



# The effects of responsible drinking messages on attentional allocation and drinking behaviour



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## HIGHLIGHTS

- We evaluate the effects of responsible drinking messages in a simulated bar.
- Display of posters with responsible drinking messages led to increased consumption.
- Brief responsible drinking advice reduced the negative impact of the posters.
- Eyetracking data shows participants did not attend to health messages in posters.
- Researchers need to develop and refine methods for evaluating health campaigns.

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## ABSTRACT

**Aims:** Four experiments were conducted to assess the acute impact of context and exposure to responsible drinking messages (RDMs) on attentional allocation and drinking behaviour of younger drinkers and to explore the utility of lab-based methods for the evaluation of such materials.

**Methods:** A simulated bar environment was used to examine the impact of context, RDM posters, and brief online responsible drinking advice on actual drinking behaviour. Experiments one ( $n = 50$ ) and two ( $n = 35$ ) comprised female non-problem drinkers, whilst Experiments three ( $n = 80$ ) and 4 ( $n = 60$ ) included a mixed-gender sample of non-problem drinkers, recruited from an undergraduate student cohort. The Alcohol Use Disorders Identification Test (AUDIT) was used to assess drinking patterns. Alcohol intake was assessed through the use of a taste preference task.

**Results:** Drinking in a simulated bar was significantly greater than in a laboratory setting in the first two studies, but not in the third. There was a significant increase in alcohol consumption as a result of being exposed to RDM posters. Provision of brief online RDM reduced the negative impact of these posters somewhat; however the lowest drinking rates were associated with being exposed to neither posters nor brief advice. Data from the final experiment demonstrated a low level of visual engagement with RDMs, and that exposure to posters was associated with increased drinking.

**Conclusions:** Poster materials promoting responsible drinking were associated with increased consumption amongst undergraduate students, suggesting that poster campaigns to reduce alcohol harms may be having the opposite effect to that intended. Findings suggest that further research is required to refine appropriate methodologies for assessing drinking behaviour in simulated drinking environments, to ensure that future public health campaigns of this kind are having their intended effect.

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## 1. Introduction

Public health campaigns which aim to educate individuals regarding the potential harms of alcohol and how to drink in a responsible manner are one of the first lines of defence against alcohol-related harms

(Marlatt & Witkiewitz, 2010). Fear based campaigns designed to manipulate the threat experienced when an individual considers taking action have been questioned (Ruiter, Abraham, & Kok, 2001). Work has shown that the presentation of fear evoking information whilst creating increased accessibility of harm-related thoughts (e.g. Jessop, Albery, Rutter, & Garrod, 2008) will also result in increased intentions to drink (Jessop & Wade, 2008) and smoke (Hansen, Winzeler, & Topolinski, 2010) as well as increasing pre-existing smoking cravings (Arndt

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et al., 2013). Whilst this effect has been shown in the context of fear-related information, little evidence has accrued for the operation of this type of effect in messages framed to engender responsible behaviour. Responsible drinking messages (RDMs) are commonly conveyed as a subcomponent of industry marketing materials (e.g. 'Drink Responsibly' messages printed on posters) as well as more directly through public health media campaigns. Evaluations of RDM campaigns suggest that they are effective in improving knowledge of the principles of responsible drinking behaviour (Kalsner, Clarke, & Wogalter, 1993), that they may be effective in improving drinkers' knowledge about the effects of alcohol (Fenaughty & MacKinnon, 1993), and may lead to greater intentions to drink responsibly (York, Brannon, & Miller, 2012). However, no research to date has explored whether such changes in knowledge, belief or intention actually achieve their aim of making prospective drinking behaviour 'more responsible'. One review concluded that there is little evidence for the effectiveness of media-based responsible drinking campaigns in terms of changing drinking behaviour (Anderson, Chisholm, & Fuhr, 2009; Wakefield, Loken, & Hornik, 2010). Our own research demonstrates that the association between knowledge of responsible drinking, the harmful consequences of alcohol misuse, and actual drinking behaviour is complex. We reported high rates of harmful/hazardous drinking amongst medical students, despite this cohort demonstrating a high level of knowledge of alcohol-related harms and responsible drinking guidelines (Moss, Dyer, & Albery, 2009).

Schilling and McAlister (1990) discussed some of the difficulties involved in evaluating media-based public health campaigns, noting that attempts to discern whether individual-level changes in drinking are due to a direct effect of a campaign, or multiple other factors, is fraught with methodological difficulties. In particular, lab-based evaluations lack ecological validity and retrospective reports of drinking can be unreliable (although the use of in vivo measures using mobile phone technology may offer a more reliable means of assessment in drinking contexts, see Monk & Heim, 2014). It has been argued that the effects of being in an alcohol-related context for priming the operation of related cognitions (e.g. expectancies) is fundamental in explaining differential alcohol consumption patterns seen in "wet" versus "dry" conditions (Lau-Barraco & Dunn, 2009; Roehrich & Goldman, 1995; Wall, McKee, & Hinson, 2000). The role of context in the operation of alcohol-related cognitions and drinking behaviour has been highlighted across a number of studies. For instance, in assessing whether an individual's attentional preference for alcohol-related cues generalised to conditions outside of the laboratory, Schoenmakers and Wiers (2009) demonstrated decreased attentional preference relative to the amount of alcohol consumed in a bar environment but that urges and cravings to drink were maintained as a function of amount consumed. This evidence showed that when a person has started to consume alcohol in a relevant environment, the need to search out alcohol-related cues diminishes but the desire to drink is maintained or exacerbated with increasing intoxication. Other work showed that participants who viewed a panoramic (widescreen) video of a lecture hall or a bar whilst completing consumption-related measures (Monk & Heim, 2013a), and who completed measures in a lecture hall or in a real bar (Monk & Heim, 2013b), showed more positive alcohol expectancies and decreased perceived control in the bar conditions.

In this paper we report a series of studies undertaken in a bespoke simulated bar environment. This type of environment has been shown to be useful for examining the accessibility and activation of alcohol-related cognitions and alcohol consumption behaviour in a context which provides a degree of experimental control, whilst more closely approximating actual drinking situations for the participant (Wall, Hinson, McKee, & Goldstein, 2001; Wigmore & Hinson, 1991). Specifically, we explored the effects of context and RDM materials (taken from a national campaign in the UK funded by the Drinkaware Trust to reduce alcohol-related harm) on young drinkers' alcohol intake. In experiments 1 and 2 we recruited a female-only sample, given the

relatively greater risks associated with female binge drinking (Gill & O'May, 2006), to validate our simulation methodology and examine any effects of an RDM poster campaign respectively. In experiment 3, we examined the effects of two different components of an existing RDM in a mixed-gender sample. Finally, an eyetracker was used to determine how participants engaged with health messages presented in RDMs and the impact that this had on drinking.

## 2. Experiment 1: validation of a simulated bar environment

### 2.1. Method

#### 2.1.1. Participants

Fifty non-problem drinking female participants ( $M_{\text{age}} = 23.8$  years,  $SD = 4.4$ , range = 18–28) took part in a taste preference task (TPT) in return for course credit. Potentially dependent drinkers scoring higher than 21 on the Alcohol Use Disorders Identification Test (AUDIT, Saunders, Aasland, Babor, & Grant, 1993) were excluded from participation. The mean AUDIT score for included participants was 8.53 ( $SD = 3.64$ , range = 2–18).

#### 2.1.2. Design

The independent variable in this study was Context (Bar vs. Lab). The dependent variables were total amount of non-alcoholic beer/wine (millilitres) and the total amount of cola (millilitres) consumed during a TPT. Presentation order of beer, wine and cola was counterbalanced across participants. The reason for using non-alcoholic beverages was that study did not require the administration of alcohol, only the perception that the beverages contained alcohol.

#### 2.1.3. Materials

**2.1.3.1. Simulated bar.** A purpose-built laboratory facility was created to resemble a bar-like environment with a 6 ft by 5 ft bar counter and bar stools, beer taps, and other alcohol-related paraphernalia displayed. Participants taking part in the TPT in the bar condition were sat at the bar counter. Another room in the psychology laboratory was used for the lab context condition. These rooms were of similar size and on the same side of the building, ensuring a near-identical view from the window.

**2.1.3.2. Taste preference task (TPT).** Participants were provided with two different brands each of non-alcoholic beer, non-alcoholic white wine, and cola. The inclusion of soft drinks in this task provides a means of assessing whether changes in drinking are specific to particular beverage categories. Two hundred millilitres of each beverage were given (a combined total of 1200 ml). Beverages were served in plain 330 ml drinking glasses. Participants were asked to evaluate each beverage using 5-point Likert scales related to different characteristics of the drinks (e.g. flavour, aroma, etc.), and to indicate which beverage in each pair they preferred. There were a total of 5 rating scales per beverage type, with each Likert scale being specific to the beverage (e.g. for wine, one scale ranged from 'Dry' to 'Sweet'). These ratings were intended to provide credibility to the TPT, such that participants would believe we were interested in their evaluation of these characteristics, rather than volume consumed. Participants were instructed that they should drink as much of each as necessary to make a comparison and provide each rating. The experimenters allowed a maximum of 15 min to complete the TPT, though in practice in this and all subsequent studies, participants all finished the task more quickly than this. All participants were led to believe that the beverages were alcoholic. In this and the two subsequent experiments, qualitative data from funnelled debriefing interviews (see Procedure section, below) suggested that participants were not aware that the beverages were in fact non-alcoholic.

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