Experience of harm from others’ drinking and support for stricter alcohol policies:

Analysis of the Australian National Drug Strategy Household Survey

Stanesby, O.*a, Rankin, G. *a, & Callinan, S. *a

*a Centre for Alcohol Policy Research, La Trobe University, 215 Franklin Street, Melbourne, Victoria, Australia, 3000

* Corresponding author

Oliver Stanesby* – o.stanesby@latrobe.edu.au

Georgia Rankin – g.rankin@latrobe.edu.au

Sarah Callinan – s.callinan@latrobe.edu.au
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Abstract

Background

Previous research indicates that those who have experienced alcohol-related harm from others are more
likely to support stricter alcohol control policies. This study investigates the association between types of
harm experienced because of others’ drinking and support for stricter alcohol control policies.

Methods

Data from 20,570 Australians aged 18 and over who completed the 2013 National Drug Strategy Household
Survey was used. Questions about experience of alcohol-related harm from others -- being put in fear and
abuse (verbal or physical) -- were asked. Support for stricter alcohol control policies was quantified by a
mean policy support score across 18 alcohol policy questions.

Results

Twenty seven percent of respondents reported harm from someone’s drinking. Respondents who were put in
fear had a higher level of support for stricter alcohol control policies than respondents who were not harmed
(p <.001), regardless of whether they were abused or not. Conversely, respondents who experienced abuse
but were not put in fear did not significantly differ in their support for stricter policies from those who
experienced no harm.

Conclusion

It is the apprehension of harm (i.e. having been put in fear), and not the experience of harm itself (i.e.
abuse), which is related to people’s support for stricter alcohol policies. These findings suggest that
perceiving others’ intoxication as dangerous to oneself may motivate support for stricter alcohol policies.

Keywords: Alcohol; harm to others; policy; public opinion; attitudes

Conflict of interest: The authors declare no conflict of interest.
Introduction

Alcohol is a significant contributor to harm in our societies (Gao, Ogeil, & Lloyd, 2014; WHO, 2014). However, alcohol’s ubiquity in societies like Australia ensures its harmful effects are often under-acknowledged by the public and in the political arena (Rehm, Lachenmeier, & Room, 2014). In addition to causing harm to the drinker, harmful use of alcohol impacts the health and economic status of those around the drinker and in the wider society (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011; Laslett, et al., 2010; Rehm, et al., 2009). The Australian alcohol policy landscape is complex and varied (Howard, Gordon, & Jones, 2014) and, despite evidence of a recent decline in per-capita alcohol consumption (Livingston & Dietze, 2016), there remains a need to improve alcohol control policies in Australia to reduce alcohol-related harms (Howard, Gordon, & Jones, 2014).

From a public health perspective, alcohol policies aim to reduce the harmful effects of alcohol to individuals and to societies (Babor, et al., 2010), and some are effective in doing so (Anderson, Chisholm, & Fuhr, 2009; Room, 1984). Alcohol policies differ in effectiveness, target population and practical and financial feasibility (Anderson, et al., 2009; Babor, et al., 2010; Cook, Bond, & Greenfield, 2014; Lancaster & Matthew-Simmons, 2013). In spite of their apparent benefits, many of the most effective policies for reducing alcohol-related harm (for example, taxation on alcohol products, and restrictions on the availability of alcohol (Anderson, et al., 2009; Lancaster & Matthew-Simmons, 2013)) receive relatively weak support from the public (Babor, et al., 2010; Lancaster & Matthew-Simmons, 2013). Conversely, some less-effective alcohol policies, such as alcohol education programs in schools (Anderson, et al., 2009; Lancaster & Matthew-Simmons, 2013), receive stronger support (Babor, et al., 2010; Lancaster & Matthew-Simmons, 2013).

Public opinion on policies influences the likelihood that they will be implemented and enforced (Page & Shapiro, 1983). Whilst the responsiveness of policies to public opinion is influenced and sometimes compromised by the interests of political parties, business enterprises and social movement organisations (Burstein, 1998, 2003; Smith, 1999), stronger public support for policies tends to increase the chance of those policies being implemented in democratic countries (Burstein, 2003; Page & Shapiro, 1983; Room,
Moreover, Room et al. (1995) explain that public opinion can influence the effectiveness of restrictive policies; for instance, when people demonstrate their opposing attitudes towards restrictive alcohol policies by intentional evasion of those restrictions – for example, when alcohol is brought to and consumed in alcohol-free public places and events. Given the potential for policies to reduce harm caused by alcohol in societies (Anderson, et al., 2009; Babor, et al., 2010; Lancaster & Matthew-Simmons, 2013), it is important to understand what influences public support for alcohol policies and how public opinions of alcohol policies change over time in a variety of countries (Room, et al., 1995; Storvoll, Rossow, & Rise, 2014) to allow the implementation of effective policies to combat the harmful impacts of alcohol in a range of culturally and socio-politically-diverse nations.

Research investigating public opinion towards alcohol policies has increased internationally since the turn of the century. Previous public opinion studies have predominately investigated population trends over time, and analysed how socio-demographic characteristics and one’s own drinking patterns and problems relate to different alcohol-related policy opinions (see – Greenfield, Ye and Giesbrecht (2007); Österberg, Lindeman and Karlsson (2014); Rossow and Storvoll (2014); Seo, Chun, Newell and Yun (2015); and Tobin, Moodie and Livingstone (2011)). Heavier drinkers have tended to oppose policy restrictions (Callinan, Room, & Livingston, 2014), despite their drinking leading to an increased risk of harm to themselves and others. Meanwhile, a recent study conducted by Greenfield et al. (2014) investigated the association between experience of alcohol-related harm attributable to the drinking of others and support for stricter alcohol control measures. The study used data from the 2010 US National Alcohol Survey to compare the experience of harm from others’ drinking with alcohol policy opinions, finding support for their hypothesis, that those who had experienced harm from others’ drinking would be more likely to support alcohol control policies. The authors, however, noted the limits of their policy attitude scale (based on three core items), so that further research should be conducted on a fuller set of alcohol policy opinion items (Greenfield, et al., 2014). Whether being a victim of harm from others’ drinking is associated with increased support for alcohol policies, and how this association varies according to the type of harm experienced, is yet to be investigated in an Australian sample or using a comprehensive set of alcohol policy opinion items.
Using data from the 2013 National Drug Strategy Household Survey (NDSHS) (AIHW, 2015), this paper investigates the association between experience of harm because of others’ drinking – specifically, fear, verbal abuse and/or physical abuse – and support for eighteen alcohol control policies in Australian respondents. It is hypothesized that experience of such harm will correlate with increased support for a range of alcohol policies, particularly those surrounding hazardous behaviours.

**Design and Methods**

**Data and sample**

The NDSHS is the principal survey of licit and illicit drug use in Australia, dating back to 1985; the 2013 survey was the 11th to be undertaken (AIHW, 2014). In 2013, 23,855 Australians aged 12 years or older answered questions about their drug use, and their attitudes and behaviours towards drug use, with a response rate of 49.1% (AIHW, 2014). There was some under-representation of the employed population, people who have not completed year 12 or higher education, single person households, people who did not speak English predominately in the home, and those in the lowest socioeconomic deciles. However, the survey data was weighted to reflect Australian population distributions for sex, age, household size and region of residence to control for this, and the weighted data can be considered highly representative (AIHW, 2014).

Participants were excluded from all analyses if they were less than 18 years of age (N = 1,159) or did not answer at least 12 of the 18 alcohol policy questions (N = 1,627) or did not answer any of the harm questions (N = 223). Further, participants were excluded if they answered ‘no’ to one or more harm questions but then did not answer another harm question (N = 276), as we could not be certain that they were not harmed. There were 872 respondents that answered ‘yes’ to one or more harm questions and left another blank. These respondents were retained in the sample on the assumption that such respondents had left questions that did not apply to them blank, as discussed by Callinan and Room (2012) in a similar situation. Results were run with and without this final group of participants, with no impact on results. As a result, 20,570 respondents were included in the analysis. The final sample comprised 9,091 men (49.5%) and 11,479 women (50.6%), with a mean age of 45.8 years.
Measures

The NDSHS has 18 alcohol-related policy questions (see Table 1) which ask respondents to rate their level of support for each policy on a five-point Likert scale. Response categories were: 1) strongly oppose, 2) oppose, 3) neither support nor oppose, 4) support, and 5) strongly support. Principal components analysis with direct oblimin rotation grouped policy items into four different types of policies – each of which encompassed policies that share similar characteristics in terms of level of support and types of respondents who support or oppose them. A similar analysis conducted by Callinan et al. (2014) on the 2010 NDSHS found a similar, albeit slightly different, four-factor structure based on 16 alcohol policy items. The single-factor structure, titled ‘overall’, considers all 18 items together. The four subscales are increasing alcohol-free space and events, restricting price and availability, increasing promotional limits and warnings, and controlling hazardous behaviour. The items corresponding to these groups are shown in Table 1.

Respondents’ mean scores on the 18 policy items, and on each of the four types of alcohol policies, were used as outcome variables which quantified respondents’ support for alcohol policies on an ordinal scale ranging from 1 (least support) to 5 (most support). The alpha reliability coefficients for the sets of items comprising the four policy type attitudes scales, and the overall policy attitudes scale, ranged from 0.79 to 0.94, indicating good internal consistency for the outcome measures. Furthermore, Supplementary Table 1 depicts a direct oblimin rotated components matrix which describes how each of the 18 policy items loaded onto four components and thus subdivided into the four alcohol policy type subscales.

[Insert Table 1]

Drawing from the three primary alcohol-related harm questions which asked respondents ‘In the last 12 months, did any person under the influence of or affected by alcohol…’ i) ‘…verbally abuse you?’, ii) ‘physically abuse you?’, and iii) ‘put you in fear?’, an overall harm variable was derived. Analyses were initially run on the three items separately, however there was no difference in results between the two types of abuse. The primary indicator used to measure harm included the following categories; none of the three harms had been experienced, respondents had been put in fear but not verbally or physically abused, respondents had experienced both fear and abuse, and respondent had been abused without having been put
Analyses were run with verbal and physical abuse entered as separate variables (Supplementary Table 2), with no real differences in relationships with the outcome variables. Therefore, the two types of abuse were grouped together for all analyses.

Respondents’ mean daily alcohol consumption (Australian Standard Drinks (ASD; 10g ethanol)) was calculated from a graduated quantity frequency measure and was used in the analysis to control for the respondent’s drinking level. This continuous variable was derived from multiplying the midpoints of categories of the number of standard drinks consumed by the frequency of occurrence, as explained by Wilkinson, Room and Livingston (2009).

‘Delinquent or hazardous alcohol-related behaviour’ is the term given to behaviours and actions undertaken by the respondent while under the influence of alcohol that can be perceived as harmful or criminal (Livingston & Room, 2009). These ‘delinquent or hazardous behaviours’ include creating public nuisance or disturbance, damaging property, stealing, verbal and physical abuse, and driving a motor vehicle. Delinquent or hazardous behaviour was measured as a dichotomy (no delinquent or hazardous behaviour versus at least one delinquent or hazardous behaviour in the last 12 months).

This study used sex, age, marital status (binary), employment status (binary), household income and remoteness of residence as the socio-demographic variables. Residential remoteness was a standard measure developed by the Australian Bureau of Statistics based on postcode (AIHW, 2014). In this study, respondents were placed into one of three geographical location categories which were based on the road distance from respondents’ residence to the nearest service centre (Pink, 2011): major cities, inner regional and outer regional (which includes outer regional, remote and very remote). A continuous variable for annual household income (AUD) was derived according to the midpoints of categories of the annual household income item. Household income was also categorised into less than $20,800, $20,800-$67,599, $67,600-$145,599, and $145,600 or more.

Statistical analysis

Using Stata version 14 (Stata Corp, 2015) descriptive statistics and linear regression models (first adjusting for the confounding effects of demographics, then adjusting for the confounding effects of
demographics, level of alcohol consumption and delinquent or hazardous alcohol-related behaviour) were undertaken to examine how exposure to alcohol-related harm/s is associated with support for more restrictive alcohol policy. The correlations between each pair of the predictor variables were assessed prior to running multiple regressions to assess for multicollinearity; none was found. Linear regression beta coefficients are presented with corresponding p-values. Whilst no variables had missing data for 5% or more of the sample, the cumulative missing data for included variables resulted in 6.5% of the sample being excluded from the multivariate linear regression models. All percentages, effect sizes, and confidence intervals are weighted estimates.

Results.

A description of the demographics, own alcohol consumption, and whether respondents’ drinking was harmful to others, in those who experienced the various types of harm from others’ drinking are provided in Table 2. Altogether, 12.4% of respondents were put in fear, 23.0% were verbally abused and 8.5% were physically abused; overall, one quarter (26.5%) of the study sample reported having experienced at least one alcohol-related harm due to someone else’s drinking in the past year. While those who experienced harm because of another’s drinking were typically younger than those who did not, the mean age did not differ between those who experienced the three different classifications of harm (fear only, fear and abuse, and abuse only). While women were less likely to experience harm than men, they were slightly more likely to report having been put in fear – 64.5% of those who were put in fear but not abused, and 51.6% of those who were abused and put in fear, were women, and 64.1% of those who were abused but not put in fear were men. The median annual household income was larger among those who were harmed by another’s drinking, and the largest median household income was observed in those who were abused but not put in fear; however, these results must be interpreted with caution due to a large percentage (20.6%) of the sample answering “don’t know” or “prefer not to say” when asked to report annual household income. Fear was also slightly more prominent in those living in major cities with a slightly greater percentage of those who were put in fear but not abused living in major cities compared to the percentage among those who were abused but not put in fear.
In addition to demographic characteristics, a respondent’s own behaviour appears related to the experience of harm from others’ drinking. Mean daily alcohol consumption was greater in those who experienced abuse (whether coupled with fear (1.45 ASDs/day) or not (1.81 ASDs/day), and those put in fear alone had lower consumption (0.75 ASDs/day), than respondents who did not experience harm. Reporting of delinquent or hazardous alcohol-related behaviour was also more frequent in those who experienced abuse than in those who were put in fear but not abused and those who were not harmed. These results indicate that fear of another who has been drinking may be less prominent in those who apparently consume more alcohol or engage in delinquent or hazardous alcohol-related behaviour.

[Insert Table 2]

The mean policy support scores for each of the four alcohol policy types and for all alcohol policies combined are shown in Table 3. A higher mean policy support score represents more supportive views for public health-oriented alcohol policies. Across all policy types and for all alcohol policies combined, those who had been put in fear but not abused held more supportive views (overall: 3.88) towards alcohol policies than all other harm categories (including no experience of harm). Those who had experienced abuse (especially those who were not put in fear (overall: 3.47)) were less supportive of alcohol control policies than those who had not experienced any harm (overall: 3.76). Alcohol control policies aimed at increasing the price and decreasing availability of alcohol were the least positively supported alcohol policy type. All groups of harm supported the four policy groups in the same order, being most in favour of policies relating to hazardous behaviours, and least supportive of price and availability policies.

[Insert Table 3]

Linear regression analyses show the strength of these associations (see Table 4). Bivariate analysis (BV) indicated that respondents who were put in fear but not abused because of someone else’s drinking reported stronger support for stricter alcohol control policies ($\beta = 0.13, p = 0.001$) than those who did not experience harm because of others’ drinking, and this effect was even stronger in the multivariate analysis (MV1 and MV2), after adjusting for respondents’ demographics ($\beta = 0.20, p < 0.001$), and after adjusting for respondents’ demographics, alcohol consumption and delinquent or hazardous behaviour ($\beta = 0.19, p <$
Bivariate analysis showed respondents who reported experiencing both fear and abuse had significantly lower support for alcohol control policies than those who did not experience any harm ($\beta = -0.07, p = 0.003$), but this relationship reversed and they had stronger support for alcohol policies than those who weren’t harmed when controlling for demographics ($\beta = 0.07, p < 0.001$), and when controlling for demographics, alcohol consumption and delinquent or hazardous behaviour ($\beta = 0.13, p < 0.001$). Those who were abused but not put in fear had significantly lower support for alcohol policies in the bivariate analysis ($\beta = -0.29, p < 0.001$), and in the multivariate analysis which controlled for respondents’ demographics ($\beta = -0.09, p < 0.001$). However, when controlling for alcohol consumption and delinquent or hazardous behaviour in addition to demographics, their level of support did not differ from those who weren’t harmed ($\beta = -0.02, p = 0.316$). These associations resonated across each policy type, with one exception: the level of support for promotional limits and warnings policies among those who were abused but not put in fear did not differ from those who weren’t harmed when controlling for demographics.

After adjusting for demographics, alcohol consumption and experience of alcohol-related harm from others, respondents who reported causing harm to others while under the influence of alcohol (i.e. delinquent or hazardous alcohol-related behaviour) were less supportive than those who did not cause alcohol-related harm to others for all types of alcohol policies (overall: $\beta = -0.22, p < 0.001$). Given that being put in fear by someone who had been drinking was less prominent among males, respondents who consume more alcohol, and respondents who engage in delinquent or hazardous alcohol-related behaviour (Table 2), and that delinquent or hazardous behaviour was associated with decreased support for alcohol policies (Table 4), those actively participating in the drinking culture (which may include those who engage in rowdy or delinquent alcohol-related behaviour) may not support restrictive alcohol policies, while those who less-actively participate in the drinking culture (which may include those who experience fear of others who have been drinking, sometimes coupled with abuse) do tend to support them.

Multivariate linear regression models were run for both men and women separately (Supplementary Table 3). Whilst experiencing fear due to others’ drinking (abused or not abused) was associated with stronger support for alcohol control policies in both men and women, the size and significance of effect was
larger in male respondents than in female respondents. As was observed in the full sample, being abused but not put in fear due to others’ drinking was not associated with differing levels of support for alcohol policies in men or women. These results indicate it is the experience of fear of someone who has been drinking, rather than verbal or physical abuse, which motivates stronger support for public health-oriented alcohol policies.

[Insert Table 4]

Discussion

Personal experience of harm from others’ drinking seems to have quite a complex relationship to attitudes toward public health-oriented alcohol policies. It was hypothesised that the analysis would find that experience of alcohol-related harm from others’ drinking would increase support for policies that are designed, at least in part, to minimise such harms, as was found by Greenfield et al. (2014). Yet, the results were not so simple. Respondents who were put in fear had a higher level of support for stricter alcohol control policies than respondents who were not harmed, regardless of whether they were abused or not. In contrast, respondents who experienced abuse but were not put in fear did not significantly differ in their support for stricter policies from those who experienced no harm, but only after controlling for alcohol consumption and delinquent or hazardous alcohol-related behaviour – otherwise, they had decreased support. These associations were consistent when predicting support for each of four alcohol policy types, including ones which aim to control hazardous alcohol-related behaviour. While there was a greater percentage of respondents who experienced verbal abuse than physical abuse, the association between each type of abuse and support for alcohol policies was the same – neither was associated with a change in support after controlling for other factors. The findings indicate that it may be the apprehension of harm (i.e. fear), and not the experience of harm itself (verbal or physical abuse), which is related to people’s support for stricter alcohol policies. This suggests that perceiving others’ intoxication as dangerous to oneself may motivate support for stricter alcohol policies. Of course, the direction of causality is unclear and it may be that those who are more generally disapproving of alcohol, and more likely to support alcohol policies as a result, may be more likely to experience fear because of others’ drinking.
Experiencing fear because of others’ drinking increases support for alcohol policies

A few studies have indirectly explored the link between being put in fear because of others’ drinking and support for alcohol policies. Two separate studies (Greenfield, et al., 2014; Slater, Lawrence, & Comello, 2009) have found those who are concerned about alcohol-related harms tend to support restrictive alcohol policies. Another study (Holmila, Mustonen, Österberg, & Raitasalo, 2009) found Finnish respondents who had observed alcohol-related disturbances in public places were more likely to support alcohol policies. Given this, and that feelings of fear may arise, in combination with other factors, from feelings of concern for one’s own or others’ danger (Bannister & Fyfe, 2001), it is perhaps unsurprising to find alcohol-related fear is associated with support for alcohol policies.

Whilst fear can undoubtedly be a harmful experience that our results indicate may alter support for alcohol policies, the concept of fear contains subjective elements (Gullone, 2000). As such, a person who is in a dangerous situation may only experience feelings of fear if they are aware of the danger (Witte, 1992). Increasing public awareness (through dissemination of knowledge) of the harmful effects of second-hand cigarette smoke was certainly a significant motivator for gathering public and political support for stricter tobacco control policies (Bayer, 2008; Chapman & Freeman, 2008; Giesbrecht, Cukier, & Steeves, 2010; Laslett, Callinan, & Pennay, 2013). Similarly, those with a greater awareness of alcohol’s harms to others may be more inclined to see another’s drinking as potentially dangerous to themselves, and therefore as reason to be fearful. This awareness may also translate to stronger support for alcohol policies. In support of this point, a study led by Storvoll (Storvoll, et al., 2014) found Norwegian respondents who believe in the association between overall alcohol consumption and harm had increased support for alcohol control policies.

The subjective nature of fear also allows preconceived ideas (including ones that do not reflect the actual present danger) to influence whether feelings of fear are experienced. People may be more likely to report experiencing amenity impacts from others who appear to be under the influence of a psychoactive substance if they don’t use the substance themselves, whereas conversely, people’s perceptions of a substance may be less stigmatic if they do use the substance themselves (Callinan & Room, 2014).
Therefore, people who have a negative perception towards alcohol may be more likely than those with a more positive or accepting attitude towards drinking to report being put in fear because of another’s drinking in a given context. Those with fearful preconceptions of drinkers may also support stricter alcohol policies. An individual’s self-perceived ability to cope in situations where they are exposed to an intimidating or abusive drinker may influence how severe and frequently they experience fear (Benight & Bandura, 2004). Therefore, those who feel they are unable to cope with an intimidating or abusive drinker may be more likely to experience fear. They may also feel a need for assistance to cope with the intimidating or abusive drinkers and therefore support policies which aim to reduce alcohol-related harm.

One’s own alcohol consumption and drinking behaviour appear to be important factors in whether people are likely to be put in fear due to others’ drinking. Despite heavier drinkers and those who engage in delinquent or hazardous alcohol-related behaviour being more likely to have experienced abuse because of others’ drinking, they are less likely to report being put in fear. It may be that those actively participating in the drinking culture are more likely to perceive alcohol-related abuse, physical or verbal, as a normal or acceptable part of drinking, and are less fearful of others who have been drinking as a result.

*Experiencing abuse because of others’ drinking does not increase support for alcohol policies*

Arguably the most counterintuitive finding of this study was a lack of association between verbal or physical abuse by others who had been drinking, and support for stricter alcohol policies. This finding is in contrast to research by Greenfield et al. (2014) who found experiencing harm from others’ drinking, and specifically assault or vandalism, is associated with increased support for alcohol policies.

When we consider the characteristics of those who can experience abuse but not be put in fear, there are some explanations for why the overall grouping of respondents who had been abused had comparable support for alcohol policies to those who were not harmed. People who experience abuse but not fear may be unperturbed by the harms experienced from others’ drinking, and thus may not feel a need for stricter control through policies. Indeed, for some young people (particularly young adult males) alcohol-related violence is expected on a typical night out (MacLean & Moore, 2014) or is considered an inevitable, but importantly still a non-condonable, part of drinking (Seaman & Ikegwuonu, 2010). Thus, normalisation of
violence within Australian alcohol culture may contribute to the observed lack of association between abuse
without fear and support for alcohol policies.

Moreover, it is possible that some respondents who report experiencing abuse but were not put in
fear because of another’s drinking were the instigators of the alcohol-related confrontation that resulted in
them being abused. This study could not determine whether abuse was experienced due to a conflict
instigated by the respondent or by the abuser. Indeed, after controlling for a range of factors, including
whether respondents’ drinking was hazardous to others, the negative association between experiencing
abuse and support for alcohol policies disappeared. Thus, experience of abuse in response to conflicts
instigated by an individual may nullify the association between experiencing abuse and support for alcohol
policies in that person.

Those who experience alcohol-related abuse may have greater exposure to heavy drinkers due to
being heavier drinkers themselves or operating within heavy drinking social networks. As restrictive alcohol
policies may have actual or perceived consequences for heavier drinkers and for the family members and
acquaintances of those in a heavy drinking world – for example, increased taxation on alcohol products may
place greater financial strain on heavier drinkers than lighter drinkers (Daley, Stahre, Chaloupka, & Naimi,
2012) – these people may oppose public health-oriented alcohol policies. There may also be a more-general
effect: heavier drinkers may have more-positive attitudes towards alcohol and, therefore, reduced support for
public health-oriented restrictive alcohol policies. Therefore, heavy drinkers and those living in heavy
drinking worlds who experienced alcohol-related abuse may nullify a potential positive association between
experiencing abuse and support for alcohol policies among lighter drinkers and those with lighter drinking
networks.

Individuals who are subjected to severe or ongoing trauma may develop a dissociative disorder
(Spiegel, 2011) where they may experience difficulty recalling and connecting emotional or physical
reactions with traumatic events. Therefore, due to dissociative disorder developed through trauma, there may
be some respondents who, despite experiencing abuse from someone that had been drinking, report similar
level of support for restrictive alcohol policies as those who had not experienced abuse.
Public support varied according to the type of alcohol policy. However, experience of being put in fear and/or abused had similar effects upon level of support for each policy type. The only notable deviations from the main findings were being put in fear but not abused was a slightly weaker motivator for supporting policies which control hazardous alcohol behaviour, and support for promotional limits and warnings policies did not differ between those who were abused but not put in fear and those who weren’t harmed when controlling for demographics.

**Limitations and strengths**

This study is limited by the measures used in NDSHS to quantify harm from others’ drinking, namely ‘verbal abuse’, ‘physical abuse’ and ‘put in fear’. These items are indeed less specific than the six items used by Greenfield et al. (2014) which ranged from aggression-related harms to motor vehicle-related harms to family-related harms, and do not account for the full spectrum of harms experienced because of others’ drinking (Laslett, et al., 2011), many of which may have an influence on people’s attitudes towards alcohol policies. Given only three types of harm from others’ drinking were considered, this study only begins to describe the influence of alcohol’s harms to others for shaping attitudes towards public health-oriented alcohol policies. There may also be some respondents who experienced harm more than 12 months ago that influenced their views on policy that will not have been identified in this study.

Due to the retrospective design of the NDSHS, this study is only able to provide information about experiences that respondents are able to recall and choose to acknowledge. Therefore, respondents may be more likely to recall and report experiences of fear or abuse that were severe, traumatic and/or frequent. Hence, there may be some respondents who did not report being put in fear that were in fact put in fear, and there may be some respondents who did not report experiencing abuse that were abused. This limitation, combined with other plausible explanations discussed throughout this paper, explain how a proportion of the sample was able to report being abused but not put in fear, despite fear being a natural reaction to threat (Gullone, 2000).

The impacts of alcohol-related abuse and fear upon the victim may differ depending on where the harm is experienced (for instance, in the household as opposed to in public) and relationship between the
victim and perpetrator (for instance, an intimate partner or family member as opposed to a stranger)

(Berends, Ferris, & Laslett, 2012; Berends, Ferris, & Laslett, 2014). As this study was unable to ascertain
the victim-perpetrator relationship or the location of harm, the associations reported in this study are yet to
be tested across different contexts.

As is common in population surveys in the current era, the non-ideal response rate means that non-
response bias is a potential concern for the NDSHS, and by extension, this study. A study led by Maclennan
(Maclennan, Kypri, Langley, & Room, 2012) investigated the potential biasing effects of non-responses for
population alcohol surveys. Pertinent to this study, experience of assault was more likely to be higher among
non-responders, whilst policy support scores were unlikely to have been affected. Therefore, mean policy
support scores are unlikely to be greatly misestimated in this study, but some associations, including that
between alcohol-related assault (i.e. abuse) and support for alcohol policies, may be over- or under-
estimated due to non-responders to the 2013 NDSHS.

A strength of this study is that aggregated data from eighteen different policy items enabled a more
robust estimation of overall support for alcohol policies. This robustness, as well as this study being able to
control for whether respondents had been put in fear, may partly explain why this study did not observe an
association between experiencing abuse and increased support for alcohol policies whilst other studies have.
This also allowed us to explore how experience of alcohol-related harm from others influences support for
different types of alcohol policies.

Conclusions and implications for alcohol research and policy

Given the importance of public support for implementing alcohol policies and the observed
association between fear of others’ drinking and support for alcohol policies, it is vital for research to
continue to map the range and magnitude of alcohol’s harmful effects to others. Translation of past and
future knowledge about alcohol’s potential to harm those other than the drinker will, in theory, increase
public awareness of the dangers of others’ drinking. Further research is needed to explain who it is and why
it is that people support (or oppose) alcohol policies. Specifically, research must further explore why some
harms from others’ drinking (i.e. fear) but not others (i.e. abuse) are associated with increased support for
public health-oriented alcohol policies, and test how these associations differ according to the context in which harm is experienced. Such efforts have potential to increase the public support for, and facilitate the implementation of, stricter alcohol policies, which can reduce the negative impact of alcohol in our societies.

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Table 1: Alcohol policy items (‘To reduce the problems associated with excessive alcohol use, to what extent would you support or oppose’...?)

<table>
<thead>
<tr>
<th>Alcohol-free space and events</th>
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<td>Increasing the number of alcohol-free public events</td>
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<td>Increasing the number of alcohol-free zones or dry areas</td>
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<td>Serving only low alcohol drinks, such as low alcohol beer at sporting events or venues</td>
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<td>Reducing trading hours for all pubs and clubs</td>
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<td>Restricting late night trading of alcohol</td>
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<td>Stricter monitoring of late night licensed premises</td>
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<tr>
<td>Increasing the price of alcohol</td>
</tr>
<tr>
<td>Increasing the tax on alcohol products to pay for health, education, and the cost of treating alcohol-related problems</td>
</tr>
<tr>
<td>Reducing the number of outlets that sell alcohol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Promotional limits and warnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing the size of standard drink labels on alcohol containers</td>
</tr>
<tr>
<td>Requiring information on national drinking guidelines on all alcohol containers</td>
</tr>
<tr>
<td>Limiting advertising for alcohol on TV until after 9.30pm</td>
</tr>
<tr>
<td>Banning alcohol sponsorship of sporting events</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>More severe legal penalties for drink driving</td>
</tr>
<tr>
<td>Stricter enforcement of the law against serving customers who are drunk</td>
</tr>
<tr>
<td>Raising the legal drinking age</td>
</tr>
<tr>
<td>Stricter enforcement of law against supplying minors</td>
</tr>
<tr>
<td>Support for regulation of supply to minors on private premises</td>
</tr>
</tbody>
</table>
Table 2: Descriptive statistics of the demographics, own alcohol consumption and whether own drinking resulted in harm to others, in respondents who experienced different types of harm from others’ drinking in the last 12 months (95% CI).

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>Gender (%)</th>
<th>Age (mean years)</th>
<th>Household income (median AUD)</th>
<th>Remoteness of residence (%)</th>
<th>Alcohol consumption (mean ASDs per day)</th>
<th>Delinquent or hazardous behaviour (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female (vs. male)</td>
<td></td>
<td></td>
<td>Major city</td>
<td>Inner regional</td>
<td>Outer regional</td>
</tr>
<tr>
<td>No harm</td>
<td>15,306</td>
<td>73.5</td>
<td>52.6</td>
<td>48.1</td>
<td>$88,985* ($87,536, $90,434)</td>
<td>71.2</td>
<td>17.2</td>
<td>11.5</td>
</tr>
<tr>
<td>Put in fear but not abused</td>
<td>508</td>
<td>2.6</td>
<td>64.5</td>
<td>40.3</td>
<td>$98,062* ($93,045, $103,078)</td>
<td>78.6</td>
<td>14.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Put in fear and abused</td>
<td>2,032</td>
<td>9.9</td>
<td>51.6</td>
<td>39.0</td>
<td>$94,570* ($91,965, $97,174)</td>
<td>74.0</td>
<td>15.4</td>
<td>10.6</td>
</tr>
<tr>
<td>Abused but not put in fear</td>
<td>2,724</td>
<td>14.1</td>
<td>35.9</td>
<td>39.7</td>
<td>$100,825* ($98,265, $103,385)</td>
<td>68.8</td>
<td>17.6</td>
<td>13.6</td>
</tr>
</tbody>
</table>

* Respondents who reported creating public nuisance or disturbance, damaging property, stealing, verbal and physical abuse, and/or driving a motor vehicle while under the influence of alcohol; ** Abused includes respondents who said they were physically and/or verbally abused; * >5% missing data.
<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Alcohol-free space and events</th>
<th>Price and availability</th>
<th>Promotions and warnings</th>
<th>Hazardous behaviour</th>
<th>Overall*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No harm</td>
<td>15,306</td>
<td>3.78 (3.76, 3.80)</td>
<td>3.07 (3.04, 3.09)</td>
<td>3.86 (3.84, 3.87)</td>
<td>4.06 (4.05, 4.08)</td>
<td>3.76 (3.74, 3.77)</td>
</tr>
<tr>
<td>Put in fear but not abused</td>
<td>508</td>
<td>3.91 (3.81, 4.00)</td>
<td>3.21 (3.09, 3.33)</td>
<td>4.08 (4.00, 4.16)</td>
<td>4.10 (4.03, 4.17)</td>
<td>3.88 (3.81, 3.96)</td>
</tr>
<tr>
<td>Put in fear and abused</td>
<td>2,032</td>
<td>3.65 (3.59, 3.70)</td>
<td>2.99 (2.93, 3.06)</td>
<td>3.86 (3.81, 3.91)</td>
<td>4.02 (3.98, 4.06)</td>
<td>3.69 (3.64, 3.73)</td>
</tr>
<tr>
<td>Abused but not put in fear</td>
<td>2,724</td>
<td>3.42 (3.37, 3.47)</td>
<td>2.69 (2.64, 2.75)</td>
<td>3.66 (3.62, 3.70)</td>
<td>3.83 (3.79, 3.87)</td>
<td>3.47 (3.43, 3.51)</td>
</tr>
<tr>
<td>Total</td>
<td>20,570</td>
<td>3.72 (3.70, 3.74)</td>
<td>3.01 (2.99, 3.03)</td>
<td>3.84 (3.82, 3.85)</td>
<td>4.03 (4.01, 4.04)</td>
<td>3.71 (3.70, 3.73)</td>
</tr>
</tbody>
</table>

*Overall encompasses all 18 policy questions; a Abused includes respondents who said they were physically and/or verbally abused.
Table 4: Bivariate and multivariate linear regression models predicting support for four different types of alcohol policies based on experience of alcohol-related harm to others, or from others (N = 19,240).

<table>
<thead>
<tr>
<th></th>
<th>Alcohol-free space and events</th>
<th>Price and availability</th>
<th>Promotions and warnings</th>
<th>Hazardous Behaviour</th>
<th>Overall[^a]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BV</td>
<td>MV1</td>
<td>MV2</td>
<td>BV</td>
<td>MV1</td>
</tr>
<tr>
<td>Delinquent or hazardous behaviour[^b] (vs. no delinquent or hazardous behaviour)</td>
<td>-0.65***</td>
<td>N/A</td>
<td>-0.26***</td>
<td>-0.74***</td>
<td>N/A</td>
</tr>
<tr>
<td>Put in fear but not abused (vs. no harm)</td>
<td>0.13**</td>
<td>0.24***</td>
<td>0.22***</td>
<td>0.15*</td>
<td>0.21***</td>
</tr>
<tr>
<td>Put in fear &amp; abused (vs. no harm)</td>
<td>-0.13***</td>
<td>0.06*</td>
<td>0.11***</td>
<td>-0.07*</td>
<td>0.07*</td>
</tr>
<tr>
<td>Abused but not put in fear (vs. no harm)</td>
<td>-0.36***</td>
<td>-0.13***</td>
<td>-0.04</td>
<td>-0.37***</td>
<td>-0.15***</td>
</tr>
</tbody>
</table>

* p<0.05; ** p<0.01; *** p<0.001; N/A – not included in model; BV – weighted unadjusted bivariate regression beta coefficients; MV1 – weighted multivariate regression beta coefficients adjusted for respondents’ sex, age, household income, education and remoteness; MV2 – weighted multivariate regression beta coefficients adjusted for respondents’ sex, age, household income, education, remoteness, alcohol consumption and delinquent or hazardous behaviour[^b]; Overall encompasses all 18 policy questions;[^a] Respondents who reported creating public nuisance or disturbance, damaging property, stealing, verbal and physical abuse, and/or driving a motor vehicle while under the influence of alcohol;[^b] Abused includes respondents who said they were physically and/or verbally abused.
Supplementary material

Article title: Experience of harm from others’ drinking and support for stricter alcohol policies: Analysis of the Australian National Drug Strategy Household Survey

Authors: Stanesby, O.\textsuperscript{a}, Rankin, G.\textsuperscript{a}, & Callinan, S.\textsuperscript{a}

\textsuperscript{a}Centre for Alcohol Policy Research, La Trobe University, 215 Franklin Street, Melbourne, Victoria, Australia, 3000

Supplementary Table 1 presents a direct oblimin rotated components matrix which describes how each of the 18 alcohol policy attitude items loaded onto four components which represent four different types of alcohol policies.

Supplementary Table 1: Rotated\textsuperscript{a} components loading matrix\textsuperscript{b}.

<table>
<thead>
<tr>
<th>Item</th>
<th>1 - Alcohol-free space and events</th>
<th>2 - Promotional limits and warnings</th>
<th>3 - Price and availability</th>
<th>4 - Hazardous behaviour</th>
<th>Unexplained variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing the number of alcohol-free public events</td>
<td>0.3272</td>
<td>0.083</td>
<td>0.0798</td>
<td>-0.0833</td>
<td>0.3447</td>
</tr>
<tr>
<td>Increasing the number of alcohol-free zones or dry areas</td>
<td>0.3256</td>
<td>0.0552</td>
<td>0.0679</td>
<td>-0.036</td>
<td>0.3554</td>
</tr>
<tr>
<td>Serving only low alcohol drinks, such as low alcohol beer at sporting events or venues</td>
<td>0.3362</td>
<td>0.0505</td>
<td>0.095</td>
<td>-0.0923</td>
<td>0.3587</td>
</tr>
<tr>
<td>Reducing trading hours for all pubs and clubs</td>
<td>0.4196</td>
<td>-0.0973</td>
<td>0.1255</td>
<td>-0.0946</td>
<td>0.2578</td>
</tr>
<tr>
<td>Restricting late night trading of alcohol</td>
<td>0.4466</td>
<td>-0.0433</td>
<td>-0.0735</td>
<td>0.0342</td>
<td>0.2375</td>
</tr>
<tr>
<td>Stricter monitoring of late night licensed premises</td>
<td>0.401</td>
<td>0.02</td>
<td>-0.2321</td>
<td>0.159</td>
<td>0.2695</td>
</tr>
</tbody>
</table>

| Increasing the price of alcohol                                     | -0.0143                          | -0.0204                             | 0.5881                    | 0.0214                  | 0.1496               |
| Increasing the tax on alcohol products to pay for health, education, and the cost of treating alcohol-related problems | -0.0551                          | 0.0873                              | 0.5234                    | 0.0423                  | 0.2124               |
| Reducing the number of outlets that sell alcohol                    | 0.1638                           | -0.0447                             | 0.4224                    | -0.0351                 | 0.2311               |

| Increasing the size of standard drink labels on alcohol containers   | -0.101                           | 0.52                                 | 0.0466                    | 0.0597                  | 0.3124               |
| Requiring information on national drinking guidelines on all alcohol containers | -0.0492                          | 0.5241                              | 0.0224                    | 0.0501                  | 0.2454               |
| Limiting advertising for alcohol on TV until after 9.30pm           | 0.1253                           | 0.4586                              | -0.1248                   | -0.0228                 | 0.3336               |
| Banning alcohol sponsorship of sporting events                       | 0.0762                           | 0.4438                              | 0.0628                    | -0.1102                 | 0.3242               |

| More severe legal penalties for drink driving                       | 0.0015                           | -0.0043                             | -0.0247                   | 0.4961                  | 0.4278               |
| Stricter enforcement of the law against serving customers who are drunk | 0.1943                           | 0.0217                              | -0.1367                   | 0.3688                  | 0.3436               |
| Raising the legal drinking age                                      | 0.1428                           | -0.1087                             | 0.1839                    | 0.2257                  | 0.5049               |
| Stricter enforcement of law against supplying minors                | 0.0287                           | 0.0318                              | -0.0329                   | 0.4967                  | 0.32                 |
| Support for regulation of supply to minors on private premises      | -0.1201                          | 0.0056                              | 0.1742                    | 0.4973                  | 0.3973               |

\textsuperscript{a}Rotation method: direct oblimin; \textsuperscript{b}Extraction method: principle components analysis.
Supplementary Table 2 presents linear regression models predicting alcohol policy support based on experience of each of the three harm measures independently rather than the derived harm variable (Table 4). The multivariate analyses (MV) showed mean policy support scores for those who experienced verbal and those who experienced physical abuse did not differ from those who did not experience the respective harms. Furthermore, respondents who were put in fear were significantly more supportive of restrictive policies than those who were not put in fear ($\beta = 0.16, p <0.001$). These results indicate it is indeed the experience fear of someone has been drinking, rather than verbal or physical abuse, which motivates stronger support for alcohol policies.

**Supplementary Table 2:** Bivariate and multivariate linear regression models predicting support for alcohol policies based on experience of verbal abuse, physical abuse, and fear because of others’ drinking (N = 19,240).

<table>
<thead>
<tr>
<th></th>
<th>Alcohol-free space and events</th>
<th>Price and availability</th>
<th>Promotions and warnings</th>
<th>Hazardous behaviour</th>
<th>Overall$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$BV$</td>
<td>$MV$</td>
<td>$BV$</td>
<td>$MV$</td>
<td>$BV$</td>
</tr>
<tr>
<td>Verbally abused</td>
<td>-0.27***</td>
<td>-0.03</td>
<td>-0.26***</td>
<td>-0.04</td>
<td>-0.12***</td>
</tr>
<tr>
<td>(vs. not verbally abused)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physically abused</td>
<td>-0.32***</td>
<td>-0.07*</td>
<td>-0.27***</td>
<td>0.00</td>
<td>-0.17***</td>
</tr>
<tr>
<td>(vs. not physically abused)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Put in fear</td>
<td>-0.02</td>
<td>0.18***</td>
<td>0.03</td>
<td>0.19***</td>
<td>0.08***</td>
</tr>
<tr>
<td>(vs. not put in fear)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$ $p<0.05$; $^{**} p<0.01$; $^{***} p<0.001$; $BV$ – weighted unadjusted bivariate beta coefficients; $MV$ – weighted multivariate regression beta coefficients adjusted for sex, age, household income, education, remoteness, alcohol consumption, delinquent or hazardous behaviour$^b$ and other types of harm from others’ drinking; $^a$Overall encompasses all 18 policy questions; $^b$ Respondents who reported creating public nuisance or disturbance, damaging property, stealing, verbal and physical abuse, and/or driving a motor vehicle while under the influence of alcohol.
Supplementary Table 3 depicts the bivariate (BV) and multivariate (MV) linear regressions predicting overall level of support for stricter alcohol policies in men and women according to experience of alcohol-related harm to others and from others in the last 12 months. Being put in fear regardless of whether respondents were abused because of others’ drinking was associated with increased support for alcohol policies in both men and women, after adjusting for respondents’ demographics, alcohol consumption and delinquent or hazardous behaviour. Larger and more statistically significant effects sizes indicated being put in fear because of others’ drinking may be a stronger motivator for supporting alcohol policies in men than in women. In both men and women, experiencing abuse but not fear as a result of others’ drinking was not associated with a change in level of support for alcohol policies compared to those who did not experience harm.

**Supplementary Table 3:** Bivariate and multivariate linear regression models predicting overall level of support for alcohol policies based on experience of alcohol-related harm to others, or from others, among men (N = 8,555) and women (N = 10,685).

|                        | Overall
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
</tr>
<tr>
<td></td>
<td>BV</td>
</tr>
<tr>
<td>Delinquent or hazardous behaviour (vs. no delinquent or hazardous behaviour)</td>
<td>-0.53***</td>
</tr>
<tr>
<td>Put in fear but not abused (vs. no harm)</td>
<td>0.27***</td>
</tr>
<tr>
<td>Put in fear &amp; abused (vs. no harm)</td>
<td>0.01</td>
</tr>
<tr>
<td>Abused but not put in fear (vs. no harm)</td>
<td>-0.25***</td>
</tr>
</tbody>
</table>

* p<0.05; ** p<0.01; *** p<0.001; BV – weighted unadjusted bivariate regression beta coefficients; MV – weighted multivariate regression beta coefficients adjusted for sex, age, household income, education, remoteness, alcohol consumption and delinquent or hazardous behaviour; Overall encompasses all 18 policy questions; Respondents who reported creating public nuisance or disturbance, damaging property, stealing, verbal and physical abuse, and/or driving a motor vehicle while under the influence of alcohol; Abused includes respondents who said they were physically and/or verbally abused.