The explanatory roles of habit and intention on alcohol consumption by adults at home

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Abstract

Aims: The aim of this paper is to investigate the role of intention and habit in predicting adults' drinking behaviour within the home setting.

Measures: A convenience sample of 414 Australians aged between 35 and 60 were recruited through targeted Facebook advertising. Eligibility criteria for study participation included reporting consuming alcohol at least once a week at home. Participants completed self-report measures of alcohol consumption, habit strength regarding home drinking behaviour, and intentions to consume alcohol. Differences in home drinking controlling for age and gender, by level of habit, and intention were examined using ANCOVA.

Results: Increases in intention were associated with an increase in home drinking. However, with habit and intention entered in the same model, only habit was a significant predictor of the amount of alcohol consumed in the home. For Australians, habit is a stronger predictor of alcohol consumption than intention.

Conclusions: Given that a large proportion of people are doing the majority of their drinking when at home, home-based interventions which target the habitual nature of home consumption may help to reduce consumption and related harm.

Introduction

Alcohol has a substantial impact on the health and wellbeing of Australians (Laslett et al., 2010). While the majority of Australians drink within the recommended guidelines, i.e. no more than two standard drinks (10 grams of alcohol) on any one day (National Health and Medical Research Council, 2009), 56% of all standard drinks has been found to be consumed above the guidelines (Callinan, Livingston, Room & Dietze, 2018). The proportion of alcohol consumed outside the Australian guidelines is higher for off-premise than on premise consumption (Callinan et al., 2018). In particular, the home has been found to be a common location for the most recent heavy drinking occasion (Callinan, Livingston, Dietze & Room, 2014; Dietze, Livingston, Callinan & Room, 2014). Thus, a large proportion of the long-term harm from drinking, for example cancer, is attributable to alcohol consumption in the home. Given that drinkers aged over 35 years consume over 70% of their alcohol in this private space, more work is needed to investigate alcohol consumption in this setting (Callinan,

Livingston, Room & Dietze, 2016; Callinan et al., 2018). This paper aims to provide an exploratory examination of the decision-making processes – intention and habit – underlying individuals' drinking behaviour within the home.

Intention – the degree to which one is prepared to deliberately exert effort to carry out a behaviour (Fen & Sabaruddin, 2008) – has been suggested as an important determinant of drinking behaviour. Based on the assumptions of the Theory of Planned Behaviour [TPB] (Ajzen, 2001), the stronger an intention is to engage in a behaviour, the more likely it is that the behaviour is performed. In a meta-analysis of 40 studies on TPB and alcohol consumption, Cooke, Dahdah, Norman and French (2016) found that intention and alcohol consumption were strongly correlated (r=.54). There is no shortage of TPB research which has concentrated on heavy episodic drinking behaviour (Collins & Carey, 2007; Norman & Conner, 2006; Cooke et al., 2016) and on the link between intentions and alcohol-related behaviours specifically (Todd & Mullan, 2011; Marks Woolfson & Maguire, 2010). For example, Norman (2011) found that the TPB explained 75% of the variance in students' binge-drinking intentions. However,

there is a lack of current research which has applied the TPB to investigate more regular (at least once a week) drinking in the home using middle-aged or older samples. This is despite the home being a setting where adults spend a large amount of their leisure time and which is shared with others (partner, children etc.) who may also be negatively impacted by consumption (Laslett et al., 2010).

Despite the common application of TPB and intentions to alcohol-related behaviours, it has been subject to criticism, e.g., its inability to account for past behaviour (Conner & Armitage, 1998; Norman, 2011). Past behaviour usually exerts its influence on future behaviour through habits, which have been implicated in the initiation and execution of a wide range of everyday behaviours (Kaushal & Rhodes, 2015; McGowan et al., 2013; Norman, 2011). A habit is formed when a behaviour is repeatedly carried out within a consistent context, allowing for a specific behaviour-context association to be formed (Lally, Van Jaarsveld, Potts & Wardle, 2010). Once an association is established, the mere perception of the context itself can act as a cue triggering the initiation of a behaviour (Neal, Wood & Quinn, 2006). Several studies have examined the association between habit and alcohol consumption finding drinking related behaviour to be, at least in part, habitual (Morean et al. 2018; Ray et al. 2020). For example, in examining college students' consumption, habit was found to be positively associated with the amount of alcohol consumed (Albery, Collins, Moss, Frings, & Spada, 2015). Furthermore, in a qualitative investigation, Brierley-Jones and colleagues (2014) found that for female drinkers who usually consumed wine, often while carrying out domestic/family responsibilities (housework, childcare, cooking, etc.), drinking had become embedded into home life and as such, habitual. Despite nearly two-thirds of alcohol being consumed in the home in Australia (Callinan et al., 2016) little work has been done on how people think about their drinking in the home.

The most common and best supported relationship between intention and habit is a positive association between the two variables. A positive relationship is most likely because a habit develops out of the repeated performance of a specific behaviour that was initially a planned action (Neal, Wood, Labrecque & Lally, 2012). When a habit develops in such a way, the behaviour may still be intentional, but control over the initiation of the behaviour may be 'transferred' away from the person and deliberative thought processes, and over to contextual cues within the environment (Gardner, 2015). In support of this, Norman (2011) had found a statistically significant positive association between intention and habit ($r=.70$), and habit was found to explain an additional 6% of variance in binge-drinking behaviour, over and above the TPB variables. The authors concluded that binge-drinking behaviour may therefore be controlled by both intentional and habitual processes. Given the frequency with which older people drink at home, it is possible that home drinking may be repeated over time so that it becomes habitual. Again, to the best of our knowledge no studies have investigated how much intention might be driven by habit in models of behaviour. Furthermore, how habit and intention interact to predict behaviour has not often been explored. This could provide critical evidence on the drivers of home

drinking that could inform prevention and intervention efforts, particularly in a setting that is rarely targeted by such strategies.

While habit and intention have been extensively examined in the alcohol research literature (Morean et al. 2018; Ray et al. 2020; Norman 2011; Norman & Conner 2006), little research has considered intention and habit, and their associations with home drinking simultaneously. This exploratory study brings together these two bodies of work to provide a preliminary investigation of the decision-making processes of drinkers who have in the past 12 months regularly consumed alcohol in their home (drink at least once a week). Following TPB, we hypothesise that (1) intention to drink is positively associated with home drinking behaviour. It is further hypothesised that (2) intention's positive association with alcohol is no longer significant when habit is considered, and that habit is a stronger predictor of home drinking behaviour.

Method

Participants

A convenience sample was recruited using a targeted advertisement placed on the Facebook user profiles of Australians aged 35–60 years in 2017. Obtaining data via Facebook advertisements is becoming increasingly popular and has been shown to have several advantages; for example, it is more likely to yield an engaged sample at a low cost in comparison to traditional methods, i.e., using landline phones (Fenner et al., 2012). As potential remuneration for those who completed the survey, respondents were given the opportunity to enter a draw to win one of two $50 gift vouchers. In total, 614 individuals agreed to participate anonymously and met the inclusion criteria of being Australian, aged 35–60 years, and had consumed alcohol at least weekly in their own home. Data inspection revealed that 200 of these individuals did not complete the survey in full but only provided demographic information; these respondents were excluded from the study leaving 414 respondents in the final sample. Comparisons between those who completed the full questionnaire and those who dropped out revealed that dropouts were slightly older than those included in the study (OR=1.04; 95% CI=1.02–1.07), no differences were found for gender (OR=0.88; 95% CI=0.55–1.42) and level of educational attainment (OR=1.25; 95% CI=0.72–2.16). The final sample was predominantly female (85%) with a mean age of 46.9 years (SD=7.5). Ethical approval for the study was obtained from the La Trobe University's Human Research Ethics Committee [S17-077].

Measures

Alcohol Consumption

A Graduated Frequency measure was used to assess home drinking within the 12 months prior to the survey. Participants were asked to self-report how often ('every day', '3–4 times a week', '1–2 times a week', '1–3 times a month', '7–11 times in the last 12 months', '3–6 times in the last 12 months', 'twice in the last 12 months', 'once in the last 12 months', 'never in the last 12 months') they had

consumed alcohol in their own home (in Australian Standard Drinks [ASDs]) at a rate of 20+ drinks, 19–11 drinks, 10–7 drinks, 6–5 drinks, 4–3 drinks, 2–1 drinks, and less than 1 drink. The midpoint of each frequency (i.e., *1-2 times a week=1.5 times a week*) and each quantity range (i.e., *5–6 drinks=5.5 drinks*) was used in the calculation of all alcohol estimates. Total alcohol consumption for each participant was then calculated by multiplying the specified amounts of alcohol by the frequency at which they were consumed. These amounts were then summed to give an overall estimate of home consumption per respondent, and these estimates were then averaged across all respondents to obtain an overall sample mean consumption figure.

Intention to Drink

We assessed participants' intention to drink alcohol using a four item self-report questionnaire. Following Ajzen's (2001) recommendations, the wording and response options for the items were designed specifically to suit home drinking. All items were designed according to the TACT principle (target, action, context, time) which helps to further refine items and reduce the ambiguity in respondent interpretation. Examples of questions include *"Over the last 12 months, how often did you intend to drink alcohol at home?"* or *"Over the last 12 months, how often did you plan to drink alcohol at home?"* where nine response options range from "never" to "everyday or nearly everyday". Cronbach's alpha scores indicated that the scale α=.80 was suitable for use within the present study.

Habit

To assess habit strength in relation to home drinking behaviour, the Self-Report Habit Index was used (SRHI; Verplanken & Orbell, 2003). The SRHI comprises 12 items measuring three key aspects of habit including behavioural automaticity, behavioural frequency, and identity expression. The questions started with "In the last 12 months, drinking alcohol at home was something…" and examples of items include *"I did frequently"* and *"I did automatically"*. Seven response options ranging from strongly agree (score=1) to strongly disagree (score=7) are given for each item. In previous studies, the SRHI showed a high test-retest reliability (.91), high internal reliability (.92) and has been validated against other measures of habit strength and used widely throughout health behaviour research (de Bruijn, 2010; Schmidt & Retelsdorf, 2016; Sniehotta & Presseau, 2011; Verplanken & Orbell, 2003). Cronbach's alpha for the habit composite subscale was excellent at α=.94.

Analysis

Data was exported from Qualtrics into Stata Version 15 for analysis (StataCorp, 2017). Habit and intention were used to break respondents into high, medium and low score categories. In order to assess the respective contributions of habit and intention to home-drinking a 3 x 3 analysis of covariance (ANCOVA) predicting home drinking controlling for age and gender was run. To examine how habit and intention potentially interact when predicting consumption an interaction term between these two variables was added to the model.

Results

Descriptive statistics and correlations for the primary variables are given in Table 1. Mean alcohol consumption at home was 2.37 ASDs per day for the 12-month reference period. Intention ($r=.39$) and habit ($r=.52$) were both significantly positively associated with behaviour. There were also significant associations between habit and intention ($r=.58$).

Table 1

Mean Scores, Standard Deviations and Bivariate Correlations.

	M	SD	Int	Habit
Intention	28.59	5.13	-	-
Habit	5.66	18.07	.58*	-
Home drinks per day	2.37	2.70	.36*	0.48*

$N = 414$. *$p<.001$

Results from an ANCOVA, with drinks per day as the dependent variable and intention to drink as the independent variable, are shown in Table 2. As predicted, intention to drink was strongly related to home drinking behaviour, even after age and gender were controlled for. Estimated marginal means of home drinking for low, medium and high intention to drink are shown in Figure 1.

Figure 1

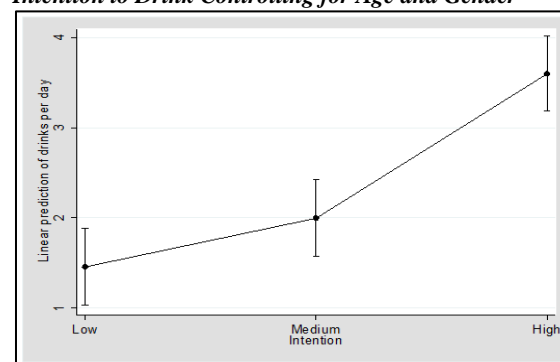***Estimated Marginal Means for Home Drinks Per Day by Intention to Drink Controlling for Age and Gender***

Table 2

Predicting Behaviour Using Low, Medium and High Intention to Drink

Source	df	F	p
Age	25	10.43	.001
Gender	1	0.87	.641
Intention	2	25.51	<.001

$N=414$; $R^2 = 0.19$.

Table 3 below reports results of a 3 x 3 ANCOVA. This test was conducted to assess the influence of intention and habit on home drinking, while controlling for the covariates age and gender. Levene's test of equality of error variances was

statistically significant, $F(8, 405)=11.12$, $p=<.001$. There was no interaction effect between intention and habit, $F(4, 403)=.19$, $p=.94$, and with habit included in the model there was no longer a main effect of intention on home drinking, $F(2, 405)=2.71$, $p=.07$. However, there was a statistically significant main effect of habit on home drinking, $F(2, 403)=25.59$, $p=<.001$, of a medium magnitude (Partial $\eta^2=.12$). This and the moderate correlation between intention and habit shown in Table 1 indicates that the relationship between habit and home drinking may be masked by a relationship between intention and home drinking.

Table 3

ANCOVA of the Factors Level of Intention and Level of Habit on Home Drinking Behaviour.

Source	df	F	p	Partial η²
Age	25	0.75	.807	-
Gender	1	5.99	.015	.02
Intention	2	2.54	.081	-
Habit	2	16.63	<.001	.12
Int. x Habit	4	0.39	.813	-

$R^2 = .26.$, $N = 414$

Discussion

The aim of the current exploratory study was to investigate the role of intention and habit on alcohol consumption in the home. It was hypothesised that an increase in intention would be associated with an increase in home drinking, which was supported. As levels of intention increased, there was a reported increase in home drinking over the 12-month reference period. This finding is consistent with previous research using the TPB model, which indicated that intention is closely related to behaviour, i.e., alcohol consumption (Cooke et al., 2016). Furthermore, in terms of home drinking, there is evidence from the current study to suggest that this behaviour is in part influenced by a conscious and deliberate plan to consume alcohol when at home.

It was also hypothesised that an increase in habit strength would be positively associated with an increase in home drinking, and that habit could explain the apparent positive relationship between intention and consumption. The current findings also offer support for this prediction. Indeed, with habit and intention entered into the model, consumption was no longer positively associated with intention, rather habit was the variable that best predicted home consumption. This finding is in line with previous research which had found habit to significantly predict binge-drinking behaviour (Norman, 2011) and other research that finds that home drinking is habitual (Brierley-Jones et al., 2014) and frequent (Callinan et al., 2016). It appears that the strength of the relationship between intention and behaviour is, at least in part, a reflection of the correlations between intention and habit. When the effect of habit and intention on behaviour were examined together, habit was found to have a strong relationship with consumption. As habit strength increased, significant and large increases in alcohol consumption were

found, regardless of levels of intention. In terms of home drinking, there is evidence to suggest that this behaviour is in part influenced by habitual thought processes, which by extension, implicate the role of home-based contextual cues as triggering the initiation of drinking behaviour.

Other important findings from this study stem from the habit-intention relationship. Habit and intention were moderately correlated ($r=.58$). This finding is in line with previous research which suggests that home drinking is likely to be intentional in the sense that it is goal-driven, but that carrying out the behaviour comes to require less mental effort over time (Brierley-Jones et al., 2014). Consequently, as mental efficiency to carry out home drinking behaviour increases, an awareness of actual consumption may begin to decrease. This finding supports the notion that home-based contextual cues are at play and have influence over the drinking behaviour of those who drink at home on a regular basis.

Implications

Given the propensity towards home drinking for Australians (Callinan et al., 2016), coupled with the harm from consumption (Laslett et al., 2010), the results presented may be food for thought for intervention efforts targeting decision-making processes. Results from the current study suggest that habit may be a suitable target in order to make changes to home drinking. That is, rather than trying to change people's intention to consume alcohol, health promotion campaigns may benefit from encouraging people to take actions to break habits. Furthermore, strategies that target contextual cues, such as changing purchasing patterns that reduce the availability of alcohol in the home, may help to disrupt the automatic cuing of a habitual behaviour. In terms of drinking in the home, health promotion campaigns or interventions that focused on the removal of specific household objects, the breaking of routines, or even the development of new healthier habits to replace those which are associated with drinking alcohol, could be beneficial (Lally et al., 2010; Verplanken & Orbell, 2003). Thus, there is potential scope for the consideration of a habit-based intervention strategy which aims to ultimately change risky home drinking behaviour.

Limitations

There are some important limitations to the present study. First and most important, the study used a convenience sample which was predominantly female, so we cannot generalise these results to the general population. Instead, this study is a preliminary indication of an area of research that needs more examination with more representative samples. Secondly, self-report measures are prone to memory bias and social-desirability bias. However, given that the very nature of using the SRHI is to self-report psychological phenomena, this is an inherent limitation. Finally, the cross-sectional nature of the data limits any inferences of causality and again this means the results presented should be interpreted as very tentative evidence demonstrating the importance of habits in home drinking.

Conclusion

In conclusion, the exploratory work presented here provides one of the first investigations of how habit and intention influence home alcohol consumption, finding habit plays a significant role in predicting levels of home drinking. By including habit, this investigation suggests that drinking cues within the home environment appear to influence drinking behaviour. Given that a large proportion of people are doing most of their drinking when at home, putting themselves at risk of long-term harm, home-based interventions which target the habitual nature of home consumption may help to reduce alcohol-related harm.

Acknowledgments

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