

How preferences for volume-based promotions differ between at-risk and non-problem female drinkers

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Abstract

Background: Previous work has indicated that volume-based promotions encourage greater alcohol consumption. We report on a novel experimental approach that examined whether volume-based promotions, such as “Buy 1 Get 1 Free”, were selected more frequently than a simple 50% price discount among a sample of young adults who were differentiated by their levels of alcohol use. **Method:** 90 female university students took part in an online survey where they were asked to select either a volume- or price-based deal for alcohol or non-alcohol products. All respondents were grouped as either non-problem or at-risk drinkers based on their response to the Alcohol Use Disorders Identification Test (AUDIT). For both product types all decisions were collapsed into a simple binary outcome variable that indicated whether they preferred volume-based products or not. Chi-squared tests were run to assess the differences in preference for volume-based promotions between the two alcohol groups, for both alcohol and non-alcohol products. **Results:** Participants who were identified for at-risk drinking were significantly more likely to express a preference for volume-based alcohol offers than non-problem drinkers. In contrast, no significant difference was observed for non-alcohol products. **Conclusion:** This result provides the first insight on the possible differential preference for volume-based alcohol promotions between non-problem and at-risk drinkers. This work, and future studies will contribute to the development of policies regarding the regulation of promotions that are likely to have a greater appeal to at-risk drinkers.

Keywords: alcohol, marketing, Australia, pricing, promotion.

Introduction

Product promotions – which include price - (e.g., 50% off) or volume-oriented promotions (e.g., Buy one get one free or Buy two get 50% off) - have been shown to influence consumer behaviour and are frequently used by retailers. Several studies have associated point-of-sale alcohol promotions and price reductions with increased consumption and higher occurrence of binge drinking among both adults and young adults (Gardiner & Coase, 2011; Jones, Barrie, Robinson, Allsop, & Chikritzhs, 2012; Pettigrew et al., 2015). These studies, and others like it, contributed to the rationale for a 2011 legislation change in Scotland where a ban on volume-based alcohol promotions resulted in a 2.6% reduction in off-trade sales (Robinson et al., 2014). Although it should be noted Purshouse, Holmes and Meier (2014) have argued whether such efforts have resulted in detectable reductions in alcohol consumption. Additionally, these authors commented upon the lack of evidence regarding the influence of volume-orientated alcohol promotions on consumer behaviour.

Research has shown that consumers' preferences are influenced by the framing of presentations, even when they are equivalent in terms of unit cost (Smith & Sinha, 2000). As such, the use of volume promotions (also referred to as multi-buy) for the sale of alcohol is an area of research interest. There is some evidence that these promotions encourage greater consumption among young adults as the 'free' alcohol is seen as a bonus among this cohort, who are frequently targeted in advertising campaigns (Hastings et al., 2009; Jones & Smith, 2011). A relevant question here is whether these volume-based alcohol promotions are more persuasive for individuals at risk for alcohol misuse. For example, will preference for volume-based promotions versus price discounts differ by an individual's self-reported alcohol use? There is no extant research, however, that has attempted to determine whether there is an association between an individual's alcohol use and their preference for different alcohol promotions.

In this paper we examine whether the preference for volume-based promotions is comparable between two groups of young adults differentiated by their alcohol use. It is hypothesized that at-risk individuals will express a greater preference for volume over price-based alcohol promotion deals than those who report non-harmful alcohol use.

Methods

One hundred and eleven participants were originally recruited from a University population via flyers advertising a 10-min online survey, with an AUD100 voucher prize draw as a participation incentive. However, due to an unrepresentative gender distribution in this sample (81% female) males were excluded from the analysis. The final sample consisted of 90 female university students. Ethics approval was gained through the University of Wollongong Human Research Ethics Committee. As this was a pilot study to test the feasibility of a novel experimental approach, a power analysis was not conducted.

Participants were asked several demographic questions at the start of the survey, including age and employment status. Socio-economic status was determined from the participants' postcode and based on the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), one of the Socio-Economic Indexes for Areas (SEIFA). Deciles of the IRSAD were used, where lower deciles indicate more disadvantage (Pink, 2006). These deciles were collapsed into two SES groups; low/middle (1 - 7) and high (8 - 10).

Alcohol use was assessed using the total score from the 10-item Alcohol Use Disorders Identification Test (AUDIT) scale (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). Each item on the AUDIT is scored from 0 to 4, providing a possible range of 0–40 points, with a higher score indicating heavier drinking. The standard cut-off score was used to categorise participants into two groups: at-risk drinkers (AUDIT \geq 8), or non-problem drinkers (AUDIT $<$ 8) (Sanders et al., 1993).

As a proxy measure of perceived utility (Smith & Sinha, 2000), participants were asked to identify the deal they felt provided the “best value” for a product. Each participant was required to select one of two promotional deals for each product. Of the two deals, one was a price promotion (50% off) and the other was a volume promotion (comprising two similar offers: “Buy 1, get 1 free” or “Buy 2, get 50% off”). Although the price and volume deals were comparable with regard to unit price, they differed in emphasis, with the former focusing on the reduced cost and the latter focusing on the larger volume as part of the promotion. These deals are consistent with previous research in supermarket product promotions (Smith & Sinha, 2000). The two promotional deals were compared against each other, providing a price versus volume comparison per product.

Each of the four products used in this study were presented twice, requiring eight decision choices per participant. Two of these products were alcoholic products (case of beer and a six-pack of mixed drinks) and two were everyday non-alcoholic products (lunch offer and USB flash drive). Each participant was provided with example images of the product (e.g., a case of beer) along with the two promotional deal options.

The primary outcome of this study was a simple binary criterion that indicated the focus of an individual's deal preferences (volume versus price/spilt). For each of the two product types (alcohol and non-alcohol) participants were scored as volume-oriented if 75% or more of their choices were "Buy 1, get 1 free" or "Buy 2, get 50% off" (see Fig.1). All other participants were classified into one group encapsulating a lack of preference for volume-based promotions, which included split decisions (scoring 50% on volume-based promotions) or price-oriented (scoring 75% - 100% on price-based comparison).

<insert figure 1 here>

Comparisons between the two alcohol use groups were made the non-parametric Mann-Whitney U, Pearson's Chi-squared and Fisher's Exact Tests where appropriate. Furthermore, to examine the association between volume-based promotion preference and at-risk drinking behavior, we used a logistic regression analysis to calculate the unadjusted and adjusted odds ratios (controlling for age, IRSAD and employment status) for both product types (alcohol and non-alcohol). Logistic regression diagnostics were tested on both models and were satisfactory (Hosmer, Hosmer, Le Cessie, & Lemeshow, 1997). A significance level of $p < 0.05$ was used, and all analyses were performed using STATA 14 (StataCorp, 2015).

Results

The participants were aged between 18 and 25 years (mean 21 ± 1.8 years). Approximately one-quarter of the participants were not currently in paid employment (21%; $n = 19$), with the remainder either working on a casual basis (57%; $n = 51$) or working full- or part-time (22%; $n = 20$). Approximately fifty-six percent ($n = 50$) of the participants were classified as non-problem drinkers, with the remainder classified as at-risk drinkers (44%; $n = 40$).

<insert figure 2 here>

Fig. 2 shows a breakdown of the proportion of participants who expressed a preference for volume-based alcohol promotions, by drinking status. It shows the increased tendency for at-risk drinkers to favour volume-based alcohol promotions. In contrast, there was no such relationship for non-alcohol products. Chi-squared tests were used to further examine the relationships between the two alcohol use groups and product choice. When responses were collapsed into either volume preference or not, participants who were identified for at-risk drinking were significantly more likely to express a preference for volume-based alcohol offers than non-problem drinkers ($\chi^2 = 5.89, df = 1, p = 0.02$). However, the two alcohol use groups did not differ significantly in their preferences for non-alcohol promotional offers ($\chi^2 = 1.60, df = 1, p = 0.21$).

The results of the logistic regression analysis are shown in Table 1. In both unadjusted and adjusted analyses, at-risk drinking was significantly associated with a threefold increase in the preference for volume-based alcohol promotions. This association was not observed for non-alcohol promotions. The logged odds ratio for the association between at-risk status and volume-based alcohol promotions was calculated to be 1.06, which is considered to be a small effect size (Lipsey & Wilson, 2001).

<insert table 1 here>

Discussion

This is the first experimental study to provide preliminary evidence that volume-based alcohol promotions are preferred by young adult females at a greater risk of harmful alcohol use. This research adds to the literature regarding the use of volume-based promotions and highlights its potential attractiveness for at-risk alcohol users. The preference is understandable, given these individuals seem to consume greater quantities of alcohol, and therefore more likely to be incentivized by volume-based promotions. This finding also lends support to legislative efforts, such as that taken by the Scottish Government in 2011, where

such promotions are considered to be actively encouraging people to purchase more alcohol than they originally intended. Another important aspect of our study is that it demonstrates a methodological approach that can be used to quantify the effect of different alcohol promotions on purchasing preferences.

At this point, it should be noted that the study implications are constrained both by the small effect size and the non-representative sample. In this study, we found 59% of the at-risk drinkers preferred volume-based alcohol promotions. Future implementations of this experimental approach should aim to increase both its sensitivity and flexibility. Such efforts could include incorporating alcohol brands that the participant is familiar with and manipulating price points, which may influence whether a participant is volume or price deal oriented (Smith & Sinha, 2000). A follow-up study that recruits a representative sample of both genders is a clear priority, especially as male-female differences have been shown in relation to both alcohol and food consumption (Wansink & Kniffin, 2016; Wilsnack, Vogeltanz, Wilsnack, & Harris, 2000). Furthermore, we did not ask participants how they understood the “what deal gives you best value” question. Cognitive testing of this question could reveal difficulties in interpretation that may have affected the results. Future use of this approach will address these issues to substantiate our results and explore this effect in more detail. An important aim to consider, if similar effects are detected, would be to validate these findings in the field (i.e., actual consumer shopping behaviour towards alcohol promotions).

In conclusion, this pilot study has addressed an aspect of the current debate regarding alcohol promotions. It has provided the first insight on the possible differential effect of alcohol use on an individual’s preference for volume-based promotions. As such, this study may offer direction for future research that could inform the development of policies regarding the regulation of promotions that are likely to have a greater appeal to at-risk drinkers.

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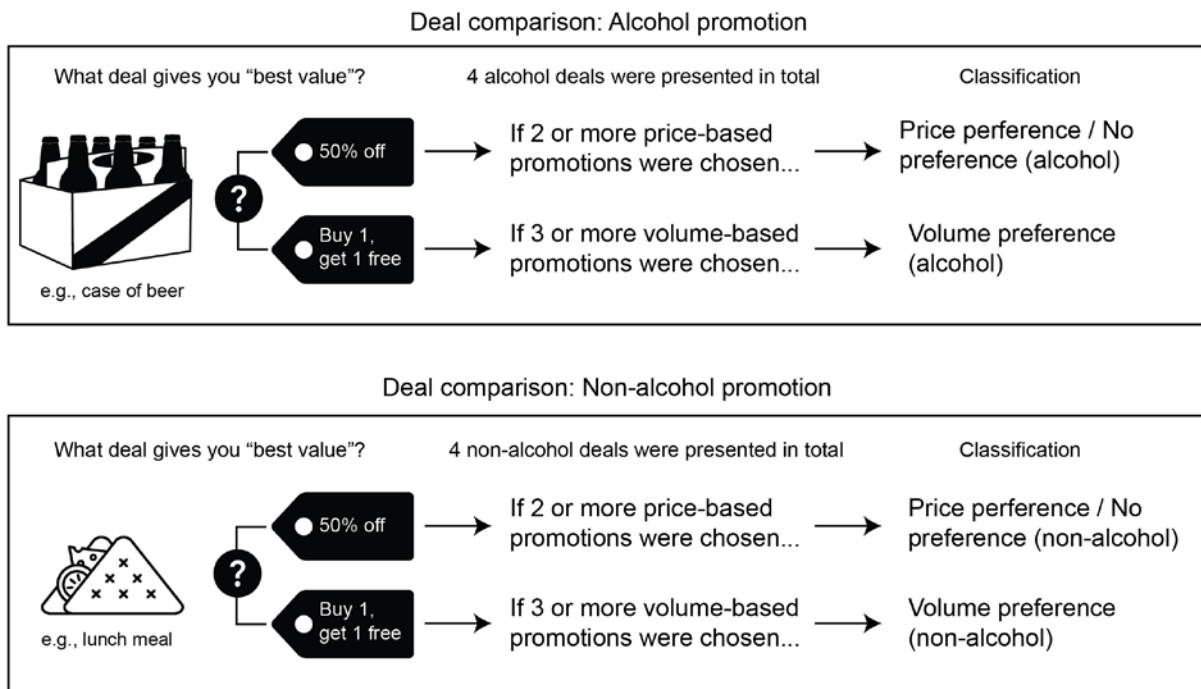
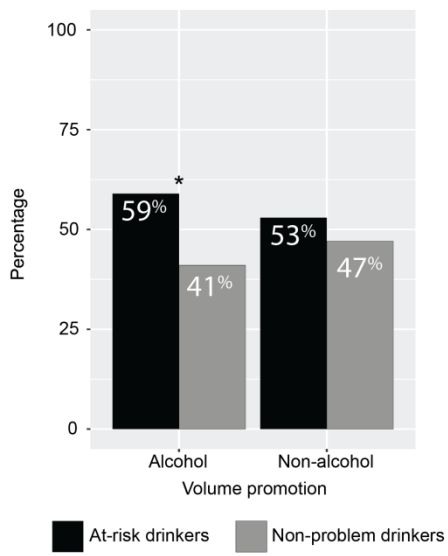


Fig. 1. Study outcome variable: classification of volume preference (or not) for alcohol and non-alcohol products



* $p < 0.05$

Fig. 2. Percentage of volume preferences by alcohol use risk

Table 1. Bivariate and multivariate analysis of volume-based promotions by covariates (N = 90).

Variable	Overall	Alcohol deal: volume preference (43%; 39/90) ^a			Non-alcohol deal: volume preference (38%; 34/90) ^a		
		N reporting outcome	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)	N reporting outcome	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Age, years	21± 2.0	21± 2	1.09 (0.87-1.38)	1.13 (0.89-1.45)	21± 2.0	0.79 (0.61-1.01)	
Socio-economic status							
High	30% (27/89)	28% (11/39)	1.00	1.00	30% (10/33)	1.00	1.00
Low/Middle	70% (62/89)	72% (28/39)	1.20 (0.48-2.99)	1.70 (0.62-4.64)	70% (23/33)	1.00 (0.39-2.56)	1.08 (0.40-2.89)
Employment							
Not working	21% (19/90)	15% (6/39)	1.00	1.00	18% (6/34)	1.00	1.00
Working	79% (71/90)	85% (33/39)	1.17 (0.90-1.53)	2.01 (0.64-6.33)	82% (28/34)	1.41 (0.48-4.15)	1.11 (0.35-3.48)
AUDIT score ≥8	44% (40/90)	59% (23/39)*	2.88 (1.21-6.82)*	3.19 (1.29-7.93)*	53% (18/34)	1.73 (0.74-4.11)	1.70 (0.69-4.19)

* p < 0.05

^a Percentage indicates a preference for volume deals and less interest in price-only discount deals.