

# Alcohol marketing and adolescent alcohol consumption: Results from the International Alcohol Control study (South Africa)

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**Background.** A complete ban on alcohol advertisements has been proposed for South Africa (SA), but there has been limited local research on the association between exposure to alcohol advertisements and alcohol consumption.

**Objectives.** To examine the role of demographic factors, exposure to alcohol marketing and liking of alcohol advertisements in predicting use of alcohol in the past 6 months among older adolescents in Tshwane, Gauteng Province, SA.

**Methods.** Participants comprised the adolescent sub-sample ( $N=869$ ) of the International Alcohol Control study survey that was conducted in SA. They consisted of 408 males and 461 females aged 16 and 17 years who took part in structured interviews on their alcohol consumption and various alcohol-related attitudes and behaviours. A multiple survey logistic regression analysis of the dependent variable alcohol use in the past 6 months on the independent variables age, gender, educational status, socioeconomic status, exposure to alcohol brand marketing and liking of alcohol advertisements was used. Odds ratios (ORs) and 95% confidence intervals (CIs) were estimated.

**Results.** The prevalence of drinking in the past 6 months was 10.6% (95% CI 5.9 - 18.3). The number of modes of alcohol brand/product advertising to which the adolescents were exposed was positively associated with alcohol use in the past 6 months. An additional mode of alcohol brand/product advertising exposure led to a relative increase of 1.13 (95% CI 1.01 - 1.28) in the odds of alcohol use in the past 6 months (e.g. a participant who was exposed to advertisements via seven different channels was 2.08 times more likely to have used alcohol in the past 6 months than a participant with exposure via a single channel). Having a strong dislike of alcohol advertisements was associated negatively (protective) with alcohol use in the past 6 months, with the odds ratio being 0.35 (95% CI 0.19 - 0.64). Having only a moderate dislike or a liking of alcohol advertisements was positively associated with alcohol use in the past 6 months among the study participants (OR 2.90 and 2.84, respectively). Age, gender, educational status and socioeconomic status were not independently associated with alcohol consumption.

**Conclusions.** Exposure to alcohol marketing and not being strongly averse to advertisements of alcohol brands and products were associated with alcohol use among adolescents. The results have implications for policies on alcohol marketing in SA.

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The harmful use of alcohol leads to 3.3 million deaths per annum globally (5.9% of all deaths) and is a major predictor of morbidity.<sup>[1]</sup> The impact of alcohol use is not only experienced by adults but also by adolescents, for whom alcohol consumption is a key risk factor for non-communicable and infectious diseases as well as various social and psychological harms, including school failure and drop-out.<sup>[2-6]</sup> In South Africa (SA), rates of alcohol consumption among adolescents are very high. According to the 2011 Youth Risk Behaviour Survey (YRBS) conducted among grade 8 - 11 learners in public schools, about half the learners had ever consumed alcohol, about a quarter had engaged in binge drinking in the 30 days prior to the survey, and about 12% had initiated consumption before the age of 12 years.<sup>[7]</sup>

To address SA's serious burden of alcohol use, a ban on alcohol advertisements is under consideration.<sup>[8]</sup> In 2013 the SA government approved the Control of Marketing of Alcoholic Beverages Bill, but more than 4 years later (2018) it still has to be voted on. This delay was attributable in part to the need for an independent regulatory impact

assessment to identify likely social and economic effects of the Bill,<sup>[9]</sup> which was completed early in 2015. If promulgated, the proposed ban would prohibit all advertisements, the display of names and logos of alcohol products on delivery vans, sports sponsorships by alcohol brands, and beverage promotions via discounts and donations at events. It would only allow point-of-sale notices describing alcoholic beverages being sold within licensed and registered outlets.<sup>[10]</sup> Restrictions or a complete ban on alcohol advertising are one of the three World Health Organization 'best buys' regarding alcohol control; the other two are restricting the availability of alcohol and increasing prices through taxation.<sup>[11]</sup> Marketing restrictions are particularly important for countries in sub-Saharan Africa (SSA), where alcohol companies have been aggressively targeting communities that have high abstinence rates and countries with lax or non-existent legislation or limited enforcement of alcohol marketing legislation.<sup>[12-14]</sup> For example, expenditure on advertisements is extremely high in SA, estimated at ZAR1.7 billion (~USD130 million), and alcohol

advertisements make up about 4.4% of all advertisements.<sup>[15]</sup> There is strong opposition by the alcohol industry to the proposed ban on alcohol advertisements in SA,<sup>[16]</sup> and there is therefore a need for national evidence on the likely effects of exposure to marketing of alcohol brands and products on alcohol consumption.

One key aspect of current legislation (the Liquor Act No. 59 of 2003) on alcohol marketing that relates to adolescents specifically is that it prohibits advertising 'in a false or misleading manner' or 'in a manner intended to target or attract minors' (p. 18).<sup>[17]</sup> Self-regulation by alcohol companies is the main means by which companies' compliance with these restrictions is monitored. Alcohol companies (as well as other companies in the communication industry) are required to adhere to the Code of Commercial Communication and Conduct of the Industry Association of Responsible Alcohol Use (now AWARE.ORG), which includes rules concerning alcohol advertisements and promotions.<sup>[18]</sup> Alcohol companies report annually to the Department of Trade and Industry on their adherence to the code via a certificate of compliance. However, there is evidence that the industry flouts its own regulatory codes, and adolescents are not only regularly exposed to different forms of advertisements but also seem to be specifically targeted, as evidenced by the existence of alcohol advertisements very close to the perimeter of school grounds and other places frequented by young people, and young people's perceptions that they are targeted.<sup>[19,20]</sup>

Globally, evidence on the association between alcohol consumption and exposure to alcohol marketing has generally been very consistent for adolescents. Specifically, numerous systematic reviews of longitudinal studies have indicated that exposure to alcohol advertising is associated with earlier alcohol initiation and heavier drinking per drinking occasion among adolescents.<sup>[21,22]</sup> Although limited, existing published research in SSA has also found associations between alcohol marketing and problem drinking and intoxication among adolescents. Swahn *et al.*,<sup>[23]</sup> for example, found in a study on alcohol marketing involving over 2 000 adolescents from the 2004 Global School-Based Student Health Survey for Zambia that the provision of free alcohol via a representative of an alcohol company was associated with an increased risk of drunkenness and problem drinking among the participants. However, neither exposure to alcohol advertisements via actors nor exposure via billboards was independently associated with drunkenness or problem drinking.<sup>[23]</sup> Other published studies on aspects of adolescents' exposure to alcohol advertisements and access to alcohol in SA to date<sup>[20,24,25]</sup> have provided useful information regarding the extent and perceived effects of exposure to alcohol advertisements on adolescents' consumption, but did not examine such exposure in relation to alcohol consumption quantitatively. The present study is therefore the first of which we are aware to examine the association between exposure to alcohol advertisements and alcohol consumption among adolescents in SA. This study's findings can be of great value for informing current debates about the government's proposed ban on alcohol marketing and advertisements in SA.

## Objectives

To examine whether there was an association between alcohol use in the past 6 months and demographic factors, exposure to alcohol marketing, and liking of alcohol advertisements during the same 6-month period among older adolescents (aged 16 and 17 years) in Tshwane, SA.

## Methods

### Design and sampling

The study was conducted in the City of Tshwane Metropolitan Municipality, which is located in the north-eastern part of SA and in

its most prosperous province, Gauteng Province. The City of Tshwane is primarily urban with a diverse population of about 2.9 million people, 24.2% of whom are unemployed and the majority of whom are black.<sup>[26]</sup>

The study is part of the SA arm of the International Alcohol Control (IAC) study.<sup>[27]</sup> In keeping with the IAC model, the study set out as a longitudinal survey targeting 2 000 participants aged between 16 and 65 years who had consumed alcohol in the past 6 months. Unlike most other IAC study countries, the IAC study in SA also included adolescents who had not consumed alcohol in the past 6 months, with a total target number of 1 000 adolescents to be recruited into the study regardless of their drinking status. If we had recruited adolescents into the study solely based on their drinking status, it was our impression that the response rate would have been very low, as many adolescents would have been reluctant to admit to drinking to the researchers, and to their parents, from whom consent was necessary prior to adolescent enrolment in the study. Furthermore, inclusion of adolescents who had not consumed alcohol in the past 6 months (i.e. never drinkers and 'non-recent' drinkers) had the additional advantage of enabling us to identify differences between 'recent drinkers' and 'non-recent/non-drinkers', and factors associated with changes in drinking behaviour among members of the cohort over time.

We used a multistage cluster random sampling design, involving selection of wards (formal demarcated municipal areas) in the first stage. The wards consisted of formal, informal and township areas (the latter being Apartheid era-based residential areas to which black people were assigned to reside). We then selected census enumeration areas (EAs) within the wards, and then households within the EAs. Subsequently, we randomly selected 'adult households' (households from which adults aged  $\geq 18$  years would be selected) and 'adolescent households' (households from which adolescents aged 16 - 17 years would be selected). We finally randomly selected one adolescent and one adult from each chosen adolescent household and adult household, respectively. The analyses reported in this paper concern the adolescent sample only.

### Survey tools

Two structured questionnaires were employed: one for participants who reported having consumed alcohol in the past 6 months (the main questionnaire), and the second one for adolescents who reported not having consumed alcohol in the past 6 months (the short questionnaire). The main questionnaire was adapted from the standard IAC questionnaire and translated and back-translated into seTswana and Afrikaans (the two most commonly spoken languages in Tshwane). It included various measures of demographic factors (age, gender, educational status, educational level, socioeconomic status), alcohol consumption, alcohol acquisition, exposure to brand marketing and liking of alcohol advertisements. The short questionnaire (for non-recent/non-drinkers) included the same questions but excluded those referring to the consumption and acquisition of alcoholic beverages. Table 1 shows details of the questionnaire measures that are of relevance to this article.

### Procedures

Trained interviewers interviewed the adolescents in their homes after having obtained informed consent from the adolescents and one of their parents or their primary caregiver. The adolescents were interviewed on their own, and in the absence and out of earshot of any other people in their households. At the beginning of the interview the selected adolescents were asked if they had consumed alcohol in the past 6 months. Those who responded in the affirmative

**Table 1. Questionnaire measures**

Scale	Sample item	Response options*	No. of items
Age	Could you please tell me your age?	Open-ended	1
Gender	Your gender?	Male/female	1
Educational status	Can you please tell me if you are ...	A school student/a tertiary student/working in paid employment, etc.	1
Education level	What is the highest level of education you have passed?	From <1 year to university degree	1
Socioeconomic status	Does your house have: electricity, a radio, a television, etc.	Yes No	10
Exposure to brand marketing	In the past 6 months, have you noticed any (alcohol) brands or products being advertised?	1. On television or movies 2. On large posters or billboards 3. Sponsoring sports 4. Sponsoring music events or festivals 5. Sponsoring TV programmes or films 6. Signs or posters inside or on the front of shops 7. On clothing, hats, T-shirts etc. 8. Special price offers on TV, radio or in newspapers 9. Famous people promoting alcohol brands 10. On websites 11. In SMSs (text messages) 12. On Facebook, Twitter or people's profile pages 13. On the radio 14. Free offers when you buy alcohol 15. Magazines/newspapers 16. Advertisements/promotions sent to your email address	16
Liking of alcohol advertisements	Which of the following best describes how you feel about alcohol adverts on the whole?	From 1 (dislike a lot) to 10 (like a lot)	1

\*Although some of the response options for educational status and education level did not apply to most of the adolescent participants, they were included in the questionnaire because it was designed for completion by adults as well as by adolescents.

completed the main questionnaire, while those who did not respond in the affirmative completed the short questionnaire. Using tablets onto which the questionnaires had been loaded, the interviewers read out the questions and then entered the participants' answers onto the tablets. At the end of the interviews, the participants' contact details were taken in order to facilitate follow-up interviews that were scheduled for 1 year later. The participants were each given a resource card with contact details of local services for dealing with alcohol-related problems and a shopping voucher or a telephone recharge voucher (whichever they preferred) worth ZAR30 (~USD2.50). The research was approved by the Research Ethics Committee of the South African Medical Research Council (protocol no. EC032-10/2012).

**Statistical analysis**

Descriptive statistics such as means, standard deviations and frequencies were calculated for all variables. To address the main study question, we used survey-based multiple logistic regression analysis whereby the dependent variable was alcohol use in the past 6 months. The independent variables were age, gender, educational status, socioeconomic status, exposure to alcohol product/brand marketing and liking of alcohol advertisements. For exposure to alcohol product/brand marketing, the number of different modes of exposure reported was used. Scores on this variable could therefore range between 0 and 16, and it was used as a linear variable in the multiple logistic regression model. For liking of alcohol advertisements, the variable was re-coded into three categories (1 - 2, 3 - 5 and 6 - 10), representing severe dislike, moderate dislike and liking, respectively. This re-coding gave three exposure groups

with >200 participants in each. We conducted the analyses on the weighted data, and the structure of the final realised sample and the sample frame were taken into account in order to weight the data. Statistical analyses for this study were computed using Stata version 14 (StataCorp, USA). For all significance testing, the *p*-values (<0.05 for statistical significance) are reported.

**Results**

The final sample comprised 869 adolescents, 71 (10.6%, 95% CI 5.9 - 18.3 - weighted) of whom reported alcohol consumption in the past 6 months. Table 2 shows the demographic and other characteristics of the participants. Approximately half of the adolescents were 16 and half 17 years of age. There was an almost even gender split. The majority of the participants were attending school (school students), most had at least a senior high-school educational level (i.e. grade 9 and above), and most reported having between 6 and 10 household amenities. Table 2 provides the estimated prevalence of drinking in the past 6 months for the different levels of a number of the demographic factors considered.

The adolescents reported substantial exposure to advertisements of alcohol branded products and material during the 6 months prior to the interviews (Fig. 1). The majority reported exposure in the past 6 months to brands and products being advertised on television or in movies, on signs or posters on the front of shops, on large posters and billboards, in magazines and newspapers, and on clothing. They were least likely to report exposure via websites, SMS messages to their cell phone, or messages sent to their email address.

Table 3 shows the prevalence of drinking in the past 6 months according to reported exposure to advertisements of alcohol brands

**Table 2. Estimated weighted prevalence of drinking in the past 6 months according to demographic characteristics of the adolescent participants (N=869)**

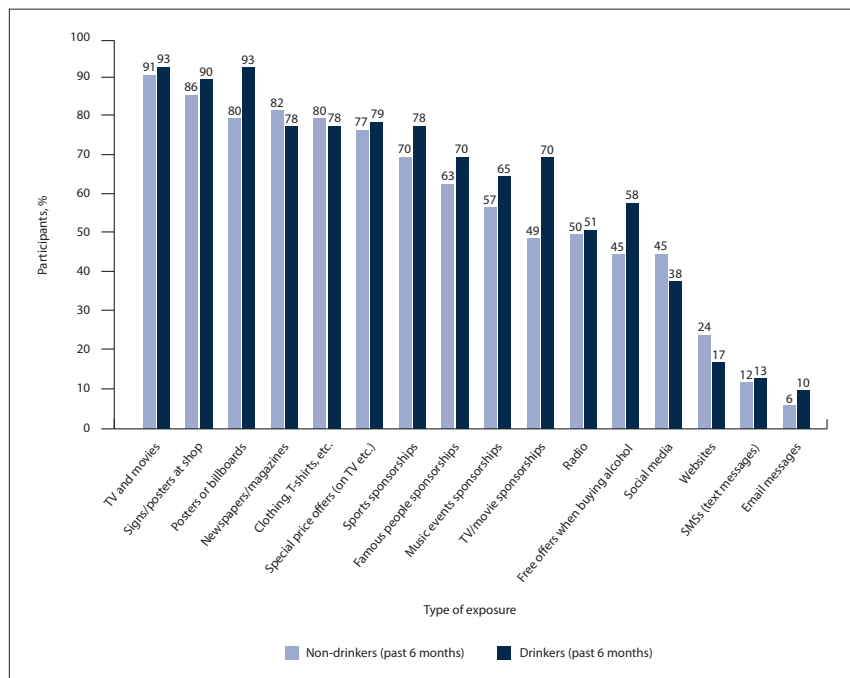
Variable	n (weighted %)	Lower CI	Upper CI
Alcohol consumption reported in past 6 months in the survey	71 (10.6)	5.9	18.3
Age (years)			
16	29 (8.0)	3.4	17.5
17	42 (13.8)	8.2	22.1
Gender			
Male	45 (15.0)	10.1	21.7
Female	26 (6.6)	2.0	19.2
School status			
School student	57 (10.6)	5.9	18.2
Not school student	14 (10.8)	3.3	30.2
Educational attainment			
Grade 8 (junior high) and below	14 (10.8)	3.3	30.2
Grade 9 (senior high) and above	57 (10.6)	5.9	18.2
Socioeconomic status (number of listed household assets)			
0 - 5 (low)	14 (9.5)	3.6	22.9
6 - 10 (high)	57 (11.2)	7.1	17.4

CI = confidence interval.

and products across each mode for the same period. The prevalence of drinking in the past 6 months was significantly higher among those reporting exposure in the past 6 months to sponsorship on TV programmes and films, famous people promoting alcohol brands, free offers when they bought alcohol, and having received email(s) with advertisements and promotions. The remaining methods and modes of advertising of alcohol brands and products were not associated with drinking prevalence in the past 6 months.

In general, the participants tended to dislike alcohol advertisements strongly (45.2%) or moderately (31.2%), while relatively few of the participants indicated liking alcohol advertisements (23.6%). However, there were significant differences in drinking prevalence in the past 6 months among those with different degrees of liking of alcohol advertisements ( $p=0.0082$ ). The prevalence of alcohol consumption in the past 6 months was 5.6% (95% CI 2.2 - 13.6), 16.3% (95% CI 7.6 - 31.3) and 17.3% (95% CI 10.8 - 26.5) for those who strongly disliked alcohol advertisements, moderately disliked alcohol advertisements and liked (regardless of degree) alcohol advertisements, respectively.

According to the univariate logistic regression analyses (Table 4), demographic factors were not significantly associated with drinking in the past 6 months, while exposure to brand marketing and liking of alcohol advertisements were significantly associated with drinking in the past 6 months. The results of the multiple logistic regression analysis (Table 4) were



**Fig. 1. Percentage of adolescents reporting exposure to alcohol brands or products being advertised via various media or methods (N=869).**

consistent with the latter results in that the number of modes of alcohol brand/product advertising exposure in the past 6 months was positively associated with drinking alcohol in the past 6 months among the adolescents (OR 1.13, 95% CI 1.01 - 1.28;  $p=0.036$ ). For example, a participant who was exposed to alcohol advertisements via seven different modes was 2.08 times (1.13<sup>6</sup>) more likely to have used alcohol in the past 6 months than a participant with exposure to a single mode of advertising.

The results also show that having a moderate dislike or a liking of alcohol advertisements was positively associated with alcohol use in the past 6 months (OR 2.90 and 2.84, respectively) and there was no significant difference between these two risk estimates ( $p=0.928$ ). Estimating a pooled OR of risk associated with not strongly disliking alcohol advertisements in comparison with strongly disliking alcohol advertisements resulted in an OR of 2.89 (95% CI 1.55 - 5.39;  $p=0.002$ ). Therefore, only strongly disliking alcohol

**Table 3. Drinking prevalence in the past 6 months among those who reported exposure v. those who reported non-exposure to alcohol brands/products being advertised via each mode over the past 6 months**

Mode of exposure to alcohol advertisements	Six-month drinking prevalence among exposed, % (95% CI)	Six-month drinking prevalence among non-exposed, % (95% CI)	p-value
TV/movies	11.0 (6.0 - 18.5)	8.0 (2.7 - 21.3)	0.486
Posters/billboards	11.6 (6.5 - 19.8)	7.0 (2.6 - 17.6)	0.206
Sponsoring sports	10.5 (6.2 - 17.4)	11.9 (5.6 - 23.5)	0.565
Sponsoring music events/festivals	13.1 (6.9 - 23.3)	8.3 (3.9 - 17.1)	0.219
Sponsoring TV programmes/films	18.0 (9.4 - 31.8)	3.9 (2.0 - 7.5)	<0.001
Signs/posters inside or on shop fronts	10.5 (5.9 - 17.9)	12.7 (3.6 - 36.0)	0.711
Clothing/hats/T-shirts	11.0 (6.2 - 18.6)	10.3 (3.7 - 25.8)	0.881
Special price offers: TV/radio/newspapers	11.9 (7.1 - 19.4)	6.4 (1.6 - 22.9)	0.240
Famous people promoting brands	12.8 (6.9 - 22.5)	6.8 (3.7 - 12.2)	0.007
Websites	8.6 (2.5 - 26.2)	12.2 (7.3 - 19.8)	0.505
SMSs (text messages)	16.2 (4.5 - 44.1)	9.9 (6.0 - 15.9)	0.343
Social media or profile pages	9.3 (5.3 - 15.7)	12.6 (6.2 - 23.9)	0.246
Radio	13.3 (7.9 - 21.3)	9.0 (3.5 - 20.9)	0.285
Free offers when alcohol is bought	14.2 (8.5 - 22.7)	8.5 (4.0 - 17.1)	0.039
Magazines/newspapers	11.4 (6.5 - 19.4)	7.7 (2.2 - 32.1)	0.424
Advertisements/promotions sent to email address	26.0 (8.0 - 58.5)	10.1 (6.0 - 16.6)	0.035

CI = confidence interval.

**Table 4. Results of univariate and multivariate survey logistic regression analysis of alcohol use in the past 6 months on demographic factors, number of alcohol marketing methods exposed to and liking of alcohol advertisements**

Variable	Univariate analysis			Multivariate analysis		
	OR	95% CI	p-value	Adjusted OR	95% CI	p-value
Age (years)						
16	Ref	-		Ref	-	
17	1.84	0.78 - 4.36	0.154	1.66	0.82 - 3.36	0.147
Gender						
Female	Ref	-		Ref	-	
Male	2.50	0.84 - 7.45	0.094	2.21	0.72 - 6.77	0.155
Education status						
Not school student	Ref	-		Ref	-	
School student	0.97	0.29 - 3.28	0.960	0.97	0.33 - 2.81	0.949
Socioeconomic status						
Low (0 - 5 household assets)	Ref	-		Ref	-	
High (6 - 10 household assets)	1.21	0.59 - 2.49	0.589	0.90	0.50 - 1.63	0.716
Exposure to alcohol brand marketing						
Number: 0 - 16	1.19	1.06 - 1.33	0.005	1.13	1.01 - 1.28	0.037
Liking of advertisements						
Strong dislike	Ref	-	0.005	Ref	-	0.002
Moderate dislike	3.26	1.65 - 6.41	0.002	2.90	1.41 - 5.95	0.006
Like	3.50	1.30 - 9.45	0.016	2.84	1.19 - 6.77	0.021

CI = confidence interval.

advertisements was protective against alcohol use in the past 6 months in these participants. Age, gender, educational level and socioeconomic status were not significantly associated with alcohol consumption in the past 6 months.

## Discussion

This study reveals that adolescents in the Tshwane area of SA have very high levels of exposure to alcohol advertisements. Over 80% of the adolescents in this study reported exposure to traditional forms of advertisements in the past 6 months, such as advertisements via

television or movies and signs at shops. This is concerning given that the alcohol industry's code of conduct prohibits the targeting of young people for alcohol advertising.<sup>[18]</sup> In addition, just under half of the adolescents reported exposure via social media, and a quarter via websites. It is notable that adolescents' levels of reported exposure to alcohol marketing via electronic media were higher than those of their adult counterparts in the same survey (the SA IAC study).<sup>[28]</sup> This finding is consistent with those in a study conducted among youth (aged 13 - 20 years) and adults (aged >20 years) in the USA.<sup>[29]</sup> The nature of the websites and the manner in which

adolescents become acquainted with and visit those websites that display alcohol marketing are worth exploring further to inform possible policy changes, such as those implemented in Finland to control alcohol advertising on the internet.<sup>[30]</sup> Of further interest was the proportion of young people reporting having received marketing via email messages (just under 10%). However, the full significance of this finding is not clear as we did not assess proportions of adolescents possessing email accounts. Another notable finding was that almost 50% of the adolescents (both past 6-month drinkers and non-drinkers alike) reported having been exposed to free offers when they had purchased alcohol. Such exposure was more common among those who had consumed alcohol in the past 6 months than among those who had not. From this observation it is evident that many adolescents had in fact purchased alcohol in the past 6 months, but it is unclear whether this had been for themselves and/or for others. In some communities parents (or other adults) send children to purchase alcohol on their behalf,<sup>[31]</sup> despite the legal age for purchasing alcohol being 18 years. By entering drinking outlets to buy alcohol, young people risk being unduly exposed to alcohol advertising (and other environmental conditions) that can potentially influence their own drinking perceptions and behaviour and place them at risk of harm, given the pervasiveness of violence in drinking outlets in SA.<sup>[32,33]</sup>

The results of this study suggest that exposure to advertisements of alcohol brands and products is associated with alcohol use among older (16 - 17-year-old) adolescents in SA, and concur with previous cross-sectional studies among adolescents.<sup>[23,34]</sup> High levels of exposure such as these are likely to give rise to positive attitudes to alcohol among young people, by giving them an unrealistically positive view of alcohol that does not show the more negative aspects of drinking behaviour. Such exposure also serves to normalise alcohol consumption.<sup>[35]</sup> One previous unpublished study among young people in SA indicated that young people's exposure to televised alcohol advertisements was likely to positively influence their attitudes and beliefs about alcohol consumption.<sup>[36]</sup>

The specific areas in which there were significant differences between those who had consumed alcohol in the past 6 months and those who had not mainly concerned alcohol sponsorships: exposure to alcohol marketing via the sponsoring of TV programmes or films, sponsorships via famous people, free offers when alcohol is purchased, and receiving e-mail messages with advertisements and promotions. These findings suggest the need for greater enforcement of and changes in national legislation.

The finding that liking alcohol adverts was significantly associated with alcohol consumption in both the univariate and multivariate analyses helps to explain the mechanisms by which alcohol advertisements are associated with alcohol use among young people. In other studies, liking of alcohol advertisements has been shown to enhance the effects of exposure to alcohol advertisements,<sup>[37]</sup> or to mediate the effects of exposure on drinking behaviour.<sup>[38]</sup> Disliking alcohol advertisements was protective in this study, indicating that efforts to reduce the appeal of advertisements of alcohol products to minors (via media literacy interventions, for example) may help to reduce alcohol consumption in this group. An unpublished study in SA found that young people find slogans and storylines in alcohol advertisements particularly appealing.<sup>[36]</sup>

There were relatively few adolescents (just over 10%) who reported having consumed alcohol in the 6 months prior to the survey. This contrasts with the 43.7% of adolescents (50.0% of males and 37.4% of females) from Gauteng who reported consuming alcohol in the past month according to the YRBS of 2011.<sup>[7]</sup> It is likely that the low

proportion of past 6-month drinkers in this study emanates from some parents' refusal to permit their adolescent children to take part in the study and/or adolescents' reluctance to admit to drinking alcohol to the interviewers despite the researchers' assurances of the confidentiality of their responses.<sup>[39]</sup> While school-based surveys are limited by not accessing out-of-school adolescents, surveys conducted at adolescents' homes may limit their willingness to disclose their drinking.

### Study limitations

This study has a number of limitations. First, the adolescent participants' responses may have been influenced by social desirability effects, despite the fact that the fieldworkers were trained to avoid being judgemental and to assure the participants of the confidentiality of their responses. The study's cross-sectional design is also a limitation, as it precludes determining the possible causal nature and also the direction of the obtained relationships. Just as exposure to alcohol marketing during a given time period can be argued to increase the likelihood of alcohol consumption during that time, possible media selectivity effects<sup>[40]</sup> prevail such that alcohol consumption can be argued to increase the adolescents' exposure to alcohol marketing and liking of alcohol advertisements. However, the finding that both drinkers and non-drinkers reported high levels of exposure in each of the media categories would not support the contention that media selectivity effects were in operation. Moreover, a common framework for understanding the role of media in influencing attitudes and behaviours<sup>[41]</sup> suggests that both media/marketing exposure and media/marketing selectivity can have a combined effect in influencing subsequent attitudes and behaviour. Longitudinal studies are needed to examine how adolescents' exposure to alcohol advertisements can predict their alcohol consumption over time. Finally, the relatively small number of past 6-month drinkers in the sample may have prevented us from obtaining statistically significant findings in some instances.

### Conclusion

This study is important in being one of the first in SSA to demonstrate significant associations between exposure to alcohol advertisements and alcohol consumption among adolescents. The study's findings can provide a basis on which to advocate for the resuscitation of the stalled legislation on banning alcohol marketing in SA in order to substantially reduce adolescents' alcohol marketing exposure, and hence their alcohol consumption, heavy consumption and the myriad social and health harms resulting from these behaviours.

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**Author contributions.** NKM, CDHP, NHB and PPW conceptualised the study; CL was responsible for the study design and statistical analyses; EN trained and supervised field staff and managed data collection; NKM

completed the first draft of the article; and all authors commented on early drafts and the final draft of the article.

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