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Adults' Alcohol Consumption Behaviour and Support for Restrictions on Youth-Oriented Alcohol Advertisements

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Abstract: Research suggests that underage drinking is a serious problem in the United States, and that many of the factors that influence minors to consume alcohol are environmental in their nature. One such factor is youth-oriented alcohol advertisements. Although many adults support restrictions on such advertisements, others do not or do so to a lesser degree. In this study, we explored one factor that may influence how strongly adults support restrictions on youth-oriented alcohol advertisements: The frequency with which adults themselves report consuming alcoholic beverages. A total of 767 adult Idahoans completed a survey asking about a variety of perceptions related to underage drinking, including whether they supported five types of restrictions on youth-oriented alcohol advertisement. They also answered a question about their own drinking behavior. The results revealed a significant effect of adults' self-reported alcohol consumption behavior on their support for all five types of advertising restrictions. Adults who reported not consuming alcohol were significantly more supportive of all five types of advertising restrictions than those who reported consuming at least one alcoholic beverage in an average week. Significant differences in adults' levels of support for all five types of advertising restriction were also revealed as a function of frequency with which adults consumed alcoholic beverages. Adults who reported consuming alcohol on one day in an average week reported significantly more support for all five types of advertising restrictions than those who reported consuming alcohol four or more days in an average week. These findings identify a population—heavier drinking adults—for education about problems associated with underage drinking and advertising alcohol to minors.

Keywords: Alcohol, Advertisement, Youth

1. Introduction

Underage drinking has been identified as a “major public health problem [1]” in the United States. Negative effects of alcohol use by young people have been extensively documented. The existing research shows that alcohol use at a young age can have long-lasting negative effects on the developing mind of a young person [2-6] and is associated with high social and economic costs [7-12]. In the past several decades, these and other research findings have resulted in an intensification of efforts to combat underage drinking in the United States. A number of laws aimed at reducing underage drinking have been enacted at the levels of individual states (e.g., “use/lose” and “zero-tolerance” laws) and the federal government (e.g., the National Minimum Drinking Age Act of 1984 and the Sober Truth on Preventing Underage Drinking [STOP] Act of 2006 approving \$18 million in federal funds). In a call for action

released several years ago, the then acting Surgeon General Kenneth Moritsugu acknowledged that reducing the rates of alcohol use by minors will require a joint effort of community, state, and federal actors. Advocating for a holistic approach to reducing underage drinking, he declared that underage drinking is “everybody’s problem—and its solution is everybody’s responsibility” [13]. This stance, echoed by some researchers [e.g., 14], calls for a comprehensive understanding of issues related to underage drinking. It seems that developing such understanding will require research that moves beyond the study of underage drinking in isolation from the context in which it occurs. Indeed, whereas in previous years, researchers have mostly relied on reports of adolescents [15], in recent years researchers are increasingly collecting information about adults’ perceptions of underage drinking [16] and their drinking behaviors [17, 18] from the primary sources, the adults themselves. This shift represents an important step in under-

standing the potential effects of environmental factors on underage drinking.

Parents play an important role in their children's development. A positive association between parental alcohol use and alcohol use and heavy drinking in their adolescent children has been documented by a number of researchers [15, 18-22]. For example, in their recent study, Smyth et al. [18] examined parental attitudes about their adolescent children's use of alcohol and found that parents who themselves consumed alcohol were more likely to have more permissive attitudes toward drinking. Intriguingly, the results of the 2011 national survey on drug use and health [23] indicate that close to two-thirds of underage drinkers obtain alcoholic beverages either from an unrelated adult (38.2%) or from parents or other adult members of their family (21.4%).

Several studies have examined the effects of community-level factors on underage drinking [17, 24]. In their latest study on the relationships between local law enforcement, alcohol availability, drinking norms and adolescent alcohol use, Paschall and her colleagues [17] were interested in understanding the relationship between adult alcohol use and use of alcohol by youth. They found that adult alcohol use was positively related to both past year alcohol use and heavy drinking among youth. Discussing their findings, Paschall et al. [17] made an intriguing proposal that both drinking policy and youth drinking may well be a reflection of the existing drinking norms, thus placing underage drinking in the context in which it occurs and acknowledging the possible effects of the social and communal alcohol use norms on the rates of underage drinking. A prior study [25] has revealed a positive association between the perceived ease of obtaining alcohol and alcohol use among a sample of adolescents from 115 schools in Oregon, indicating that youth may be more likely to use alcohol if they believe that they can easily obtain it. Furthermore, in their recent study, Nelson et al. [14] have found a moderate positive correlation between adult and youth drinking rates in the United States, a finding suggesting that a relationship between societal drinking norms and rates of underage drinking may indeed be present. Echoing assertions expressed by some [e.g., 10, 26] that adolescent's behavior tends to be influenced by social norms, these findings suggest that community-level factors may have an effect on underage drinking, a relatively underexplored research venue [17, 24, 27].

The existing literature indicates that alcohol advertising is associated with onset of alcohol use and higher rates of alcohol consumption by minors [28-31]. A recent study [32] conducted with young male adults provides some evidence for a causal relationship between alcohol advertisement and alcohol consumption. The participants who watched a 60-minute movie featuring a greater number of alcohol depictions consumed greater quantities of alcohol while watching the movie than participants who watched a movie featuring fewer depictions of alcohol [32]. Studies that utilized a similar research design, however, had mixed results.

Several studies [33, 34] confirmed Engels et al.'s [32] finding that exposure to alcohol portrayal in movies leads to higher alcohol consumption while watching a movie, whereas others [35] did not find any effect of alcohol advertisement on alcohol consumption while watching a movie. Although a causal relationship between alcohol advertisement and onset of alcohol use or increased rate of alcohol has not been definitively established, some researchers caution that depiction of alcohol in media normalizes alcohol [36, 37] and often portrays drinking in ways that are appealing to young people [38, 39]. Yet, in spite of the apparent influence of alcohol advertising on youth, it appears that not all youth respond to alcohol advertisement in the same fashion [35]. Indeed, researchers have examined the effects of different moderators and mediators (e.g., preexisting beliefs and attitudes, parents and other adults, and peers) on the relationship between alcohol advertisement and alcohol consumption among youth and have found that both preexisting beliefs and attitudes [40] and parents and others [41] have a moderating effect on how receptive youth are to advertisements containing alcohol-related messages.

Having established that adolescents obtain alcohol from their parents, guardians, or other adult family members more than 20% of the time [23] or from adult nonfamily members approximately 40% of the time [23], and that drinking behavior among adolescents may be associated with the perceived social norms [14, 25, 27], understanding how adults' drinking behavior influences their perception of underage drinking generally, and alcohol advertising particularly, emerges as a research venue that may well generate findings that could be used by policy makers, community workers, law enforcement officers, and researchers alike to better understand what steps need to be taken to reduce alcohol consumption among youth. In addition, this research venue may potentially contribute to identifying steps that need to be taken to transform the views of underage drinking of adults who hold permissive attitudes toward alcohol consumption by minors.

The present study builds on the findings of previous studies on the relationship between adult alcohol use and underage drinking [14, 19, 21, 22, 24, 25, 42, 43] and the effects of alcohol advertising on the rates of underage drinking [28, 29, 31, 32]. Examining the effects of adults' drinking behaviors on their perception of alcohol advertising, it seeks to advance our understanding of the relationship between community drinking norms and underage drinking, a research venue that has recently been identified [17] as one that could yield potentially valuable information that may well be used by researchers and policy makers alike to develop effective strategies for reducing alcohol use by minors.

2. Method

2.1. Participants

A total of 763 adult Idahoans completed and returned a survey. Of those who reported their gender, 57.2% were women and 42.8% were men. With respect to area of residential location, 34.8% of the respondents reported living in one of Idaho's nine urban counties, 31.2% in one of its nine rural counties, and 34.0% in one of its 26 frontier counties. Among those who reported their educational level, 18.4% reported having a high school education (so few respondents reported having earned less than a high school diploma or equivalent that they were combined into the 'high school education' category), 41.8% reported having some college education, 23.6% reported having a four-year college degree, and 16.2% reported having a graduate degree. With respect to whether or not they had children under the age of 18 living with them in the home, 68.6% of the respondents reported they did not, whereas 31.4% reported that they did.

2.2. Materials

The survey used in this study was adapted from materials developed at the Alcohol Epidemiology Program (AEP) at the University of Minnesota [44]. The survey had been slightly modified (e.g., the response format for survey items was converted into closed-ended Likert scale items, rather than the original open-ended format used by AEP) in a similar study on adult Idahoans' perceptions of issues related to underage drinking in 2005 [45], and this modified version was used in the present study. The survey included 40 items, organized into five subscales, which addressed the respondents': 1) perceptions of problems associated with underage drinking in their communities; 2) perceptions of when, if ever, it was appropriate for underage youth to have access to alcoholic beverages; 3) perceptions of the appropriateness of alcohol advertising, particularly in media and venues available to youth; 4) knowledge and beliefs about underage drinking enforcement efforts; and 5) own alcohol consumption behaviors. The present study is concerned only with the survey subscales related to perceptions regarding alcohol advertising and respondents' alcohol consumption. The alcohol advertisement subscale consisted of five items (Cronbach's $\alpha = 0.92$) asking respondents the extent to which they would: 1) support bans on alcohol advertisement on community billboards; 2) support bans on use of cartoons and youth-oriented materials on alcohol beverage packaging; 3) support bans on alcohol advertisement using sports teams and athletes; 4) recommend to community planners that they refuse sponsorship to alcohol companies for events attended by teens; and 5) support a ban on all advertisement of beer and wine on TV. All of these items featured 7-point Likert-type response scales, with 1 = strongly disagree and 7 = strongly agree. The alcohol consumption subscale consisted of two items asking

respondents: 1) on how many days during an average week they consumed at least one alcoholic drink (defined on the survey as 12 ounces of beer, four ounces of wine, or one ounce of spirits); and 2) how many alcoholic drinks (defined the same way) they consumed during an average week. Because the responses to the two consumption items were highly correlated ($r = .69$), for the purposes of this study, the second item was used as the measure of alcohol consumption.

2.3. Procedure

The research team, working with officials from several state agencies, developed the survey plan and received approval from the Boise State University Institutional Review Board (IRB). A commercial survey sampling company was hired to produce a list of 4,500 randomly generated residential addresses, stratified such that 1,500 addresses each were generated from three blocks, consisting of Idaho's nine urban, nine rural, and 26 frontier counties. A commercial mailing service was hired to mail survey packets to the randomly generated addresses. Each packet included a cover letter that explained the purpose and voluntary nature of the survey, the survey itself, and a postage-paid, self-addressed envelope to return the survey to the research team. All mailed survey materials were in English, however, due to the fact that a significant minority of Idaho residents speaks Spanish as a primary or preferred language [46], a paragraph in the cover letter in Spanish encouraged respondents wishing to complete the survey in Spanish to contact researchers by telephone or email to obtain a copy of the survey in Spanish.

A one month period was allowed for respondents to return the surveys to the research team. By the end of this period, 767 surveys were completed and returned. Unfortunately, due to a procedural oversight the research team did not request 'return service' from the commercial mailing service, so surveys mailed to out-of-date or otherwise incorrect addresses were not returned to the research team for elimination from the number of eligible respondents. Thus, the response rate of 17.0% is calculated out of the number of surveys that were mailed rather than the number of surveys reaching a valid address, resulting in a response rate that is likely an underestimate.

2.4. Data Analysis

Data from the returned surveys were entered into the Statistical Package for the Social Sciences (SPSS), and were analyzed using Student's *t*-test and multivariate analysis of covariance (MANCOVA) to assess whether the frequency with which respondents consumed alcoholic beverages had an effect on their levels of support for the five advertising restriction items. Student's *t*-test was conducted to determine whether support for alcohol advertising restrictions as measured by respondents' ratings of the five advertising restriction items differed between respondents who reported consuming no alcohol ($N = 413$) and those

who reported consuming at least one alcoholic beverage on at least one day during an average week ($N = 310$). Next, a MANCOVA was conducted to determine whether support for alcohol advertising restrictions as measured by respondents' ratings of the five advertising restriction items varied as a function of self-reported alcohol consumption frequency. Only data provided by respondents who reported consuming at least one alcoholic beverage on at least one day in an average week were included in the MANCOVA analysis. For the purpose of this analysis, the respondents were grouped into three subgroups utilizing SPSS-generated cut points for three equal groups: those who reported consuming at least one alcoholic beverage on only one day during an average week ($N = 106$), those who reported consuming at least one alcoholic beverage on two to three days during an average week ($N = 98$), those who reported consuming at least one alcoholic beverage on four or more days during an average week ($N = 105$).

3. Results

Prior to conducting the analysis of the differences in respondents' perceptions of youth-oriented alcohol advertising as a function of their drinking behavior (measured by self-reported frequency of alcohol consumption), some preliminary analyses were performed. The first set of preliminary analyses was conducted to determine levels of overall support for alcohol advertising restrictions as represented by respondents' ratings of the five alcohol advertising restriction items. The second set of preliminary analyses was performed to determine whether perceptions of alcohol advertising were related to the demographic variables gender, area of residence, education level, and whether minor children lived in the home; the purpose of these analyses was to identify any potential confounding variables to control for in the final analysis of the differences in adults' perceptions of alcohol advertising as a function of their alcohol consumption behavior.

Table 1. Attitudes towards Advertising Sponsorship

Type of Restriction	M	SD
1) Support bans on use of cartoons and youth-oriented materials on alcohol beverage packaging	5.80	1.88
2) Support bans on alcohol advertisements using sports teams and athletes	5.40	2.09
3) Recommend to community planners that they refuse sponsorship to alcohol companies for events attended by teens	5.31	2.09
4) Support bans on alcohol advertisement on community billboards	4.93	2.24
5) Support a ban on all advertisement of beer and wine on TV	4.37	2.38

Note. All items were rated on a 7-point Likert scale, with 1 = strongly disagree and 7 = strongly agree.

Table 2. Attitudes toward Advertising as a Function of Gender

Type of Restriction	Gender		<i>t</i> (<i>df</i>)
	Female M (SD)	Male M (SD)	
1) Support bans on use of cartoons and youth-oriented materials on alcohol beverage packaging	6.08 (1.63)	5.37 (2.13)	5.09*** (724)
2) Support bans on alcohol advertisements using sports teams and athletes	5.68 (1.91)	4.96 (2.28)	4.65*** (717)
3) Recommend to community planners that they refuse sponsorship to alcohol companies for events attended by teens	5.63 (1.91)	4.81 (2.26)	5.32*** (722)
4) Support bans on alcohol advertisement on community billboards	5.34 (2.03)	4.32 (2.39)	6.19*** (720)
5) Support a ban on all advertisement of beer and wine on TV	4.71 (2.33)	3.82 (2.37)	5.05*** (720)

Note. ***denotes statistical significance at $p < .001$

The analysis of respondents' levels of support for alcohol advertising restrictions revealed that their levels of support varied as a function of the type of restriction. As seen in Table 1, the respondents were strongly in favor of bans on use of cartoons and youth-oriented materials on alcohol beverage packaging, and fairly strongly in favor of bans on alcohol advertisement using sports teams and athletes and making recommendation to community planners to refuse

sponsorship to alcohol companies for events attended by teens. They also expressed some support for bans on alcohol advertisement on community billboards and weaker support for bans on all advertisements of beer and wine on TV.

Table 3. Attitudes toward Advertising as a Function of whether Minor Children Lived in the Home

Type of Restriction	Children in Home		
	No (n=507)	Yes (n=232)	t
	M (SD)	M (SD)	(df)
1) Support bans on use of cartoons and youth-oriented materials on alcohol beverage packaging	5.86 (1.85)	5.61 (1.98)	ns
2) Support bans on alcohol advertisements using sports teams and athletes	5.56 (2.04)	4.98 (2.19)	3.46** (717)
3) Recommend to community planners that they refuse sponsorship to alcohol companies for events attended by teens	5.42 (2.08)	5.03 (2.13)	5.32** (722)
4) Support bans on alcohol advertisement on community billboards	5.02 (2.19)	4.69 (2.34)	ns
5) Support a ban on all advertisement of beer and wine on TV	4.55 (2.34)	3.91 (2.43)	3.36** (720)

Note. **denotes statistical significance at $p < .01$

Table 4. Attitudes toward Advertising as a Function of Alcohol Consumption Behavior

Type of Restriction	Alcohol Consumption Behavior				t (df)
	No Alcohol Consumption† (n=422)		Alcohol Consumption†† (n=316)		
	M	SD	M	SD	
1) Support bans on use of cartoons and youth-oriented materials on alcohol beverage packaging	5.60	1.92	4.00	2.33	10.00*** (705)
2) Support bans on alcohol advertisements using sports teams and athletes	6.16	1.63	5.27	2.10	6.34*** (709)
3) Recommend to community planners that they refuse sponsorship to alcohol companies for events attended by teens	5.88	1.80	4.72	2.28	7.52*** (703)
4) Support bans on alcohol advertisement on community billboards	5.83	1.79	4.56	2.27	8.33*** (707)
5) Support a ban on all advertisement of beer and wine on TV	5.25	2.11	3.14	2.17	13.00*** (705)

Note. ***denotes statistical significance at $p < .001$, † Respondents who reported drinking zero alcoholic beverages during an average week, †† Respondents who reported drinking at least one alcoholic beverage on at least one day during an average week.

The second set of analyses revealed statistically significant differences in levels of support for restrictions on alcohol advertising as a function of gender and whether or not respondents had minor children living in the home. In the case of gender, on all five items women were more supportive of alcohol advertising restrictions than were men (see Table 2). In the case of minor children, respondents without minor children in the home were more supportive of alcohol restrictions on three of the five items than respondents with minor children in the home (see Table 3). No statistically significant differences on any of the five alcohol advertisement items were found as a function of respondents' area of residence or education level. Thus, in the final set of analyses, the variance accounted for by gender and whether or not minor children under the age of 18 were living in the home was controlled through the use of MANCOVA analysis.

The primary tests were then conducted to determine whether support for alcohol advertising restrictions as measured by respondents' ratings of the five advertising restriction items varied as a function of adult's self-reported alcohol consumption behavior. These analyses revealed

significant differences between respondents who reported consuming no alcoholic beverages and those who reported consuming alcoholic beverages on at least one day during an average week such that respondents who reported consuming no alcohol were significantly more supportive of alcohol advertisement restrictions on all five items than those who reported consuming alcoholic beverages on at least one day during an average week (see Table 4). A one-way MANCOVA revealed a significant multivariate main effect of adults' alcohol consumption frequency on support for alcohol advertisement restrictions, Wilk's $\lambda = .935$, $F(10, 566) = 1.95$, $p < .05$, partial eta squared = .033. Power to detect the effect was .874. Given the significance of the overall test, the univariate main effects were examined. Significant univariate main effects of adults' frequency of alcohol consumption were found on all five items such that those who reported consuming alcohol on one day in an average week reported significantly more support for all five restrictions than those who reported consuming alcohol on four or more days in an average week (see Table 5).

Table 5. Attitudes toward Advertising as a Function of Alcohol Consumption Frequency

Type of Restriction	df	df error	F	Alcohol Consumption Frequency, in Days	95% Confidence Interval		
					Mean	Lower Bound	Upper bound
1) Support bans on use of cartoons and youth-oriented materials on alcohol beverage packaging	2	287	6.26**	One†	4.48	4.03	4.93
				Two or three	4.07	3.59	4.54
				Four or More	3.34	2.89	3.79
2) Support bans on alcohol advertisements using sports teams and athletes	2	287	5.18**	One†	5.68	5.27	6.09
				Two or three	5.33	4.89	5.76
				Four or More	4.74	4.33	5.15
3) Recommend to community planners that they refuse sponsorship to alcohol companies for events attended by teens	2	287	6.69**	One†	5.25	4.82	5.69
				Two or three	4.70	4.24	5.16
				Four or More	4.10	3.66	4.54
4) Support bans on alcohol advertisement on community billboards	2	287	5.92**	One†	5.03	4.59	5.47
				Two or three	4.67	4.20	5.13
				Four or More	3.95	3.51	4.39
5) Support a ban on all advertisement of beer and wine on TV	2	287	5.51**	One†	3.46	3.05	3.86
				Two or three	3.38	2.95	3.82
				Four or More	2.56	2.14	2.97

Note. **denotes statistical significance at $p < .01$. † Statistically significant difference was found between adults who reported consuming one alcoholic beverage and those who reported consuming four or more alcoholic beverages in an average week

4. Discussion

In this study, a large, representative sample of Idaho adults was asked about their own alcohol consumption behavior and also the extent to which they supported restrictions on youth-oriented alcohol advertisements. The results revealed a significant, albeit relatively small, effect of the frequency with which adult respondents reported consuming alcohol on their levels of support for all five types of advertising restrictions. Clearly, adults who did not consume alcohol were more supportive of all five types of advertising restrictions than those who consumed alcohol at least once a week. These findings have some important implications for our understanding of why some adults may not perceive a need to oppose restrictions on the advertising of alcoholic beverages, even when those advertisements seem largely targeted toward youth.

Although it is noteworthy that, overall, the respondents in the sample were quite supportive of most types of restrictions on youth-oriented alcohol advertisements, it remains important that some were less supportive. As discussed earlier, although past findings are mixed, research suggests that at least some minors are influenced to consume alcohol when they are exposed to the advertisement of alcoholic beverages [28-32, 47]. Given the tremendous health [e.g., 2], economic, and social costs [e.g., 7, 9] of underage drinking, all strategies to reduce alcohol consumption by minors should be considered. Restricting youth-oriented alcohol advertisements seems such a strategy, and in order for such a strategy to succeed, it is important to understand why some adults do not support it. According to the results of the present study, adults who consume alcohol themselves and adults who consume alcohol more frequently are less likely to support restrictions on youth-oriented alcohol advertisements. Therefore, the challenge in this case would

seem to understand how to induce adults who are higher alcohol consumers to support restrictions on this type of advertising.

There are many campaigns, both at the federal and state levels, to raise awareness about problems associated with underage drinking. Interventions targeting parents' and other adults' attitudes have often been reported to be effective [e.g., 48, 49], however these interventions have been targeted toward adults in general, not heavier drinking adults. One way to specifically target these adults about the dangers of underage drinking would be to advertise about the health consequences of such behavior on alcohol packaging; it stands to reason that adults who consume more alcohol would more often see alcohol beverage packaging, and therefore would have greater exposure to messages for alcohol packaging. In fact, there is an existing model for using messaging on alcohol beverage packaging; some states and communities receiving funding through the Office of Juvenile Justice and Delinquency Prevention's Enforcing Underage Drinking Laws (EUDL) program have begun using warning stickers on alcohol packaging to prevent the purchase of alcohol for minors [50]. These warning stickers typically inform adults of the legal consequences of purchasing alcohol for minors; however, similar stickers could advertise the ill effects of consuming alcohol on the minors' health, as well as on their families and communities. Education of this type could help adults who consume greater amounts of alcohol recognize the importance of supporting restrictions on youth-oriented alcohol advertisements.

The literature examining the effects of adults' drinking behavior on their perspectives of youth-oriented alcohol advertisements is scarce. Even so, the results of the present study are highly consistent with the most similar research. For example, Latimer, Harwood, Newcomb, and Wagenaar [51] reported that adults' self-reported frequency of alcohol use was inversely related to their support for policies to

regulate alcohol marketing. Similarly, Van Hoof *et al.* [43] reported that Dutch parents who consumed alcohol more frequently were less supportive of alcohol control policies than parents who consumed alcohol less frequently, and Richter *et al.* [42] reported very similar results in a sample of adults in the U.S. Thus, despite the paucity of research on this topic, the findings of the present study support the emerging theme that emphasizes the importance of targeting heavier drinkers to influence their perspectives regarding youth-oriented alcohol advertisements.

Although this study had a number of strengths, including use of a stratified random sample and a large number of respondents from urban, rural, and frontier counties in Idaho, there were also some limitations. One was that the study was conducted within only one state, which has some unique characteristics (e.g., geographic isolation, low population density, and a highly conservative political sentiment) that likely limit the generalizability of the results. Another is a reliance on self-reports of alcohol consumption; several researchers [e.g., 52] have noted that people tend to underreport their consumption on surveys and in interviews. It would be quite feasible to expand the study beyond the state of Idaho. It would, however, be much more difficult to gather more objective data on level of alcohol consumption without relying on much more expensive and intrusive methodologies.

In conclusion, the results of this study contribute to a rather scarce literature on the effects of adults' alcohol consumption behaviors on their perceptions regarding alcohol policies targeting underage drinking. The finding that adults who consume alcohol and adults who consume alcohol more frequently are less likely to support restrictions on youth-oriented alcohol advertisements may help influence policy makers to consider targeting heavier drinkers for educational campaigns about the dangers of underage drinking and the susceptibility of minors to alcohol advertisements. Ultimately, attitude change in members of this population may help efforts to restrict alcohol advertisements to youth and therefore reduce underage drinking as a whole.

References

- [1] Center for Disease Control and Prevention (2012) Fact sheets: Underage drinking. Center for Disease Control and Prevention, Atlanta, GA. <http://www.cdc.gov/alcohol/fact-sheets/underage-drinking.htm>
- [2] Breitmeier D, Seeland-Schulze I, Hecker H, Schneider U (2007) The influence of blood alcohol concentrations of around 0.03% on neuropsychological functions: A double-blind, placebo-controlled investigation. *Addict Biol* 12: 183-189. <http://www.ncbi.nlm.nih.gov/pubmed/17508991>
- [3] Brown SA, Tapert SF, Granholm E, Delis DC (2000) Neurocognitive functioning of adolescents: Effects of protracted alcohol use. *Alcohol Clin Exp Res* 24: 164-171. <http://www.ncbi.nlm.nih.gov/pubmed/10698367>
- [4] Oscar-Berman M, Marinkovic K (2003) Alcoholism and the brain: An overview. National Institute of Health, National Institute on Alcohol Abuse and Alcoholism, Rockville, MD. <http://pubs.niaaa.nih.gov/publications/arh27-2/125-133.htm>
- [5] White AM (2003) What happened? Alcohol, memory blackouts, and the brain. National Institute of Health, National Institute on Alcohol Abuse and Alcoholism, Rockville, MD. <http://pubs.niaaa.nih.gov/publications/arh27-2/186-196.htm>
- [6] White AM, Jamieson-Drake DW, Swartzwelder HS (2002) Prevalence and correlates of alcohol-induced blackouts among college students: Results of an e-mail survey. *J Am Coll Health* 51: 117-131. <http://www.ncbi.nlm.nih.gov/pubmed/12638993>
- [7] Crosnoe R, Benner AD, Schneider B (2012) Drinking, socioemotional functioning, and academic progress in secondary school. *J Health and Soc Behav* 53: 150-164. <http://www.ncbi.nlm.nih.gov/pubmed/22556380>
- [8] Hingson RW, Zha W (2009) Age of drinking onset, alcohol use disorders, frequent heavy drinking, and unintentionally injuring oneself and others after drinking. *Pediatrics* 123: 1477-1484. <http://www.ncbi.nlm.nih.gov/pubmed/19482757>
- [9] Miller TR, Levy DT, Spicer RS, Taylor DM (2006) Societal costs of underage drinking. *J Stud Alcohol* 67: 519-528. <http://www.ncbi.nlm.nih.gov/pubmed/16736071>
- [10] Miller JW, Naimi TS, Brewer RD, Jones SE (2007) Binge drinking and associated health risk behaviors among high school students. *Pediatrics* 119: 76-85. <http://www.ncbi.nlm.nih.gov/pubmed/17200273>
- [11] Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J (2009) Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet* 373: 2223-2233. <http://www.ncbi.nlm.nih.gov/pubmed/19560604>
- [12] Spoth R, Greenberg M, Turrise R. (2008) Preventive interventions addressing underage drinking: State of the evidence and steps toward public health impact. *Pediatrics*, 121: S311-S336. <http://www.ncbi.nlm.nih.gov/pubmed/18381496>
- [13] U.S. Department of Health and Human Services, Office of the Surgeon General (2007) The surgeon general's call to action to prevent and reduce underage drinking. U.S. Department of Health and Human Services, Office of the Surgeon General, Rockville, MD. <http://www.surgeongeneral.gov/library/calls/underagedrinking/calltoaction.pdf>
- [14] Nelson DE, Naimi TS, Brewer RD, Nelson HA (2009) State alcohol-use estimates among youth and adults, 1993-2005. *Am J Prev Med* 36: 218-224. <http://www.ncbi.nlm.nih.gov/pubmed/19215847>
- [15] Gilligan C, Kypri K, Lubman D (2012) Changing parental behaviour to reduce risky drinking among adolescents: Current evidence and future directions. *Alcohol Alcohol* 47: 349-354. <http://www.ncbi.nlm.nih.gov/pubmed/22395229>
- [16] Yu J (2003) the association between parental alcohol-related behaviors and children's drinking. *Drug Alcohol Depend* 69: 253-262. <http://www.ncbi.nlm.nih.gov/pubmed/12633911>
- [17] Paschall MJ, Grube JW, Thomas S, Cannon C, Treffers R

- (2012) Relationship between local enforcement, alcohol availability, drinking norms, and adolescent alcohol use in 50 California cities. *J Stud Alcohol Drugs*, 73: 657-665. <http://www.ncbi.nlm.nih.gov/pubmed/22630804>
- [18] Smyth BP, Darker CD, Donnelly-Swift E, Barry JM, Allwright SPA (2010) A telephone survey of parental attitudes and behaviours regarding teenage drinking. *BMC Public Health* 10: 297. <http://www.biomedcentral.com/1471-2458/10/297>
- [19] Abar C, Abar B, Turrisi R (2009) The impact of parental modeling and permissibility on alcohol use and experienced negative drinking consequences in college. *Addict Behav* 34: 542-547. <http://www.ncbi.nlm.nih.gov/pubmed/19398278>
- [20] Foley KL, Altman D, Durant RH, Wolfson M (2004) Adults' approval and adolescents' alcohol use. *J Adolesc Health* 35: e17-e26. <http://www.ncbi.nlm.nih.gov/pubmed/15830441>
- [21] Spijkerman R, van der Eijnden RJM, Huijberts A (2008) Sociodemographic differences in alcohol-specific parenting practices and adolescent drinking patterns. *Eur Addict Res* 14: 26-37. <http://www.ncbi.nlm.nih.gov/pubmed/18182770>
- [22] van der Vorst H, Engels RCME, Meeus W, Dekovic M (2006) The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *J Child Psychol Psychiatry* 47: 1299-1306. <http://www.ncbi.nlm.nih.gov/pubmed/17176385>
- [23] Substance Abuse and Mental Health Services Administration (2012) Results from the 2011 national survey on drug use and health: Summary of national findings. 23. Substance Abuse and Mental Health Services Administration, Rockville, MD. <http://www.samhsa.gov/data/NSDUH/2k11Results/NSDUHResults2011.pdf>
- [24] Chen MJ, Grube JW, Gruenewald PJ (2010) Community alcohol outlet density and underage drinking. *Addiction* 105: 270-278. <http://www.ncbi.nlm.nih.gov/pubmed/20078485>
- [25] Lipperman-Kreda S, Paschall MJ, Grube JW (2009) Perceived local enforcement, personal beliefs, and underage drinking: An assessment of moderating and main effects. *J Stud Alcohol Drugs* 70: 64-69. <http://www.ncbi.nlm.nih.gov/pubmed/19118393>
- [26] Wagenaar AC, Toomay TL, Murray DM, Short BJ, Wolfson M, et al. (1996) Sources of alcohol for underage drinkers. *J Stud Alcohol* 57: 325-333. <http://www.ncbi.nlm.nih.gov/pubmed/8709591>
- [27] Yeide M (2009) Underage drinking literature review. U.S. Department of Justice, Office of Juvenile Justice Delinquency Prevention, Washington, DC. <http://www.ojjdp.gov/dso/Underage%20Drinking%20Literature%20Review.pdf>
- [28] Collins RC, Ellickson PL, McCaffrey D, Hambarsoomians K (2007) Early adolescent exposure to alcohol advertising and its relationship to underage drinking. *J Adolesc Health* 40: 527-534. <http://www.ncbi.nlm.nih.gov/pubmed/17531759>
- [29] Smith LA, Foxcroft DR (2009) The effects of alcohol advertising, marketing and portrayal on drinking behaviours in young people: Systematic review of prospective cohort studies. *BMC Public Health* 9: 51. <http://www.biomedcentral.com/1471-2458/9/51>
- [30] Snyder LB, Milici FF, Slater M, Sun H, Strizhakova Y (2006) Effects of alcohol advertising exposure on drinking among youth. *Arch Pediatr Adolesc Med* 160: 18-24. <http://www.ncbi.nlm.nih.gov/pubmed/16389206>
- [31] Stoolmiller M, Wills TA, McClure AC, Tanski SE, Worth KA, et al. (2012) Comparing media and family predictors of alcohol use: A cohort study of US adolescents. *BMJ Open* 2: e000543. <http://bmjopen.bmj.com/content/2/1/e000543.full>
- [32] Engels RCME, Hermans R, van Baaren RB, Hollenstein T, Sander MB (2009) Alcohol portrayal on television affects actual drinking behaviour. *Alcohol Alcohol* 44: 244-249. <http://www.ncbi.nlm.nih.gov/pubmed/19237443>
- [33] Koordeman R, Anschutz DJ, Baaren RB, Engels RCME (2011) Effects of alcohol portrayals in movies on actual alcohol consumption: An observational experimental study. *Addiction* 106: 547-554. <http://www.ncbi.nlm.nih.gov/pubmed/21134018>
- [34] Koordeman R, Anschutz DJ, Engels RCME (2011) Exposure to alcohol commercials in movie theaters affects actual alcohol consumption in young adult high weekly drinkers: An experimental study. *Am J Addic* 20: 285-291. <http://www.ncbi.nlm.nih.gov/pubmed/21477057>
- [35] Koordeman R, Anschutz DJ, Engels RCME (2012) The effect of alcohol advertising on immediate alcohol consumption in college students: An experimental study. *Alcohol Clin Exp Res* 36: 874-880. <http://www.ncbi.nlm.nih.gov/pubmed/22017281>
- [36] Donovan K, Donovan R, Howat P, Weller N (2007) Magazine alcohol advertising compliance with the Australian Alcoholic Beverages Advertising Code. *Drug Alcohol Rev* 26: 73-81. <http://www.ncbi.nlm.nih.gov/pubmed/17364839>
- [37] Roberts DF, Christenson PG (2000) "Here's looking at you, kid": Alcohol, drugs and tobacco in entertainment media. A literature review prepared for the National Center on Addiction and Substance Abuse at Columbia University. <http://www.kff.org/entmedia/loader.cfm?url=/commonsspot/security/getfile.cfm&PageID%20=%2013485>
- [38] Jones S, Jernigan D (2010) Editorial: Alcohol advertising, marketing and regulation. *Journal of Public Affairs* 10: 1-5. <http://onlinelibrary.wiley.com/doi/10.1002/pa.357/pdf>
- [39] Jones SC, Reid A (2010) The use of female sexuality in Australian alcohol advertising: public policy implications of young adults' reactions to stereotypes. *Journal of Public Affairs* 10: 19-35. <http://onlinelibrary.wiley.com/doi/10.1002/pa.339/abstract>
- [40] Roberts DF, Henriksen L, Christenson PG (1999) Substance use in popular movies and music. National Criminal Justice Reference Service, Rockville, MD. <https://www.ncjrs.gov/pdffiles1/Digitization/176359NCJRS.pdf>
- [41] Ward LM (2003) Understanding the role of entertainment media in sexual socialization of American youth: A review of empirical research. *Developmental Review* 23: 347-388. <http://www.sciencedirect.com/science/article/pii/S0273229703000133>
- [42] Richter L, Vaughn RD, Foster SE (2004) Public attitudes about underage drinking policies: Results from a national survey. *J Public Health Policy* 25: 58-77. <http://www.ncbi.nlm.nih.gov/pubmed/15134133>

- [43] Van Hoof JJ, Gosselt JF, de Jong MDT (2010) Determinants of parental support for government alcohol control policies. *Health Policy* 97: 195-201. <http://www.ncbi.nlm.nih.gov/pubmed/20627439>
- [44] Harwood EM, Wagenaar AC, Bernat DH (2002) Youth access to alcohol survey: Summary report. University of Minnesota: Alcohol Epidemiology Program, Minneapolis, MN. http://www.epi.umn.edu/alcohol/pubopin/2002_REPORT.PDF
- [45] Pritchard ME, McDonald TW (2006) Relations of parental status with alcohol use patterns and attitudes about underage drinking. *Psychol Rep* 98: 414-416. <http://www.ncbi.nlm.nih.gov/pubmed/16796095>
- [46] Byrd LS, Louis G, Velos JC (1997) Identifying perspectives on barriers and needs of Spanish language speakers in Idaho's healthcare system. Idaho State Office of Rural Health and Primary Care, Boise, ID. <http://www.healthandwelfare.idaho.gov/Portals/0/Health/Rural%20Health/BarriersAndNeeds.pdf>
- [47] Pasch KE, Komro KA, Perry CL, Hearst MO, Farbaksh K (2007) Outdoor alcohol advertising near schools: What does it advertise and how is it related to intentions and use of alcohol among young adolescents? *J Stud Alcohol Drugs* 68: 587-596. <http://www.ncbi.nlm.nih.gov/pubmed/17568965>
- [48] Bonnie RJ, O'Connell ME (2004) Reducing underage drinking: A collective responsibility. The National Academies Press, Washington, DC. <http://www.ncbi.nlm.nih.gov/books/NBK37589/>
- [49] Koutakis N, Stattin H, Kerr M (2008) Reducing youth alcohol drinking through a parent-targeted intervention: The Orebro Prevention Program. *Addiction* 103: 1629-37. <http://www.ncbi.nlm.nih.gov/pubmed/18821873>
- [50] U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention (2009) In focus. U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, Rockville, MD. <https://www.ncjrs.gov/pdffiles1/ojjdp/227469.pdf>
- [51] Latimer WW, Harwood EM, Newcomb MD, Wagenaar AC (2001) Sociodemographic and individual predictors of alcohol control attitudes: Results from a US probability sample. *Alcohol Clin Exp Res* 25: 549-556. <http://www.ncbi.nlm.nih.gov/pubmed/11329495>
- [52] Midanik L (2006) The validity of self-reported alcohol consumption and alcohol problems: A literature review. *Br J Addict* 77: 357-382. <http://www.ncbi.nlm.nih.gov/pubmed/6762224>