	1.06	0.26-4.31	0.09**	0.02-0.42	1.53	0.37-6.32	0.76	0.23-2.50
Influences of significant others	0.62	0.27-1.44	0.78	0.33-1.80	0.69	0.26-1.84	0.90	0.28-2.88	0.55	0.26-1.16
MLDA should be lowered	2.40	0.99-5.80	1.66	0.72-3.82	3.08*	1.18-8.02	4.17*	1.37-12.71	2.37*	1.14-4.92
Drunk driving is okay	5.46*	1.30-22.91	5.36**	1.78-16.19	1.43	0.51-3.97	4.36*	1.36-13.98	3.09*	1.30-7.33

OR: Odds Ratio
CI: Confidence Interval
*$p = < .05$; **$p = < .01$; *** $p = < .001$

noted. Even with occasionally publicized fatalities caused by binge drinking, young people may perceive binge drinking to be harmless and pleasurable behavior over which they can forge bond with their peers. This is also supported by the findings of the current study that link positive alcohol expectancies with binge drinking and all the other drinking outcomes but drinking driving. While it may thus be difficult to morally dissuade underage young adults from binge drinking, it may be easier to detect binge drinking among underage adults because of the rowdiness that they may exhibit in the course of such drinking. This combination of the low moral implications and high detect ability may render binge drinking to be the type of behavior that can be effectively addressed by enforcement of alcohol-related laws.

To a large extent, our findings suggest that a multi-pronged approach that uses different strategies for different types of drinking behaviors may be warranted, as some behaviors may be better controlled by enforcement of laws and others by reasoning or moral persuasion. Combining moral persuasion and the threat of legal sanction to enhance their synergistic effects may be effective in addressing various types of harmful drinking. As Ross contended [16], if the credibility of a law is established through rigorous enforcement, the law may eventually affect related social norms through increased feelings of shame and guilt.

Several limitations of the current study should be noted. Firstly, as stated above, the cross-sectional design of the NAS made it difficult to establish causal relations between drinking outcomes and predictors of interest. Secondly, since all data were collected via self-report, reporting bias may be present. Thirdly, since the NAS was designed to cover a wide range of factors, prevalence, and consequences of drinking for all adults—thus not designed to focus solely on underage drinking—some of the measures were not optimal for the current study. The measure that assessed positive alcohol expectancies was constructed using only three items and thus failed to cover a wide range of expectancies concerning, for example, relaxation and cognitive and sexual enhancement. The measure for frequent binge drinking was assessed by the item whether that behavior occurred "more than half the time" the respondent drank in the past year, but how frequently the respondent drank was not considered.

Despite these limitations, the current study adds to the literature in a meaningful way. Using national, representative samples was a clear strength of the study. More importantly, findings of the current study shed light on a little investigated area—namely whether normative values embodied in the law are internalized in members of the target group and help modify their behavior. This is an area that needs to be better understood to improve intervention efforts. Past research on the effects of underage alcohol control policies has generally taken a more or less ecological approach, examining the effects of national- or state-level policies on aggregate statistics of individual-level outcomes such as injuries or fatalities [24-28]. A strong emphasis on enforcement of alcohol policies is also evident in the current literature on alcohol policies [9,11]. Whether policies have been established as legitimate and affect individual-level drinking behaviors has received little research attention. The current study attempted to initiate an investigation of this issue.

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