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## **Dark Nudges: Branding Magnifies the Decoy Effect in Alcohol Purchasing Decisions**

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## Abstract

**Objective:** Public health policies aim to reduce alcohol consumption and related harms by controlling the cost and availability of alcohol, yet industry actors seek to position branded beverages appealingly vis-à-vis other products. To inform the development of regulatory strategies, it is important to understand how alcohol branding interacts with seductive pricing strategies to influence purchasing decisions. Towards this aim, the current study examines how the ‘decoy effect’ may operate to modify purchasing decisions for branded alcoholic beverages. **Method:** Ninety-eight social drinkers ( $M_{\text{AUDIT}} = 5.00$ ,  $SD = 4.42$ ) completed an online Decoy Assessment, choosing from a range of (non)branded, (non)alcoholic beverage offers based on price and quantity. These initial purchasing decisions were then re-assessed when a decoy product – offering a quantity in between the two original offers but at a significantly higher price – was introduced into the choice array. **Results:** The decoy modified initial purchasing decisions for alcoholic compared to non-alcoholic beverages, and this effect was exacerbated by alcohol branding. Heightened self-reported alcohol consumption was also associated with a greater change from choices for branded alcoholic beverages. **Conclusions:** When faced with a choice conflict, individuals who consume alcohol may be nudged into selecting more expensive branded alcoholic beverages. These findings may inform the development of alcohol control policies relating to branding and relative pricing/product placement.

**Keywords:** Alcohol consumption; decoy effect; branding; marketing; purchasing decisions; alcohol policy.



## Introduction

Awareness of the health implications and harms associated with alcohol consumption does not appear to dissuade problematic forms of drinking (Kersbergen & Field, 2017a, 2017b; Maynard et al., 2018; Zahra et al., 2015). Research indicates that pictorial warning labels on alcoholic beverages can lead to defensive reactions (i.e., avoidance and reactance; Sillero-Rejon et al., 2018) with minimal changes in the frequency of use and intention to drink (Clarke et al., 2021; Coomber et al., 2015). For this reason, and in view of well-documented health, societal and economic harms (Alcohol & Public Policy Group, 2010), macro-level interventions have been implemented to shape alcohol-related purchasing decisions. A key focus in recent years has been on controlling the spatial and temporal availability of alcohol, such as limiting promotional offers, increasing tax, or mandating minimum sale prices (Hobday et al., 2016; Meier et al., 2016; Wagenaar et al., 2009). The introduction of Minimum Unit Pricing (MUP), for example, has been estimated to reduce alcohol consumption, particularly among heavy drinkers and those from lower socioeconomic backgrounds (Brennan et al., 2014; Holmes et al., 2014a, 2014b; Stockwell et al., 2012).

Despite the apparent effectiveness of price control policies, and barriers towards their implementation aside (e.g., McCambridge et al., 2013a, 2013b; UK Parliament, 2015), alcohol industry actors continue to deploy marketing techniques to encourage purchasing behaviour, creating a formidable barrier to reducing alcohol-related harms. ‘Nudges’, and other behavioral economic approaches, can be

used in this way to exploit common cognitive biases that shape decision making (Thaler & Sunstein, 2008), and when these encourage the consumption of potentially harmful products, they are termed ‘dark’ nudges (Newall, 2019; Petticrew et al., 2020). One example of a (dark) nudge is the *decoy effect* (Huber & Puto, 1983); a phenomenon whereby consumers change their preference between two options when a third option (the decoy) is introduced. To exemplify, imagine two product offers distinguished by two dimensions – price and quantity. A consumer can choose between spending less in return for a smaller quantity of the product (“target”) or more for a higher quantity (“competitor”). Neither of these offers dominates the other because they have equal appeal based on the consumer’s choice to either pay less or buy more. However, if a third decoy offer is then introduced that seemingly offers more quantity than the target but at a higher overall price, then its mere presence can shift the initial choice distribution disproportionately to the competitor (and/or the decoy; Frederick et al., 2014; Scarpi, 2008). The introduction of the decoy has been shown to serve as a marketing tool across a wide range of decision-making domains to increase sales and profitability (e.g., Heath & Chatterjee, 1995; Herne, 1999; Schwartz & Cohen, 2008; Wu & Cosguner, 2020).

In a novel investigation, Monk et al. (2016) investigated whether the decoy effect could influence alcohol purchasing decisions. Participants were asked to choose from a range of alcoholic and non-alcoholic beverage offers that manipulated price and quantity while completing the task in either an alcohol-congruent (pub) or incongruent (library) context. In initial choice arrays, participants were presented with a target (most cost-effective) or competitor (moderate cost-effective) product.

Then, a decoy option was added into the array that represented the least financially viable option. Findings indicated that the introduction of the decoy shifted initial purchasing decisions from the target and competitor towards the decoy itself; an effect that was heightened when participants made their decisions in an alcohol-congruent context. This study was the first to suggest that the placement of subtle decoys can lead individuals to choose the least financially viable offer and potentially influence the appeal of specific alcoholic beverages. Whilst yielding proof of concept, however, the beverages used in this study were stripped of branding. Given that a more nuanced understanding of alcohol marketing is important for guiding regulation policies (see Casswell, 2012; Esser & Jernigan, 2018; Noel et al., 2020), it is useful to learn whether the decoy effect is impacted further by alcohol branding.

Existing research indicates that perceptions of brand quality do indeed moderate the decoy effect in general purchasing decisions (Heath & Chatterjee, 1995; Kim et al., 2006; Sellers-Rubio & Nicolau-Gonzalbez, 2015). Seminal studies show that the inclusion of an inferior decoy brand can shift consumer choice from an identical target brand to a new competitor but *only* when these brands are perceived as low quality; when the target brand is of high quality, decisions appear to be more difficult to nudge (Heath & Chatterjee, 1995; Kim et al., 2006). However, the majority of past studies manipulate branding as an element of the choice dimension itself (e.g., Brand A vs. Brand B), rather than manipulating other product dimensions (e.g., price/quantity) and assessing differences *between* branded and non-branded products.

It is well known that alcoholic beverages are innovatively designed and marketed to heighten their attentional pull (Jackson & Bartholow, 2020; Jernigan, 2009). For example, alcohol industry actors capitalise on bright colours and innovative packaging to grab consumer's attention, in contrast to the tobacco industry which tends to be more strictly regulated in this regard (Casswell, 2013; Esser & Jernigan, 2018; Monteiro et al., 2017; Niland et al., 2017). Similarly, alcohol marketing and advertisements aim to foster the appeal of brands through various routes, such as cultivating personal and social identities to impact attitude formation, promote brand quality, and attract certain audiences (Borzekowski et al., 2015; Jackson et al., 2000; Jackson & Bartholow, 2020; Zerhouni et al., 2019). Empirical research indicates that these techniques work as intended: frequent exposure to alcohol advertisements is associated with more favourable evaluations, higher product recognition, and greater consumption (Jackson & Bartholow, 2020; Tanski et al., 2011; Wills et al., 2009). Branding has also been found to target the cognitive mechanisms implicated in alcohol consumption with brand logos heightening attentional bias and diminishing inhibitory control (Kreusch et al., 2013; Maurage et al., 2020; Pennington et al., 2020; Weafer & Fillmore, 2015; Wiechert et al., 2021). In light of the considerable influence of alcohol branding on consumer behaviour, we therefore hypothesised that the decoy effect would be greater for branded compared to unbranded alcoholic beverages.

### **Research Overview and Predictions**

The current study aimed to examine whether the decoy effect interacts with branding to operate as a 'dark nudge' that can modify alcohol purchasing decisions.



Participants were shown a range of multi-pack offers depicting either branded or unbranded alcoholic and non-alcoholic beverages with different quantities and prices. In half of these choice arrays, a cost-effective (target) offer was presented alongside a moderately cost-effective offer (competitor). In the other half, an inferior decoy was introduced, which offered an intermediate quantity but at a significantly higher price.

Consistent with Monk et al. (2016), it was hypothesised that the introduction of the decoy would modify initial choices for both alcoholic and non-alcoholic beverages. Moreover, we hypothesised that branded alcoholic beverages would be most susceptible to the decoy effect relative to (non)alcoholic, non-branded beverages because such products are purposefully designed to be easily discriminable, favourable, and attract drinker's attention (Jackson & Bartholow, 2020; Jernigan, 2009). Finally, in line with recommendations by Lichters et al. (2015), we measured individual differences that may explain variance in the decoy effect – namely, participants' self-reported alcohol consumption and trait effortful control. We deemed these to be important covariates because of the demonstrated relationship between alcohol consumption, alcohol demand and purchasing decisions (Acker & MacKillop, 2013; MacKillop, 2016; MacKillop et al., 2014), and between trait effortful control and indices of alcohol-cue reactivity (Monk et al., 2017; Qureshi et al., 2017).

## Method

### Transparency & Openness

All materials, data, and supporting information are available on the Open Science Framework (<https://osf.io/wpe43/>). In the sections that follow, we report all measures, manipulations, and exclusions. This study was approved by the School of Psychology Ethics Committee at Lancaster University and participants provided informed consent.

### **Participants & Design**

A total of 106 participants were recruited through a research participation scheme and social media adverts. Participants were eligible to take part if they were 18 years old or over (UK legal drinking age), fluent in English, and confirmed that they were sober at the time of completion. In line with research demonstrating that alcohol intoxication can influence decision making (George et al., 2005), eight participants who reported consuming alcohol on the day of testing were excluded. The final sample comprised 98 participants (66.6% female; 39.8% East Asian, 31.6% White), who were classified post-hoc by their AUDIT scores as low-risk social drinkers ( $M_{AUDIT} = 5.00, SD = 4.42$ ).

A 2 (Beverage: alcohol, non-alcohol) x 2 (Branding: branded, non-branded) x 2 (Choice: cost-effective, moderate cost-effective) repeated measures design was employed to examine the decoy effect on purchasing decisions. Sensitivity power analyses (G\*Power; Faul et al., 2007) conducted on the final sample size ( $n = 98$ ) indicated that we were able to detect effects of Cohen's  $F > .14$  with 80% power and alpha set at .05 using a 2 x 2 x 2 repeated-measures ANOVA.

## Measures

### *Decoy Assessment*

A stimulus set of 80 images was developed for this study. Each image depicted a branded or non-branded alcoholic or non-alcoholic beverage along with a choice of two or three offers based upon quantity and price. All beverage images were selected from an internet search and were superimposed to represent multi-pack offers. Popular brands and offers were selected based upon information from a well-known UK supermarket at the time of the study (e.g., no less than 66p per bottle: £20 for 30 cans in 2017). To ensure offers were realistic and to mitigate ceiling effects for higher-priced beverages, we chose low alcohol-by-volume (ABV) beer and cider beverages and matched these with orange and water. Figure 1 provides an example of the stimuli.

[INSERT FIGURE 1 HERE]

In half of these images, two offers were presented to create a choice array: one advertised a greater quantity of beverages at a higher overall price (e.g., 24 bottles for £20), and the other a lesser quantity at a cheaper price (e.g., 12 bottles for £12; see Monk et al., 2016; Scarpi, 2008). In the remaining half, the decoy was introduced into the original choice array. Representing the asymmetrically dominated option, the decoy always stated a quantity in between the original two offers but at a significantly higher price. To correspond with price control policies such as MUP, these options were categorised as ‘cost-effective’, ‘moderate cost-effective’ and ‘decoy’ offers based

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upon *price per bottle*. Figure 2 plots each of the three offers in relative space and displays an indifference curve, which demonstrates that the cost-effective and moderate cost-effective offers have equal consumer appeal.

[INSERT FIGURE 2 HERE]

Following Monk et al. (2016), participants were able to view each choice array for an unlimited amount of time. They then identified their choice by selecting an option displayed underneath each image (Option A, B, C). Offers were matched between stimuli so that, for example, a branded alcohol beverage was priced equivalently to a non-alcoholic beverage at some point within the task. However, to avoid having too many repeats of the same offers (making it easy for participants to draw upon calculations and/or recall), not all offers could be matched on every stimulus dimension (i.e., beverage, branding, price, quantity). We therefore ensured that for each stimulus type, the average price per bottle significantly differed between the cost-effective, moderately cost-effective and decoy offers (all  $p < .001$ ), but, importantly, that this did not differ between beverage or branding (all  $p > .05$ ; See Table 1).

[INSERT TABLE 1 HERE]

### **Measured Covariates**

*Alcohol Consumption*

The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) measured self-reported alcohol consumption and related behaviours. This 10-item screening questionnaire includes four subscales that assess patterns of alcohol consumption, drinking behaviour, adverse reactions, and problem drinking. Participants respond to questions such as “How often do you have a drink containing alcohol?” between 0 (e.g., Never) and 4 (e.g., Daily/Almost daily). Higher scores correspond to greater alcohol consumption. This questionnaire resulted in acceptable internal reliability (Cronbach’s  $a = .77$ ) and a total score was computed.

### *Effortful Control*

The effortful control sub-scale of the Adult Temperament Questionnaire (ATQ; Evans & Rothbart, 2007; Rothbart et al., 2000) measured trait effortful control. This 35-item<sup>1</sup> sub-scale assesses components of attentional control (i.e., an individual’s capacity to focus or shift attention as needed), inhibitory control (an individual’s capacity to suppress inappropriate behaviour), and activation control (the capacity for an individual to perform an activity when they tend to avoid it). Participants respond to questions such as “I can make myself work on a difficult task even when I don’t feel like trying” on a Likert scale between 1 (Extremely untrue of you) and 7 (Extremely true of you). Higher scores correspond to higher trait effortful control. This questionnaire resulted in acceptable internal reliability ( $a = .85$ ) and a mean score was computed.

### **Procedure**

Participants were informed that the study aimed to assess consumer purchasing and decision-making behaviour and that they should choose an offer from a range of supermarket products based upon their preference for price or quantity. All components of the study were administered through Bristol Online Survey (<https://www.onlinesurveys.ac.uk/>). Participants completed the Decoy Assessment followed by the AUDIT and ATQ in a fixed order to ensure that purchasing decisions were not primed by the alcohol questionnaire content (Davies & Best, 1995). Upon completion, they received a full debrief as well as details regarding alcohol support services.

### **Analysis Strategy**

The Decoy Assessment was scored in the same way as Monk et al. (2016). Preliminary descriptive statistics assessed the proportion of choices for each offer at Time 1 when only the cost-effective and moderate cost-effective offers were present, and again at Time 2 when the decoy was introduced. Paired samples *t*-tests were first conducted to explore whether participants were more likely to choose the cost-effective or moderate cost-effective offer at these time points. For the main analyses, change scores were then computed to assess the shift in participants' selections from time one to two (Time 2 - Time 1). Positive scores indicate a relative increase whilst negative scores indicate a decrease in participants' initial choice. A 2 (Beverage: alcohol, non-alcohol) x 2 (Branding: branded, non-branded) x 2 (Choice: cost-effective, moderate cost-effective) within-participants ANOVA was conducted on participants' change scores. Bonferroni corrections were applied to correct for

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multiple comparisons based on the rationale that one of two significant pairwise comparisons could provide support for our hypotheses (disjunction testing; Rubin, 2021): a significant difference between alcohol branding vs. alcohol non-branding or between alcohol branding vs. non-alcohol branding. Two exploratory ANCOVAs were then conducted, using the same factorial design, to examine whether self-report alcohol consumption (AUDIT) or effortful control (ATQ) explained variance in these findings. Here, missing data for questions on the ATQ (< 10%) was imputed using the mean of that question item (Tabachnick & Fidell, 2013).

## Results

Table 2 presents the percentage of choices for (non)alcohol, (non)branded beverages at each time point. This indicates that participants were more likely to choose the cost-effective over the moderate cost-effective offers at both time points (all  $p < .001$ ). However, at Time 2, this choice distribution changes, with participants selecting the decoy rather than the cost-effective or moderate cost-effective offer in some instances.

[INSERT TABLE 2 HERE]

The ANOVA indicated a significant main effect of Beverage ( $F(1, 97) = 13.09, p < .001, \eta p^2 = .12$ ), with the introduction of the decoy influencing a greater decrease in initial choices for alcoholic ( $M = -.06, SD = .07$ ) compared to non-alcoholic beverages ( $M = -.04, SD = .08, d_z = .35$ ). There was a significant main effect of Branding

( $F(1, 97) = 6.36, p = .013, \eta p^2 = .06$ ), with the inclusion of the decoy influencing a greater decrease in initial choices for branded ( $M = -.05, SD = .07$ ) compared to non-branded beverages ( $M = -.04, SD = .08, d_z = .18$ ). There was also a significant main effect of Choice ( $F(1, 97) = 5.69, p = .019, \eta p^2 = .06$ ), with the decoy influencing a greater decrease in choices for moderately cost-effective ( $M = -.07, SD = .13$ ) compared to cost-effective offers ( $M = -.03, SD = .09, d_z = .23$ ).

This was qualified by a significant two-way interaction between Beverage and Branding ( $F(1, 97) = 12.47, p = .001, \eta p^2 = .11$ ), with the introduction of the decoy influencing a greater decrease in initial choices for branded compared to non-branded alcoholic beverages ( $M = -.08, SD = .08$ , vs.  $M = -.04, SD = .07, p < .001, d_z = .63$ ), and branded alcoholic compared to branded non-alcoholic beverages ( $M = -.08, SD = .08$ , vs.  $M = -.03, SD = .06, p < .001, d_z = .93$ ). There was no significant difference in change scores between non-branded alcoholic and non-alcoholic beverages ( $p = .92$ ), or between branded and non-branded non-alcoholic beverages ( $p = .48$ ). Figure 3 presents this interaction and also suggests that the large effect for branded alcohol beverages seems to drive the overall main effects for Beverage and Branding. All other interactions were non-significant (all  $p > .05$ ).

[INSERT FIGURE 3 HERE]

Including AUDIT scores as a covariate reduced the effect size of Beverage ( $p = .044, \eta p^2 = .04$ ), and removed all other main effects and interactions. Whilst this covariate alone was not significant ( $p > .05$ ), its inclusion revealed a significant three-



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way interaction between Beverage, Branding and AUDIT scores ( $F(1, 96) = 4.15, p = .045, \eta^2 = .04$ ). Follow-up bivariate correlations indicated a significant negative relationship between AUDIT and change scores for branded alcoholic beverages ( $r = -.22, n = 98, p = .029$ ); this suggests that as self-reported alcohol consumption increased, the more initial choices for branded alcoholic beverages were influenced by the decoy. The ATQ covariate was not significant ( $p > .05$ ) and showed no significant relationships with change scores (all  $p > .05$ ).

### Discussion

The current study assessed the extent to which alcohol branding interacts with decoy pricing to modify alcohol purchasing decisions. Findings indicate that the introduction of a decoy influenced purchasing decisions for alcoholic compared to non-alcoholic beverages and that this effect was driven by the heightened impact of the decoy on *branded* alcoholic beverages. Furthermore, elevated self-reported alcohol consumption was associated with a greater change from initial choices for branded alcoholic beverages. This study therefore suggests that the placement of a decoy may operate as a 'dark nudge' that can be deployed to help maximize the profitability of alcohol sales and, importantly, that this technique may be exacerbated by alcohol branding. These findings may have implications for alcohol control policies suggesting that a greater focus is needed on the regulation of alcohol branding, marketing, and product placement, and how these may interact to persuade purchasing decisions (see Newall, 2019 for a related perspective on gambling industry regulation).

Although increasing the price of alcohol has been shown to reduce alcohol consumption for some groups (Brennan et al., 2014; Holmes et al., 2014a, 2014b; Stockwell et al., 2012), the present findings suggest that the allure of alcohol branding may undermine such efforts. Despite relatively difficult instantaneous calculations, our findings highlight that participants were more likely to choose the cost-effective offer at both time points ( $\approx 60\%$  of selections). Furthermore, the introduction of the decoy influenced a greater decrease in choices for moderately cost-effective compared to cost-effective offers. This lends support for the implementation of price control policies, such as MUP, which aim to target harmful drinking by introducing a uniform price threshold to alcoholic beverages (Brennan et al., 2014; Holmes et al., 2014a, 2014b). Yet these findings also suggest that the decoy effect may increase the selection of overall more expensive offers, particularly for branded alcoholic beverages, which may necessitate the development of more nuanced minimum pricing strategies.

There are several explanations for these findings. First, the decoy effect may exert a greater effect on branded compared to non-branded beverages because of the perceived relationship between quality and price (see Douglas-McConnell, 1968; Gardner, 1971). Research indicates consistently that people express willingness to pay premium prices for products that are well-known, valued, and attractive (Anselmsson et al., 2014; Kim et al., 2006). In the current study, this effect was greatest for branded alcoholic beverages and was moderated by individual differences in alcohol consumption. This is likely explained by the powerful marketing strategies employed to encourage consumption and drive profits

(Petticrew et al., 2020). For example, advertisements utilise techniques such as social norming (telling consumers that “most people” are drinking) and priming (offering verbal and pictorial cues to drink) to influence alcohol expectancies (Borzekowski et al., 2015; Jackson & Bartholow, 2020; Petticrew et al., 2020). Frequent exposure to such advertisements has been found to be associated with more favourable evaluations, higher product recognition, and greater consumption (Jackson & Bartholow, 2020; Tanski et al., 2011; Wills et al., 2009).

A second explanation is that brand logos and associated information interact with pricing strategies to increase decision-making difficulty (a phenomenon referred to as “choice overload”; Fasolo et al., 2007, 2009; Greifeneder et al., 2010). Specifically, alcohol marketing employ powerful visual cues that have been shown to heighten attentional bias and diminish inhibitory control (e.g., Maurage et al., 2020; Pennington et al., 2020; Wiechert et al., 2021). Research has also shown that alcohol-related cues interfere with ongoing working memory processes (Gladwin & Wiers, 2012; Kessler et al., 2013). The heightened complexity of trinary choices coupled with attention allocation for alcoholic beverages may account for these findings.

### **Limitations & Future Directions**

In line with recommendations by Lichters et al. (2015), we developed our stimuli to feature realistic product attributes (i.e., mirroring supermarket offers and current pricing) and measured relevant sample characteristics that were theorised to correspond with alcohol-related decoy effects (i.e., AUDIT scores, trait effortful control). The latter revealed that greater self-reported alcohol consumption was

associated with greater change from initial choices for branded alcoholic beverages, suggesting that heavier drinkers might be more susceptible to the allure of branding. Nevertheless, individual differences in effortful control were not significantly related to change scores. Whilst this represents a particular strength of the current study, it is important to emphasise that the Decoy Assessment itself was hypothetical and involved no real economic consequences. Relatedly, it included forced-choice decisions meaning that a “no buy option” was not included. This is particularly notable because our findings seem to be driven by participants choosing the decoy itself, in some instances, when it was introduced into the choice array. Given that the decoy represents the least financially viable offer, future research is required to assess whether these findings translate to the real world. Other research has, however, found that the decoy effect is stronger when decisions are binding and involve real monetary exchange (Huber et al., 2014; Lichters et al., 2017).

The selected alcoholic stimuli included multi-pack offers of low alcohol by volume (ABV) beverages that are sold at a cheaper price compared to higher ABV counterparts. It is therefore possible that different findings may be found for singular and more expensive products (i.e. bottles of spirits, liquors). Furthermore, we focused on branding alone and did not assess the influence of advertising techniques that may also influence brand preferences and purchasing decisions. Despite calls to regulate alcohol-related marketing and advertising, (Casswell, 2013; Esser & Jernigan, 2018; Monteiro et al., 2017; Nicholls, 2012), industry actors are employing more sophisticated techniques that aim to influence normative beliefs surrounding consumption (Petticrew et al., 2020) and create ‘alcogenic’ environments (Hill et al.,

2018; Monk & Heim, 2017; Nicholls, 2012). Extensions of this research could assess how such marketing techniques influence choice dynamics and susceptibility to the decoy effect.

Further investigations are also recommended to assess the wider policy implications of the current findings. Whilst we demonstrated the decoy effect amongst three purchasing options, it is plausible that this may dissipate in real-world environments where there are numerous options to choose from. Alternatively, an individual's product preferences may work to reduce what is, initially, a large array of options, meaning that the decoy effect may still operate in such contexts. For example, a person seeking to buy a bottle of wine from a supermarket may narrow down their choice based on several preferences, including vine, colour, region, taste, ABV, or variability in their meal plans. As such, individual differences may work to constrict choice options such that the decoy effect still operates in purchasing environments where there are ostensibly many options.

## **Conclusion**

The current study indicates that the decoy effect interacts with branding to operate as a 'dark nudge' that can modify alcohol purchasing decisions. We found that the introduction of an inferior decoy changed the initial choice distribution for both alcoholic and non-alcoholic offers and that branded alcoholic beverages were particularly susceptible to this manipulation. Furthermore, self-reported alcohol consumption appeared to account for variability in these findings, suggesting that individuals who consume more alcohol may be nudged by less financially viable offers

for branded alcoholic beverages. While future research is required to examine the precise mechanisms driving these effects, such findings provide an initial indication that attempts to regulate the ways in which alcoholic beverages are sold should also consider how relative pricing strategies shape consumer behaviour.

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Table 1. *Descriptive statistics for each stimulus type (Branding and Beverage) based on price per bottle for the cost-effective, moderate cost-effective and decoy offers.*

	Cost-effective	Moderate cost-effective	Decoy
		M (SD)	
Branded	£0.76 (0.14)	£0.98 (0.19)	£1.86 (0.34)
Non-branded	£0.72 (0.10)	£1.03 (0.17)	£1.81 (0.25)
Alcohol	£0.75 (0.14)	£1.02 (0.21)	£1.85 (0.32)
Non-alcohol	£0.74 (0.09)	£0.99 (0.15)	£1.81 (0.28)

*Table 2.* The proportion of choices for each offer at Time 1 and Time 2.

	Time 1		Time 2		
	CE	ME	CE	ME	Decoy
Alcohol – branded	63.57%	36.43%	57.76%	27.14%	15.10%
Alcohol – non-branded	70.00%	30.00%	68.06%	24.08%	07.86%
Non-alcohol – branded	67.35%	32.65%	66.43%	26.94%	06.63%
Non-alcohol – non-branded	68.98%	31.02%	66.84%	26.53%	06.63%

Abbreviations; CE = cost-effective offer; ME = moderate cost-effective offer.

Figure 1. Example stimuli used in the Decoy Assessment; in the top row, two offers for branded (left) and non-branded (right) alcoholic beverages are shown, and on the bottom row, the decoy is then introduced into the choice array.





Figure 2. Panel A. depicts two example choice arrays plotted in relative space, with the cost-effective offer representing better value per bottle compared to the moderate cost-effective offer and the decoy (least financially viable). Matching symbols refer to the three options in the same choice array. Panel B. shows an indifference curve representing three randomly selected examples of cost-effective and moderate cost-effective offers (matching symbols represent the same product for each offer). Given that the combination of offers maps onto the indifference curve, this indicates that they have equal consumer appeal; participants could base their choice on quantity or price.

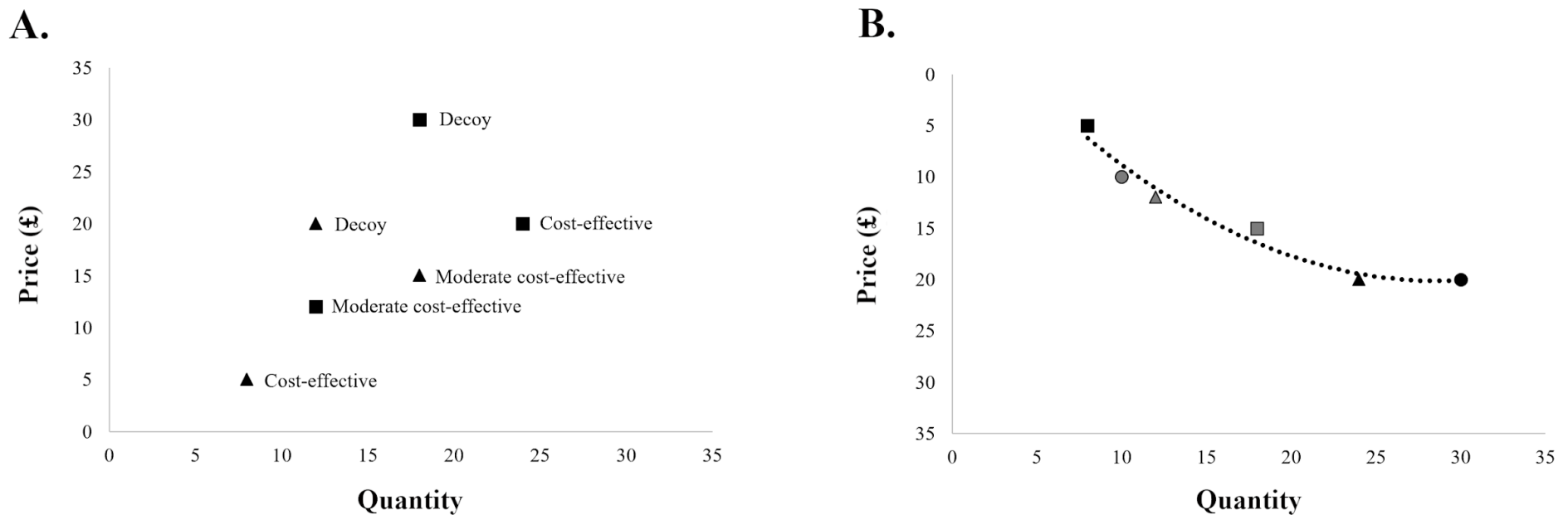
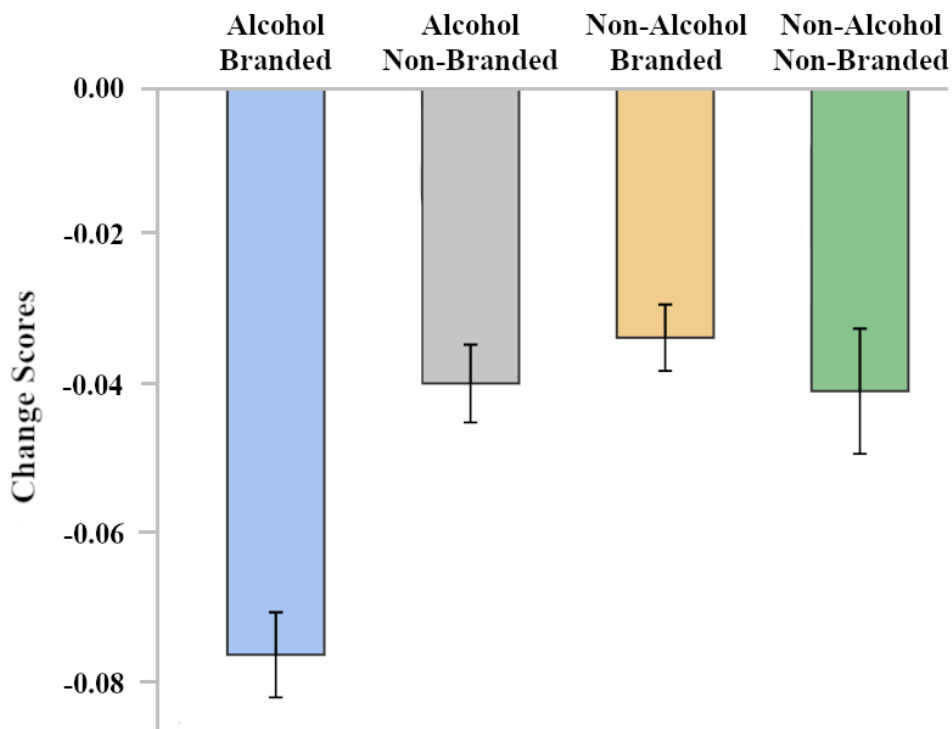


Figure 3. Bar graph presenting the two-way interaction between Beverage and Branding. Error bars represent 95% confidence intervals.



<sup>1</sup>The last question “When I am trying to focus my attention, I am easily distracted” was omitted from the questionnaire due to human error. The dependent variable therefore represents the mean of 34 questions.