

How alcohol advertising and sponsorship works: Effects through indirect measures

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Abstract

Introduction and Aims. We tested whether incidental exposure to alcohol marketing messages in sporting events: (i) influenced automatic evaluation of brands and alcohol in general; and (ii) if these processes occur through deliberative (conscious) or non-conscious processes. **Design and Methods.** Using an experimental design, participants watched a sport event containing: (i) a prototypical alcohol brand; (ii) a brand unrelated to alcohol; or (iii) a non-prototypical alcohol brand. One hundred and nine participants were randomly assigned to either a cognitively depleting task to impair motivation for effortful conscious processing before watching the excerpt, or a control task. We measured indirect (implicit) and direct (explicit) attitudes toward alcohol and brands, and self-report measures assessing affective response toward the event, involvement in processing the message and identifications toward the playing teams. **Results.** We found a positive main effect of incidental exposure to alcohol brands on indirect measures of attitudes toward alcohol as well as the specific brand. No effect of cognitive fatigue on indirect measure toward brands and alcohol was observed. **Discussion and Conclusions.** Incidental exposure to alcohol marketing messages appear to impact indirect measures of attitudes toward the brand and alcohol in general, and seems to rely on non-conscious automatic processes. [Zerhouni O, Bègue L, O'Brien KS. How alcohol advertising and sponsorship works: Effects through indirect measures. *Drug Alcohol Rev* 2019]

Key words: alcohol sponsorship, self-regulation failure, evaluative learning, implicit attitude.

Introduction

Alcohol consumption is responsible for 3.2% of worldwide deaths and is ranked fourth in terms of disability adjusted life years [1]. Accordingly, reducing alcohol consumption is a public health priority, particularly in groups where excessive alcohol consumption appears most problematic (e.g. young adults, sport participants) [2]. Despite evidence showing that direct alcohol sponsorship of sports participants is associated with more hazardous drinking [2,3], and that large numbers of children are exposed to alcohol sponsorship messages when watching sport [4], the alcohol industry remains a leading sponsor of sport, accounting for 20% of all sport sponsorships [4,5]. The frequent incidental and/or unattended exposures to brands and branded products such as alcohol, are difficult to consciously process and are therefore difficult to consider and critically assess/filter in a deliberative manner [6,7]. Research already shows that brand recall is higher when branding (e.g. banners, logos) have

been visually present for a long period of time [7], and when the frequency of exposure is high [8]. However, frequent incidental and unattended brand exposures (e.g. branding on stadium signage) may have a similar impact on brand memory and attitudes to the branded product (e.g. Heineken Beer), through unconscious or implicit processing. Because advertising stimuli are generally presented peripherally to the in-game action (i.e. the sporting event), two questions arise: (i) does processing of this type; of advertising incur cognitive costs? and (ii) does attitude change toward a brand automatically generalises—or ‘spillovers’—to a broader category of stimuli, that is, alcohol?

There is indeed recent experimental data that have shown that incidental exposure to alcohol sponsorship and associated messages in sporting contexts influences indirect measures of attitudes (i.e. relatively automatic and non-conscious evaluations) toward the sponsor's alcohol brand, and to some extent toward alcohol generally [9]. However, the question of *how* sponsorship influence occurs remains of primary

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relevance for public health, as it informs us of the potential impact of large advertising campaigns on attitudes toward alcohol and consumption when they are based on implicit and involuntary processes. Since indirect measures of attitudes are excellent predictors of alcohol consumption [10] and predict unique variance compared to direct measures [11], this paper aims to illuminate whether the effects of alcohol sponsorship on these alcohol-related attitudes can occur completely automatically, or, on the contrary, would be mediated by deliberative processes. Second, we examined whether changing attitudes towards a specific brand would have an impact on the general concept of alcohol (i.e. spillover).

To what extent does the viewer voluntarily process advertising and branding stimuli onscreen?

As mentioned above, promotion of alcohol products is sometime found in contexts where one would a priori expect it not to be there. Even outside stadiums, exposure to advertising in US urban areas show a link between exposure to alcohol in the media and an increase in alcohol consumption, while lowering the age at which children and adolescents are likely to start drinking [12]. It is therefore essential to identify the processes that will lead individuals to drink alcohol, as to develop prevention and intervention procedures that will limit the harmful consequences and costs for public spending.

It has been argued that branded promotion incidentally presented during an event are likely to be more effective than regular advertising due to a strong emotional and cognitive engagement of the viewer toward the event [13]. On the other hand, several studies showed that individuals under cognitive load (i.e. performing a demanding, secondary task, while doing a primary task) would be *less* sensitive to external influences [14]. This suggests that to be effective, advertisement would *require* cognitive resources. One of the central issues is therefore whether encoding depends upon conscious engagement into brand memorisation and attitude change.

Under which conditions does exposure to sponsor brands and advertising lead to broader conceptual generalisations? Spillover effect from a brand to a broader category

From a cognitive point of view, recent data have highlighted that the evaluation of a single stimulus can be generalised to a broader category of stimuli if it shows salient cues of membership of this category, and

when the number of distracting stimuli is not too high as to allow the relevant indices to be treated [15]. Therefore, during the formation of the evaluation, the initial emotional reaction should be transferred not only to the target (i.e. the brand Heineken), but also to a superordinate category related to the brand (e.g. alcohol and beer). In order to maximise the effects of evaluative learning from a stimulus toward a general category, the alcohol brand must have strong associations in memory with the superordinate concept through links with affective, perceptual and sensory-motor components [16]. Therefore, attitude change toward prototypical, well-known, exemplars of a category should lead to a stronger generalisation to other exemplars of this category, and the category itself.

Hypotheses

Manipulation of cognitive resources

We aimed, first, to determine whether sponsor branding influence on participant's attitudes incurs effortful cognitive activity. In this study, we reduced participants' abilities to draw on self-regulatory resources *prior to viewing* the excerpts by using an ego-depletion task. An ego-depletion task typically consists in reducing volitional processing at time 2 (here, exposure to sponsorship) by asking the participant to perform a cognitively demanding task at time 1 [17]. Recent conceptualisation has shown that impairing self-control tends to also reduce executive and cognitive control in a broader sense, which is particularly efficient on tasks requiring motivation to engage in a task requiring some amount of mental effort [18–20]. Furthermore, impairing self-regulation is close to what an individual might experience as external pressures in daily life situations, in which one is more likely to have limited resources to and be targeted by multiple external demanding tasks that hinder self-control.

Manipulation of the spillover effect

Second, we hypothesise that the more representative the brand is of the alcohol concept in memory, the more the latter will be activated, and the stronger the 'spillover' effect. Evaluative change toward a single stimulus can be generalised to a category of stimuli if it shows clear evidence of belonging to a broader category when the number of distracting stimuli is not too high to allow relevant cues to be processed. In order to maximise the effects of associative learning from a stimulus to a general category (i.e. spillover), the stimulus must have strong associations in memory with the

overordered concept, that is, the more the participant experiences it, the stronger the spillover effect will be. Therefore, participants were exposed to: (i) sport excerpts for the ‘Heineken’ brand (very prototypical for French participants); (ii) the ‘Steinlager’ brand (a New Zealand beer brand, not prototypical for French participants); or (iii) the ‘Castrol Edge’ brand (unrelated to alcohol). We predict that indirect measures of attitudes toward alcohol *in general* should be more positive for individuals exposed to the ‘Heineken’ brand compared to the ‘Steinlager’ brand and ‘Castrol Edge’.

Methods

Participants and setting

Students ($n = 109$) from a French university ($M_{\text{age}} = 20.24$; $SD_{\text{age}} = 2$; women = 75%) were recruited through advertising on campus for a 30 min group experiment in exchange for £10. Our only *a priori* selection criterion was to exclude participant with fluent knowledge of Chinese or Japanese in order not to bias results from the indirect measures.

Informed consent was obtained from all individual participants included in the study.

Procedure and trial design

Participants went through group sessions in a room with 12 computers. Each participant was separated from each other by wooden partitions and wore insulating headphones. Participants were initially greeted by the experimenter and then randomly assigned to a 2 (depletion: yes vs. no) \times 3 (brand: ‘Heineken’ vs. ‘Steinlager’ vs. ‘Castrol Edge’) factorial design. After performing the self-control (i.e. depletion) stage, participants were randomly assigned to one of the three experimental groups containing the sponsors branding for ‘Heineken’, the ‘Steinlager’ or ‘Castrol Edge’ in order to manipulate the spillover effect. Participants were then asked to complete indirect (implicit) and direct (explicit) measures of attitudes towards alcohol and the brands to which they were exposed. Participants then filled the Sport Spectator Identification Scale (i.e. reported level of felt closeness to the team [21]), the Involvement in the Message Scale (i.e. reported degree to which the participant consciously treated the messages [22]), and a Transportation in the Event Scale (i.e. reported cognitive and emotional involvement toward the event [23]). Participants finally filled the Perceived Awareness of Research Hypothesis, during which they were

debriefed [24]. Both the experimenter and participant were blind to the conditions. All randomisations were done by the Inquisit 4 algorithm for randomisation.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. We cannot provide a name of the ethical committee that approved this study since no ethical committee existed at University Grenoble-Alpes when the studies were conducted. Informed consent was obtained from all participants and none chose to withdraw from the procedure.

Material

Video excerpts. Each participant was exposed to 10 min of high definition video footage of a rugby match reflecting their assigned sponsorship condition. Within each sponsorship condition, participants were randomly assigned one of three possible excerpts of the same match to watch. The « eHei » condition comprised an excerpt of the final contest of the Heineken Cup between Leinster and Northampton containing numerous occurrences of sponsorship for the Heineken brand (e.g. banners, logo displayed on players, referee uniform and on the field). We edited the video so that the Heineken brand was always clearly visible onscreen during the 10-min excerpt. The excerpts in the « eSteI » condition were taken from the match between New-Zealand and England of the Steinlager series in 2014. In the no alcohol-sponsorship condition, excerpts from another rugby contest (semi-finals of the 2013 rugby championship between Australia and South Africa) were used containing sponsorship for a brand not related to alcohol (Castrol Edge).

Ego-depletion task. We used an attentional control task as an ego-depletion induction (total length = 7 min) in which participants had to pay attention to a video showing a woman being interviewed. Half of the participants were instructed to ignore distractor words appearing in the bottom right of the screen and therefore to regulate their attention (i.e. depletion group) while the other half did not receive any instruction regarding the distractors (i.e. control group).

Affect misattribution procedure (standard). Attitudes can be measured by direct—or explicit—attitudinal measures, which involves directly asking the participant to provide an evaluation of the attitudinal object. Researchers can also assess attitudes and other constructs using indirect or implicit measures whereby a

person's attitudes or preferences, sometimes unconscious, towards a target or object is assessed by tapping into subtler and/or automatic/uncontrolled processes using timed reaction tasks and tasks such as the implicit association task. We used the affect misattribution procedure as an indirect measure of attitudes toward the sponsored brands and alcohol [25]. Participants were warned that a picture would appear briefly on the screen and that it would be immediately replaced by a Chinese pictogram, which would disappear quickly (both staying onscreen for 100 ms, with a 75 ms interval between the two stimuli). Once the Chinese pictogram disappeared, it was replaced by a mask (i.e. noise) until the participant gave his answer. The participant was instructed to ignore the first picture and evaluate whether the Chinese pictogram seemed more or less pleasant than the average Chinese pictogram, on a scale from 1 (very unpleasant) to 4 (very pleasant). The pictogram being a neutral, unvalenced stimulus, the evaluation elicited by the picture has been shown to be misattributed to the pictogram [25]. Hence, the participant's attitude towards the image is evaluated indirectly from his response to the pictogram.

The task comprised 106 trials, in which the pictures were 20 generic and unbranded alcohol and water bottle pictures (10 of each category), 20 filler pictures (depicting food and furniture), 12 branded alcohol pictures [26], comprising a picture of an 'Heineken' bottle and a 'Steinlager' bottle and a neutral grey square as a neutral stimulus.

Affect misattribution procedure (modified). A modified version of the affect misattribution procedure was used as a direct measure of attitude, to avoid variations in answers that could be attributed to variations in structural features of the tasks (e.g. nature of the stimuli, proposition versus pictures, Likert scales versus reaction times; for a more detailed discussion, see [27]). In the modified Affect Misattribution Procedure, the structure of the task remained the same, except that participants have to evaluate the picture and not the pictogram. The evaluation of the picture is done *directly* by the participant, rather than inferred via his evaluation of the Chinese pictogram.

Sport Spectator Identification Scale. We used the 8-item Sport Spectator Identification Scale to assess participant's degree of identification toward the athletes and the sports team ([18]; see Appendix S1).

Involvement in the Message Scale. We used a five-item scale assessing conscious and effortful processing messages presented during the match ([19]; see Appendix S1).

Transportation in the Event Scale. Transportation has been originally defined as a one's emotional and cognitive involvement in a fictional narrative (e.g. emotional engagement). Feeling transported in a narrative makes judgments toward the characters and the fiction in general more positive [23]. Here, we checked whether the branding stimuli (i.e. banners in stadiums, logos displayed on athletes) would be associated with the evaluative response elicited by the event and moderate the effect of incidental exposure to sponsor's branding/advertising. We used a modified seven item Transportation Scale for sport events in order to evaluate participants' degree of emotional involvement toward the event (see Appendix S1).

Results

Reliability of Self-Report Scales. Self-reported measures had a good reliability overall (Transportation in the Event Scale, $\alpha = 0.80$; Involvement in the Message Scale, $\alpha = 0.71$ [Item 5 was removed from the scale, with item 5: $\alpha = 0.19$]; Sport Spectator Identification Scale, $\alpha = 0.84$). We did not find any significant difference on these variables across the « eHei », « eStei » et « eNA » groups (see Table 1), nor any differences between gender in overall involvement in sport (see Tables 2 and 3). We found a significant, medium-sized positive correlation between the Transportation and Sport Spectator Identification Scale, $r = 0.43$, $P < 0.001$.

Main analysis

A 2 (ego depletion: depleted vs. control) \times 3 (brand exposure) analysis of covariance with Transportation,

Table 1. Descriptive statistics for self-reported measures

	eHei M (SD)	eSte M (SD)	eNA M (SD)	Partial η^2	F (omnibus)	α	P
Transportation ^a	3.43 (1.22)	3.59 (1.3)	3.12 (1.23)	0.024	1.29	0.84	0.27
SSIS ^b	24.97 (10.26)	22.66 (10.21)	20.92 (10.09)	0.027	1.46	0.79	0.23
IMS ^c	3.7 (0.97)	3.82 (1.11)	3.97 (0.99)	0.012	0.633	0.71	0.53

^aMean scores to the Transportation Scale. ^bMean scores to the SSIS. ^cMean score to the IMS. eHei, participants exposed to the Heineken brand; eNA, participants exposed to the Castrol Edge brand; eStei, participants exposed to the Steinlager brand; IMS, Involvement in the Message Scale; SSIS, Sport Spectator Identification Scale.

Table 2. Independent samples *t*-test for gender^a

	<i>t</i>	df	<i>P</i>	Mean difference	SE difference	Cohen's <i>d</i>
Transportation	-0.316	107.0	0.753	-0.088	0.270	-0.069
Involvement in the Message Scale	-0.548	107.0	0.585	-0.124	0.216	-0.120
Sport Spectator Identification Scale	-0.110	107.0	0.913	-0.247	2.516	-0.024

^aStudent's *t*-test between genders for Transportation, Involvement in the Message Scale and Sport Spectator Identification Scale.

Table 3. Group descriptives for self-reported measures between genders

	Group	<i>N</i>	Mean	SD	SE
Transportation	Female	81	3.356	1.284	0.143
	Male	28	3.444	1.211	0.229
Involvement in the Message	Female	81	3.805	1.049	0.117
	Male	28	3.929	0.965	0.182
Sport Spectator Identification Scale	Female	81	22.753	9.611	1.068
	Male	28	23.000	12.055	2.278

Involvement in the Message and Sport Spectator Identifications scales entered has covariates and with all interactions was conducted to assess effects on indirect (Model 1) and direct measures (Model 2).

Model 1. Effect of exposure to the « Heineken » brand on indirect measures of attitudes toward « Heineken ». We found a non-significant main effect of exposure to the « Heineken » brand compared to other brands, showing more positive attitude scores on indirect measures, $F(1, 70) = 3.50, P = 0.065, \eta^2 = 0.047$. We also found a non-significant moderating effect of depletion on exposure, $F(1, 70) = 2.76, P = 0.10, \eta^2 = 0.03$, as well as an interaction trending toward significance between exposure and involvement in the Message Scale scores, suggesting that the less participants engaged in conscious processing of the effect, the more positive the indirect measure scores were, $F(1, 70) = 3.19, P = 0.07, \eta^2 = 0.019$ (see Table 4 for descriptive statistics (three participants not included of their high Cook values [2.63 and 0.47, next being 0.08) and Deleted Studentized Residual 4.41]).

Effect of exposure to the « Heineken » brand on indirect measures of attitudes toward alcohol. Alcohol-related scores were computed by averaging scores on all alcohol stimuli that were unrelated to the exposed brands. Our hypothesis being that exposure to a prototypical brand would have a greater impact on attitudes toward alcohol than a non-prototypical brand, we tested a linear contrast opposing participants who were exposed to a prototypical brand (i.e. 'Heineken') versus a non-prototypical brand (i.e. 'Steinlager') versus no alcohol advertising. We found a significant linear trend showing that being in the « eHei » group compared to the « eSte » and « eNa » groups led to more positive scores on indirect measures toward alcohol, $F(2, 57) = 5.87, P = 0.004, \eta^2 = 0.059$. No significant effect was found for the quadratic term ($P = 0.34$). Contrast analysis revealed that the increase from 'eHei' to 'eSte' ($M_{diff} = 4.46$) was not statistically significant ($P = 0.45$), but the increase from 'eHei' to 'eNa' ($M_{diff} = 14.49, P = 0.005$) was significant, and nor did the change from 'eSte' to 'eNa' ($M_{diff} = 10.02, P = 0.01$, see Figure 1).

Table 4. Descriptive statistics for standard affect misattribution procedure

	eHei M (SD)	eSte M (SD)	eNA M (SD)	Partial η^2	<i>F</i> (omnibus)	<i>P</i>
AMP _{Hei} ^a	2.79 (0.42)	2.68 (0.5)	2.71 (0.45)	0.011	0.586	0.55
AMP _{Ste} ^b	2.77 (0.47)	2.63 (0.47)	2.74 (0.49)	0.015	0.81	0.44
AMP _{Alc} ^c	2.79 (0.48)	2.68 (0.47)	2.77 (0.4)	0.011	0.592	0.55

^aMeans cores for pictograms by a picture of an Heineken bottle. ^bMeans cores for pictograms by a picture of a Steinlager bottle.

^cMeans cores for pictograms by a picture generic alcohol pictures. eHei, participants exposed to the Heineken brand; eNA, participants exposed to the Castrol Edge brand; eSte, participants exposed to the Steinlager brand.

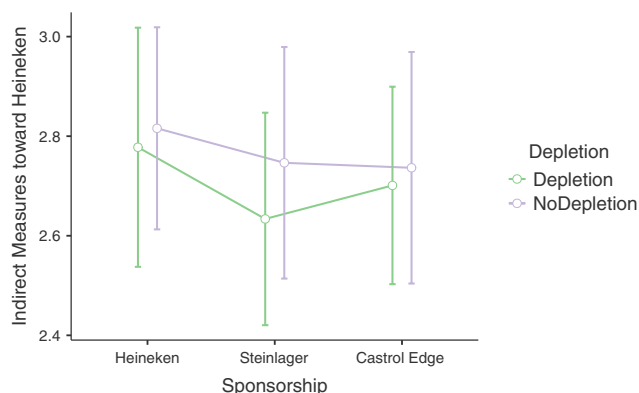


Figure 1. Indirect measures toward the Heineken brand depending on type of sponsorship exposure and depletion.

Planned contrast analysis comparing the « eHei » and « eStei » groups to the « eNA » group shows that mere exposure to alcohol sponsorship has a significant effect on indirect measures of attitudes toward alcohol, $F(1, 73) = 4.65, P = 0.034, \eta^2 = 0.038$. We did not find any moderating effect of depletion, $F(1, 73) = 0.01, P = 0.91, \eta^2 < 0.001$, but, again, a significant moderating effect of conscious processing of the message, $F(1, 73) = 5.20, P = 0.02, \eta^2 = 0.04$, indicating that weaker conscious involvement in processing the messages lead to more positive indirect measures of attitudes toward alcohol for the « eHei » group compared to the « eStei » and « eNA » groups.

Model 2. Effect of exposure to the « Heineken » brand on direct measure of attitudes toward « Heineken » and Alcohol. There was no significant change on direct measures of attitudes toward « Heineken » in the « eHei » group compared to the pooled scores of the two other groups as well as no moderating effect of depletion ($P > 0.63$), (see Table 5 for descriptive statistics) and no significant change in direct measures toward alcohol in the « eHei » group compared to the pooled scores of the two other groups and no moderating effect of depletion (P values > 0.66), that is no effect of the exposure to the 'Heineken' brand on direct measures toward alcohol in general.

Hypothesis awareness. Introducing Perceived Awareness of Research Hypothesis scores as covariates did not change significantly our estimates as well as removing participants above 3 standard deviations on the Perceived Awareness of Research Hypothesis scores [20].

Conclusion

As predicted, we found that exposing participants to the 'Heineken' brand led to more positive attitudes, as measured by indirect measures, toward the brand 'Heineken' immediately after the watching the video. This is consistent with previous work in this area [9]. Similarly, we found that exposing participants to an alcohol brand, and more strongly to a prototypical alcohol brand, leads to more positive attitudes toward alcohol more generally. Crucially, we found no moderating effect of ego-depletion. This suggests that at least in the context of sponsorship; attitude change can occur without deliberate involvement in processing the ads. Moreover, the less one reported being motivated to engage in conscious and deliberate processing of the advertising messages onscreen, the more positive the attitudes on indirect measures toward the 'Heineken' brand and alcohol were. This is also confirmed by the consistent effect of alcohol brand/advertising exposure on indirect measures compared to direct measures, with indirect measures being more suited to capture automatic evaluative responses, while direct measures are more sensitive to deliberate and consciously formed responses [28]. Our results suggest that sponsorship exposure may change attitudes in an automatic fashion, at least in the sense that it does not require the participant to have cognitive resources available to engage in volitional processing of the advertising stimuli. Eventually, we found evidence for the spillover (i.e. generalisation) effect of attitude change only when the sponsored brand was prototypical of the alcohol category, but not when the alcohol brand was relatively unknown of the participant or was unrelated to alcohol.

Table 5. Descriptive statistics for modified affect misattribution procedure

	eHei M (SD)	eSte M (SD)	eNA M (SD)	Partial η^2	F (omnibus)	P
AMP _{Hei} ^a	2.52 (0.77)	2.32 (0.87)	2.45 (0.84)	0.01	0.521	0.59
AMP _{Ste} ^b	2.77 (0.47)	2.63 (0.47)	2.74 (0.49)	0.013	0.81	0.44
AMP _{Alc} ^c	2.75 (0.76)	2.69 (0.80)	2.66 (0.6)	0.003	0.13	0.87

^aMeans cores for pictograms by a picture of an « Heineken » bottle. ^bMeans cores for pictograms by a picture of a « Steinlager » bottle. ^cMeans cores for pictograms by a picture generic alcohol pictures. eHei, participants exposed to the Heineken brand; eNA, participants exposed to the Castrol Edge brand; eSte, participants exposed to the Steinlager brand.

Discussion

Implication for alcohol consumption and concluding remarks

Because implicit associations with alcohol are one of the most reliable predictors of alcohol consumption, and have a better predictive value than self-reported measures, especially among individuals with low cognitive resources [29] and due to the massive exposure of sport-related content on TV in the daily lives of millions of individuals on the globe, one could assume that repeated exposure to alcohol sponsorship should have long-term effects on actual drinking behaviours, even on individuals who are passively exposed to advertising stimuli, thus making the question of how to resist those influences more complex. Unfortunately, we were unable to collect data on participants' consumption after the experiment. Beyond the ethical problems (i.e. a potential rise in immediate alcohol consumption), we may not have found any substantial changes on actual consumption, given the subtle nature of the processes involved in such a short exposure time. However, cohort studies have already made it possible to establish the link between exposure to media content (i.e. films, TV show or advertisements) containing alcohol on drinking behaviour, particularly among children and adolescents [30,31]. These studies were mainly correlational, and rarely differentiated between the different forms of exposure to advertising (e.g. incidental vs. explicit), although some quasi-experimental studies have focused on studying the impact of explicit advertisements on alcohol consumption [32]. However, our results still need to be replicated in order to estimate the magnitude of our effects on actual consumption.

A limitation of our study is that we did not evaluate the impact of exposure to sponsorship on maintaining long-term implicit attitudes. Some studies [10] have shown that attitudes acquired so via implicit processes are more resistant to change and are more stable over time. Hence, more concerning to us is the global impact on Public Health. Dual processes models of addictive behaviours predict that indirect measures of attitudes are better predictors of drinking for individuals that bear low executive functions [33]. Determining the duration of the effect of exposure to brand sponsorship on attitudes over time would provide additional proof as to the implicit nature of the formation of attitudes. More specific studies on this aspect are necessary and should be conducted in the future.

Our results converge with observational studies: there is indeed a positive and causal link between exposure to alcohol sponsorship and alcohol-related attitudes, which does not necessarily incur cognitive

resources. What we showed is that alcohol sponsorship not only sends a message directly encouraging people to drink but tends to implicitly associate a product with a specific context and milieu (i.e. casual and desirable) in which alcohol is consumed.

Such sponsorship campaigns are not conducted in vain. According to a study on the impact of advertising budgets on downstream alcohol consumption proposing a mathematical model of consumption data and advertising from the industry, Woodside [34] showed that, in a 20 years period, a 1% increase in investment in advertising messages promoting distilled alcohol increased the amount of alcohol consumed by 0.15% in the general population. Similarly, a 1% increase in spending on advertising for beer brands increased the total alcohol consumed by 0.25%. From another perspective, these data also provide insight into the potential effectiveness of prevention campaigns based on message display. If sponsorship of alcohol-related messages does impact people's preferences automatically—and unintentionally—then this reasoning can also be applied to prevention messages. However, this does not tell us how more complex characteristics of the advertising stimulus are treated (e.g. verbal content, explicit information such as slogan, compared to mere perceptual elements). One possibility would be to test how sponsorship elements containing elements relating to alcohol brands and verbal elements aimed at prevention interact to change alcohol-related attitudes and behaviours (e.g. Carlsberg banner with the message 'drink responsibly').

Overall, this makes the question of how to resist those influences all the more central. For example, if sponsorship influence occurs through misattributing the affect elicited by retrieval to the product [35], simple strategies such as focusing, or even assessing the presence of the brands and logos could help reduce the impact of sponsorship on implicit attitudes. Identifying the processes by which implicit attitudes are formed could also help to inform policy decisions.

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All raw data and material (i.e. videos, Inquisit scripts and stimuli) can be obtained by contacting the corresponding author (Oulmann Zerhouni).

Conflict of Interest

The authors have no conflicts of Interest.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1. Self-reported scales.