

Indirect Effects of Lowering the Drinking Age on New Zealand Students' Alcohol-related Behaviours and Attitudes

Kylie Brownfield, Kumari Fernando, Jamin Halberstadt
University of Otago

Alcohol-related attitudes and drinking behaviour of 109 university students, all 20 years of age and older, were assessed at two time points: immediately before and three months after the drinking age in New Zealand was lowered from 20 to 18. Participants reported drinking smaller quantities of alcohol three months after, compared to immediately before, the new drinking age went into effect. Alcohol consumption was strongly predicted by attitudes toward the social aspects of drinking, but no attitude change over time was observed on any attitudinal dimension. In open-ended written comments a number of participants expressed negative feelings toward younger drinkers and commented that they were less likely to frequent places where younger drinkers would congregate.

In almost every country alcohol abuse creates difficult and dangerous social problems, many of which are linked to drinking by young adults. Although many governments have responded with legislative steps to restrict alcohol consumption in young people (e.g., Gonzalez, 1989; Lotterhos et al., 1988), New Zealand recently took the controversial step of lowering the drinking age from 20 to 18. Irrespective of other arguments for or against this legislation, there is little doubt that the reduced drinking age has correspondingly lowered the average age of the patrons of drinking establishments. Indeed, proponents of the legislation argued that one of its purposes was to bring underage drinkers into comparatively safe and controlled environments, such as bars and cafés, thereby regulating drinking behaviour and mitigating problems such as teenage binge-drinking (e.g., New Zealand Herald, 1999). Thus in December 1999, the social profile of drinking establishments changed literally overnight. What was the effect of an influx of younger, previously underage drinkers

on the attitudes and behaviours of others?

So framed, this is an inherently social psychological question, one that has never explicitly been studied. Indeed, relatively few studies have examined the effect of the decriminalisation of alcohol at all (new legislation typically increases restrictions on alcohol), and what research there is has understandably studied the individuals most directly affected. These studies suggest, often indirectly, that decriminalisation increases alcohol consumption and its associated problems in the affected population. Wagenaar (1982), for example, found a temporary increase in draft beer sales following a reduction in Michigan's drinking age from 21 to 18 in 1969 (although the researcher also found an increase when, in 1980, the age was raised again to 21). Cohen (1978) found increases in accident rates in U.S. states that had lowered their drinking ages, although in at least one case this effect was later attributed to changes over time in police reporting practices (Zylman, 1974). Smith and Burvill (1987) found increases in juvenile crime following a decrease of the drinking age to 18 in several Australian states. In New Zealand, the Alcohol Advisory Council (ALAC; 2002) has already attributed increases in traffic-related accidents and in unsafe sex to the decrease in the drinking age. Thus, the consequences of this legislation for those below the age of twenty may be quite significant.

Yet there is good reason to expect that the effects of New Zealand's new legislation will not be limited those under 20. In the context of university social life, whether one is of legal drinking age serves as a salient and relevant basis of social categorization. Therefore well-studied mechanisms of ingroup bias (Tajfel & Turner, 1979) are likely to operate when students over twenty years of age encounter younger students in a drinking environment. The results of such bias can be both attitudinal, in the form of stereotyping (e.g., Haslam, Turner, Oakes, McGarty, et al., 1992) and behavioural, in the form of ingroup favouritism (e.g., Turner, Brown, & Tajfel, 1979). Furthermore, intergroup effects should be especially acute following a change in the drinking age, an event that creates a situation of relative deprivation (Gruimond & Dambrun, 2002; see

Fiske, 1998, for review). That is, lowering the drinking age not only extends a privilege to younger students, but also "deprives" older students of a distinction relevant to their ingroup definition in context of their social life. Thus, considered from an intergroup perspective, the new legislation is likely to have indirect effects on older students' attitudes and behaviours toward alcohol. These effects are important to study because, among other reasons, young people above the age of twenty have been identified in a number of studies as an at-risk group for alcohol abuse in Australia and New Zealand (e.g., Roche & Watt, 1999; Wylie & Casswell, 1997).

Current study

Given that there is little or no research on the indirect effects of the liberalization of alcohol laws, the first goal of the current study was to assess post-legislative attitude and behaviour change in a sample of students who were already allowed to drink. A sample of 20-25 year old students answered a number of detailed behavioural and attitudinal questions immediately prior to New Zealand's reduction of the drinking age from 20 to 18, then completed an identical second survey several months later. A second goal was to determine the relationship between the attitudes and behaviours of these participants. Carver, Kittleson, and Andrews (1991) found that light and heavy student drinkers (classified on the basis of their self-reported weekly alcohol consumption) differed markedly on 31 of the 40 alcohol-related attitude scales they administered. Similarly, Gregson, Elvy and Stacey (1981) found that 19% of the variance in alcohol consumption of a New Zealand sample was accounted for by a combination of age, sex and attitudes. Given the potential importance of these findings with respect to alcohol education, we used multiple regression to predict consumption from several attitudinal dimensions assessed by Carver et al. (1991).

Method

Participants

Sixty-nine female and forty male students between 20 and 25 years of age on 1 November 1999 (Modal age = 21 years) enrolled at the University of Otago volunteered for a two-part questionnaire study on alcohol attitudes and behaviour.¹ The majority were recruited by the first author from the university library and the main cafeteria, and 25 were recruited at the end of an unrelated study being conducted in the Psychology department. As an incentive to complete the surveys, all participants were entered in two \$200 cash prize draws, one following each of the two surveys.

Materials

Behavioural data were obtained using the Quantity-Frequency subscale of the Student Alcohol Questionnaire (SAQ; Engs, 1975). The SAQ was used because it was constructed specifically to assess drinking behaviour in a student sample similar to the one used in this study (Engs, 1975), has been used in a number of previous studies of drinking by university students (e.g., Engs, 1977; Hughes

& Dodder, 1992), and has a good test-retest reliability of .84 (Engs & Hanson, 1994). The SAQ assesses the frequency of consumption of three types of drink: "beer/lager/ale/cider," "wine," and "spirits." Judgments are made on 1 to 7 scales labeled "every day," "at least once a week but not every day," "at least once a month but less than once a week," "more than once a year but less than once a month," "once a year or less," "not during the past year," and "never." It also asks participants to report the quantity of each type of drink they consume on each occasion, and in the past week, in terms of pints of beer, glasses of wine, and "standard pub measures" of spirits.

Attitudes toward alcohol were assessed using the Daugherty-Thompson Alcohol Attitude Scale (DTAA). The DTAA presents five categories of alcohol-related statements: information (e.g., "I could never become an alcoholic"); morality ("It's okay to get drunk if you don't bother others."); social use ("A person who has never been drunk is missing a good time); coping ("When a person is angry, having a few drinks is a good way to calm down"); and drink driving (e.g., "People should not drive if they have had one or two drinks"). The DTAA has both content and construct validity and a test-retest reliability of .83 (Carver et al., 1991). Only items on which high and low drinkers have been shown to differ (based on data from Carver et al., 1991) were included in the present study. Participants indicated their agreement with each statement on 1 to 5 Likert scales, with points labelled "strongly agree," "agree," "neutral," "disagree," and "strongly disagree."

Procedure

The questionnaire was administered at two time-points. The first was at the beginning of November 1999. The first author approached students in the main cafeteria and library areas and invited participation. Informed consent was obtained before commencement of the questionnaire. Participants were encouraged to take their time to answer the questions individually and honestly, and were assured of the confidentiality of their responses. The first author gave the questionnaire to participants and left the area, allowing participants to complete the questionnaire privately, at their own pace, and to approach her with the completed measure.

The legal drinking age was lowered from 20 to 18 years of age on the first day of December 1999, and the second survey was posted out to participants three months following the law change, at the beginning of March, 2000. The second survey was identical to the first, except that participants were additionally asked whether their attitudes towards alcohol or their drinking behaviour had changed as a result of the decrease in drinking age, and if so, how. Surveys were accompanied by a letter from the first author reminding participants of their participation in the first phase of the experiment and asking for their participation in the second phase. Participants were asked to return the surveys in addressed and stamped envelopes. Numerous attempts were made to contact all participants, including e-mail and phone reminders. Of 109 surveys, 80 (52 female and 28 male) were completed and returned.

Results

Behaviour

Participants' ordinal frequency judgments were reverse-scored (so that higher numbers indicate more frequent drinking) and analysed in a 3 (type of drink: beer, wine, or spirits) X 2 (time: before versus after the law change) within-subjects analysis of variance (ANOVA).² The analysis revealed a main effect of type of drink, $F(2, 158) = 6.25$, $p < .005$, such that participants reported drinking beer ($M = 4.65$) more often than wine ($M = 4.37$) or spirits ($M = 4.20$). Frequency estimates of wine and spirits did not differ.

This primary analysis was repeated using participants' estimates of how much they consume of each type of drink at any one sitting. The analysis revealed main effects of type of drink, $F(2, 156) = 18.63$, $p < 0.001$, and time, $F(1, 78) = 4.48$, $p < 0.05$. Participants reported drinking the largest quantity of spirits, followed by beer, and then wine, and drinking less in one sitting at Time 2 than at Time 1. In addition, a marginal interaction between type of drink and time, $F(2, 156) = 2.62$, $p < .08$, was due to a significant decrease in the consumption of spirits over time (5.38 vs. 4.36 standard pub measures, $t(79) = 2.06$, $p < 0.05$), a marginal decrease in consumption of beer (3.51 vs. 3.09 pints, $t(79) = 1.80$, $p < .08$), and no change in consumption of wine (2.71 vs. 2.65 glasses, $t(78) = .31$, *ns*).

Attitudes

Responses to the attitude questions were averaged within each attitudinal dimension, as defined by Carver et al. (1991; i.e., information, morality, social interaction, coping and drink-driving), and analysed in separate paired *t* tests comparing attitude scores over time.³ Using a bonferroni correction to maintain a family-wise error rate of .05, none of the differences in the means was statistically reliable.

In order to examine the relationship between attitudes and frequency/consumption estimates at Time 2, we entered the five attitudinal variables in separate stepwise regression equations predicting the sum of participants' estimates of Time 2 drinking frequency and, separately, consumption of the three types of drinks, using .05 and .10 criteria for entry into and removal from the models. For frequency judgments, the final model retained the social interaction and drink-driving variables, which together explained 56% of the variance, $F(2, 77) = 49.0$, $p < 0.001$. For consumption, the only significant predictor was the social interaction variable, which alone accounted for 34% of the variance, $F(1, 78) = 39.63$, $p < 0.001$. The analyses were also run using the difference between Time 1 and Time 2 frequency estimates, and the difference between Time 1 and Time 2 quantity judgments, as predicted variables but no significant effects emerged on either analysis.

Written comments

Fifty-seven participants answered the question regarding attitude change as a function of drinking age (18 indicated their attitude had changed, 35 indicated that their attitude had not changed and 4 were uncertain). Fifty-nine participants answered the question regarding behaviour

change (20 indicated that their behaviour had changed, 37 indicated that it had not changed, and 4 were uncertain). Because a number of individuals failed to distinguish between attitudes and behaviour, responses from both questions were combined for analysis.

Participants' written responses ($N=42$) were content coded by the second author and, independently, by a research assistant. Agreement between coders was 85.3%, and disagreements were resolved by the third author. Comments were coded in terms of six non-mutually exclusive categories developed by the first and third authors: (1) comments reflecting increased frequency or quantity of drinking (7%); (2) comments reflecting decreased frequency or quantity of drinking (29%); (3) comments indicating changes in the location of drinking (29%); (4) derogatory comments towards younger drinkers or young females (36%); (5) comments regarding increased knowledge of alcohol or its effects (12 %); and (6) other comments (19%).

Discussion

Although a few studies have examined the effects of reduction of a national drinking age on individuals directly affected by the legislation, none has examined the effects on those already of legal drinking age, despite good reasons to believe that intergroup dynamics will affect the attitudes and behaviours of those whose legal status remains unchanged. The purpose of the current study was to examine these "indirect" effects of New Zealand's recent alcohol legislation, caused by (among other factors) the sudden influx of younger drinkers into the social environment of older ones.

Surprisingly, despite good arguments to the contrary (e.g., ALAC, 2002) and our use of a powerful longitudinal design, there were no measurable changes in participants' frequency of drinking. On the other hand, the quantity of alcohol participants consumed at one time decreased following the law change. Furthermore, the decrease was greatest for spirits and beer, the type of drinks most likely to be consumed at bars (Gruenewald, Stockwell, Beel, & Duskin, 1999), suggesting that the presence of younger patrons may have driven older drinkers away from public drinking establishments.

Although we unfortunately do not have data on where participants did their drinking, their written responses provide some support for the hypothesis that the change in alcohol consumption was mediated by a shift in where older participants are drinking. More than one fourth of written comments indicated a change in their location of drinking, and more than a third made negative comments toward younger (i.e., newly legal) drinkers. Thus, one unforeseen and rather ironic consequence of liberal restrictions on alcohol may be that they drive older drinkers away from public drinking establishments, with the side effect that they drink less alcohol than they normally would. As the at-risk population ranges from 17-26 (Roche & Watt, 1999; Wylie & Casswell, 1997) this chain of events is of some importance.

Of course, enthusiasm for such speculations must be tempered by the limitations of our (and any) longitudinal

study, in particular the possibility that participants' alcohol consumption was affected by events coinciding with the time of the second questionnaire, rather than the change in the drinking age per se. However, the fact that participants' consumption "in the past week" did not differ between Time 1 and Time 2 suggests that the data reflect more global behavioural changes, rather than local events surrounding the timing of the questionnaires. Furthermore, consideration of the specific times at which behaviours were assessed suggests that, if anything, participants should have been drinking more, not less, at Time 2 than Time 1. The first questionnaire was administered near the end of the second semester, during the exam period, whereas the second was administered at the start of the first semester, a time characterised by numerous drinking opportunities. Assuming that socialising would have been curtailed during exams, one would expect, if anything, increased drinking at Time 2. Thus, the actual change, after other factors favouring increased drinking are factored out, may have been even larger than the one observed here. Of course the true magnitude of immediate attitudinal and behavioural changes, and the trajectory of further changes over time, can only be verified with further study.

Although some potential for the confounding of our pseudo-independent variable was unavoidable, this ambiguity does not impact the remarkable relationships between attitudes and behaviours at Time 2. The questions tapping the social aspects of drinking explained one third of the variance in participants' quantity estimates and, together with drink driving items, explained fully one half of the variance in frequency estimates. This estimate is higher than the relationship between attitudes and drinking behaviour seen by Gregson, Elvy and Stacey (1981). However, the relationship is consistent with Roche and Watt's (1999) finding that the main reason why students drink is to celebrate and to socialise. Although we were not able to predict change in these variables over time, the success of the attitudinal variables at a given point in time can be useful in designing and implementing alcohol interventions. Such interventions, such as the long-standing effort to reduce drink driving in New Zealand, may need to consider relevant, and apparently well-entrenched attitudes. Conversely, educational efforts explicitly aimed at changing attitudes may need to take into account the drinking habits of their target audiences, particularly the frequency with which they consume alcohol. The direction of causality between alcohol-related attitudes and behaviour is another area requiring further research.

The current study is also limited by the relatively small sample size, which prevented comparisons based on other individual differences. Gender, for example, is a potential mediating variable, particularly given that males typically report drinking more frequently and heavily than females (ALAC, 1999). Although gender differences per se were not the focus of the current research, and gender did not interact with the variables of interest, a future study explicitly balancing the gender composition of its sample and including gender as predictor of attitudes and behaviour over time, is warranted.

These limitations notwithstanding, the current study is important in being one of the few to examine attitudes and behaviour following a legislative decrease in a drinking age, and the only one to focus on indirect effects of such legislation.

To summarize our findings, we detected significant decreases in alcohol consumption immediately following the legislation which, with the help of participants' written comments, we tentatively attribute to negativity towards salient newly-legal drinkers present in drinking establishments. Although there was no corresponding change in participants' attitudes toward alcohol, those attitudes strongly predicted both their frequency and quantity of alcohol consumption. Both findings, in conjunction with further research, will help to understand the relationship between alcohol legislation, attitudes, and consumption, and perhaps how the first two factors could be used to influence the third.

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Notes

1. Because we did not assess age prior to participation, some students outside of this age range also participated, but too few to make meaningful comparisons with the 20-25 year olds.
2. Gender was also included in the initial analyses but, because it did not interact with the variables of interest, gender effects are not reported here.
3. Responses to one question ("People should not drive if they have had more than two drinks") were not analysed due to a typographical error in questionnaires.

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Address for correspondence:

Dr. Jamin Halberstadt
Department of Psychology
University of Otago
P.O. Box 56, Dunedin, NZ

Email: jhalbers@psy.otago.ac.nz.