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Social norms regarding alcohol use, perceptions of alcohol advertisement and intent to drink alcohol among youth in Uganda

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ABSTRACT

The objective of this paper is to address the scarcity of research on alcohol marketing exposure and underage drinking in sub-Saharan Africa. This study examines perceptions of alcohol advertisements and perceived peer, adult, and parental attitudes regarding alcohol use and intentions to drink among vulnerable youth. The Kampala Youth Survey is a cross-sectional study conducted in 2014 with service-seeking youth (ages 12–18 years) living in the slums of Kampala ($n = 1,134$) who were participating in Uganda Youth Development Link drop-in centers. Survey measures assessed perceptions of alcohol ads, social norms regarding alcohol use, and intentions to drink alcohol. Chi-square tests and structural equation modeling analyses were computed. Among participants, 32% reported intentions to drink alcohol. In fully adjusted multivariable models, current drinking status ($\text{AdjOR} = 5.13$; 95% $\text{CI}: 3.93, 6.72$) and perceived attractive alcohol ads ($\text{AdjOR} = 3.71$; 95% $\text{CI}: 2.88, 4.78$) were most strongly associated with the intention to drink. Analyses examining social norms as a moderator between perceptions of alcohol ads and intention to drink found that peer networks that disapproved of drinking were protective against intent to drink. Perceived alcohol advertisement effectiveness and peer networks supportive of alcohol use were associated with intentions to drink among both boys and girls in Kampala and were not buffered by parental disapproval of drinking. Reducing exposure to alcohol marketing and developing prevention programs that strengthen peer networks disapproving of underage alcohol use and reduce exposure to alcohol marketing may be promising strategies among these vulnerable youth.

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Introduction

Alcohol remains one of the most commonly used psychoactive substances globally and contributes to about 5% of deaths and 5% of the global disease burden (World Health Organization 2018). For youth, the acute consequences of alcohol use are of the greatest concern, including impaired judgment, disinhibition, and negative impacts on memory (Casswell and Thamarangsi 2009) which can lead to injuries and violence and sexual risk behaviors. Social norms and peer and parental networks all heavily influence adolescents' drinking behavior (Ross et al. 2014). Additionally, alcohol marketing has also emerged as a key driver of youth drinking, at least in countries where the impact of alcohol marketing on youth drinking have been researched and documented, such as in North America and in Europe (de Bruijn et al. 2012; Gordon, Marie Mackintosh, and Moodie 2010; World Health Organization 2010; David; Jernigan et al. 2017; Ross et al. 2014).

Social norms, defined as perceptions of other's attitudes and behaviors (DiBello et al. 2018), have been linked to adolescents' willingness to consume alcohol and their perceptions of alcohol use (Ross et al. 2014). Social Norms Theory (Perkins and Berkowitz 1986) posits that exposure to alcohol-related messages and imagery may result in an overestimation of peers' engagement in and acceptance of heavy drinking behavior. Social norms are important to examine in the context of alcohol consumption, as the different norms capitalize on different sources of motivation. Injunctive norms refer to one's perception of what should be done: what is approved or disapproved of by others (DiBello et al. 2018). In terms of alcohol use, the theory suggests that individuals will overestimate (a) how approving others are of alcohol use (perceptions of attitudes or injunctive norms) and (b) how much and/or how often others drink (perceptions of behaviors or descriptive norms) (DiBello et al. 2018). Social norms are closely tied to peer and parental networks, as these social norms are reflective of the individuals within the adolescents' social networks. Specifically, perceptions of a positive normative climate regarding drinking were significantly related to higher self-reported drinks per occasion, frequency of drinking, and weekly quantity consumed (DiBello et al. 2018). However, we could not find any research addressing this issue among vulnerable youth in sub-Saharan Africa.

The impact of social norm perceptions on the intention to drink is heavily impacted by individuals comprising peer and parental networks for youth. Peer networks were found to be predictors of adolescent drinking behavior, such that adolescents formed friendships with those who had similar levels of drinking; the number of heavy drinkers in a student's network also increased alcohol use during college (Wang et al. 2015; Rees and Wallace 2014; DeMartini, Prince, and Carey 2013). Although an adolescent may not drink, they can be influenced to initiate drinking through peer influence and perceived norms.

Parental influences and perceived norms are also important in evaluating adolescent drinking behaviors and attentions. Parental alcohol offering was a strong predictor of initiation drinking in early childhood (Lee et al. 2015). Parental networks, along with peer networks, may also play a moderating role between alcohol marketing and intention to drink (Morgenstern 2011).

A recent review article published in 2020 concluded that *'the relationship between exposure to alcohol marketing and underage drinking is causal'* (Sargent and Babor 2020). However, in many parts of the world where alcohol use and alcohol marketing are extensive, there is a lack of research and evaluation of alcohol marketing exposure and its impact across population groups. This is especially true in sub-Saharan Africa where alcohol marketing has become particularly predatory (Jernigan 2010; Jernigan, Obot, and Jos 2006; Obot 2013; van Beemen 2019) and where research studies on alcohol marketing, alcohol use and treatment remain scarce (Connor and Hall 2015; Francis et al. 2014). It is also the case that in many sub-Saharan African countries the alcohol industry regulates itself, a practice that has been found highly counterproductive in terms of protecting youth from alcohol marketing exposure and addressing alcohol-related harm (Esser and Jernigan 2018; Noel and Babor 2017; Noel, Babor, and Robaina 2017).

Research conducted primarily in North America and in Europe demonstrates that alcohol marketing, social norms, and perceptions are key factors in shaping young people's intentions to drink alcohol (Fisher et al. 2007; Fleming, Thorson, and Atkin 2004; Morgenstern 2011). For example, research shows that the amount of exposure to alcohol advertising is associated with higher levels of alcohol consumption among underage youth (Francis et al. 2014; Naimi et al. 2016; de Bruijn et al. 2012). Moreover, the transition to multiple drinking outcomes has also been predicted by increased receptivity to alcohol advertisements on television (Tanski et al. 2010). It is evident that the influences of alcohol marketing impact adolescent drinking behaviors and also peer and parental social norm perceptions both directly and indirectly.

A recent review examined the various cognitive mechanisms that may be impacted by alcohol marketing exposure and increased alcohol use (Henehan et al. 2020). While the review could not discern or recommend the key cognitive outcomes across studies, given the different study samples and methodologies, the intention to use alcohol following alcohol marketing exposure (Grube and Wallack 1994; Nash, Pine, and Messer 2009; Slater et al. 1997; van Hoof, Schreurs, and van der Lely 2018; Wyllie, Zhang, and Casswell 1998) is a key metric and a key cognitive outcome in settings where alcohol exposure research has been lacking.

To address the scarcity of research examining social norms, peer and parental influences, alcohol marketing exposure and underage drinking in sub-Saharan Africa, the current study measures these factors and their association with intention to drink. Specifically, this study seeks to explore whether perceived peer, adult, and parental attitudes regarding alcohol use are associated with the intent to drink alcohol in a vulnerable population of youth who reside in the slums of Kampala, Uganda. Previous research has documented the high levels of alcohol use and alcohol-related harm in this population (Swahn et al. 2020; Kumar et al. 2020; Swahn et al. 2018; Swahn, Buchongo, and Kasirye 2018). Also, because several cognitive responses to marketing are important in determining intentions to drink, this study will examine the potential impact of identification, desirability, and skepticism and how these perceptions may attenuate the association between social norms regarding the use and intent to drink alcohol. As such, the purpose of this study is a) to determine if there are gender differences in perceptions of alcohol marketing, b) to determine associations between perceptions of alcohol marketing and intent to drink; c) to determine whether social norms supporting alcohol use are associated with intent to drink; and finally d) to

determine whether social norms may moderate perceptions of alcohol marketing and intent to drink. We chose to measure ‘intention to drink’ rather than past-year drinking status as our primary outcome since ‘intention to drink’ captures those who plan to drink alcohol but who plan on initiating alcohol use in the next year (Fisher et al. 2007; Fleming, Thorson, and Atkin 2004; Morgenstern 2011). We hypothesized, based on previous research, that there would be no sex differences in the perceptions of alcohol marketing and that perceptions of alcohol marketing would be associated with the intention to drink. We also hypothesized that positive social norms supporting alcohol use would moderate the associations between alcohol marketing perceptions and intentions to drink. Specifically, we hypothesized that individuals with more positive and favorable social norms towards alcohol use would have a stronger association between alcohol marketing perceptions and an increased intention to drink.

Materials and methods

Setting

The Kampala Youth Survey was a cross-sectional survey conducted in March and April 2014 to examine alcohol risk behaviors and exposures among youth living in the slums of Kampala, Uganda attending Uganda Youth Development Link drop-in centers (‘Uganda Youth Development Link | Official Website’ 2015). Details of the survey methodology are described in detail elsewhere (Swahn et al. 2016; Swahn, Buchongo, and Kasirye 2018).

Ethical approval

Institutional Review Board approvals were obtained from the Georgia State University (SS3338) and the Uganda National Council on Science and Technology.

Measures

Intention to drink was measured with the question: ‘At any time in the next year, do you think you will have an alcohol drink?’ Participants could answer ‘Definitely yes’, ‘Probably yes’, ‘Probably not’, and ‘Definitely no’. Participants were classified as having an intention to drink if they answered, ‘Definitely yes’ or ‘Probably yes’, and participants were classified as not having an intention to drink if they answered, ‘Probably not’ and ‘Definitely no’. Perceptions of alcohol ads used an 8-item scale (Austin, Chen, and Grube 2006) with items assessing identification, desirability, and skepticism. Additionally, we incorporated a third measure to operationalize skepticism, increasing the perceptions of alcohol ads to a 9-item scale. Social norms related to alcohol were assessed across 4 survey statements as follows: Most of my friends do not plan to drink until they are older (friends’ descriptive normative beliefs); Most of my friends think I should not drink (friends’ attitudes/injunctive norms); Most adults I know discourage people my age from drinking (adults’ injunctive norms); and My parents would be upset if they found out that I’m drinking (parents’ attitudes). Response options were ‘Agree’, ‘Neither Agree or Disagree’ and ‘Disagree’. Perceived alcohol advertisement effectiveness was measured

using the statement, 'If I see a good ad for an alcohol drink, I want to try it'. Exposure to alcohol advertisements was assessed using, 'I see alcohol advertisements every day'. Past-year drinking status was measured using, 'Have you had a drink of alcohol in the past year?' (Yes/No).

Data management and analysis

Descriptive statistics were computed for alcohol advertisement perceptions between males and females and between youth who reported an intention to drink and youth who reported no intention to drink. Chi-square tests were used to test for differences in alcohol advertising perceptions between males and females and then between youth who reported an intention to drink and youth who reported no intention to drink.

Structural equation modeling was used to determine associations between intention to drink with alcohol advertising perceptions, demographic variables, and normative beliefs and attitudes among parents, friends, and adults. Analyses were conducted on the full sample of youth ($n = 1,134$) and the subsample of non-drinking youth ($n = 788$). Factor models for alcohol advertisement identification, desirability, and skepticism were constructed and evaluated first before incorporating them in the larger model. Each of the factor models were constructed separately to examine fit. Then, each factor model was introduced, and the entire three-factor models were estimated simultaneously before introducing the observed variables. This factor model analysis was conducted in both the full sample and the subsample of youth ($n = 788$).

The rest of the variables were operationalized as observed variables. For the outcome 'intention to drink', the models were conducted separately on the total sample of youth and the subsample of non-drinking youth. We tested moderation of the normative and attitudinal beliefs (friends and parents) with each advertisement item: identification, desirability, skepticism, and perceived alcohol advertisement effectiveness. Any statistically significant interaction terms were included in the final model. Full-information maximum likelihood (FIML) was used to estimate the final models under the missing-at-random (MAR) assumption. Data coding and descriptive statistics were computed in SAS 9.4 (Cary, NC); MPlus version 8.3 was used for structural equation modeling (Muthén and Muthén, 2018).

Results

Across all youth participants ($n = 1,134$), 32.0% ($n = 363$) reported intending to drink alcohol in the next year. Among past-year drinkers (30.5% of full sample, $n = 346$), most intended to continue to drink alcohol in the next year (84.7%, $n = 293$). Moreover, among youth who did not report currently consuming alcohol in the past year (69.5%, $n = 788$), several youth (8.9%, $n = 70$) reported intending to start drinking alcohol in the next year.

Perceptions of alcohol advertisements were similar between males and females (Table 1). Table 1 also shows perceptions of alcohol advertisements stratified by intention to drink. There were statistically significant differences for each alcohol advertisement perception measure between youth who intended to drink and youth who did not intend to drink. For example, a higher percentage of youth intending to drink in the next year agreed with the statement, 'I want to have as many friends as people in the beer ads do'

Table 1. Perceptions of Alcohol Advertisements by Sex and Intention to Drink among Youth in Kampala, Uganda (N = 1,133).

	Sex		Intent to Drink		Total
	Males n = 497 (43.9%)	Females n = 636 (56.1%)	Yes n = 363 (32.0%)	No n = 771 (68.0%)	N = 1,134 (100%)
Identification					
I want to have as many friends as the people in the beer ads do	201 (40.7%)	246 (38.7%)	246 (67.8%)	201 (26.2%)	447 (39.6%)
Agree	47 (9.5%)	66 (10.4%)	47 (13.0%)	****	113 (10.0%)
Neither agree or disagree	246 (49.8%)	323 (50.9%)	70 (19.3%)	66 (8.6%)	570 (50.4%)
Disagree				500 (65.2%)	
I want to have as much fun as the people in the beer adverts	206 (41.6%)	265 (41.7%)	256 (70.5%)	215 (28.0%)	471 (41.6%)
Agree	48 (9.7%)	74 (11.7%)	49 (13.5%)	****	122 (10.8%)
Neither agree or disagree	241 (48.7%)	296 (46.6%)	58 (16.0%)	73 (9.5%)	538 (47.6%)
Disagree				480 (62.5%)	
I wish I were as good looking as most people in the beer adverts	196 (39.6%)	260 (40.9%)	221 (61.1%)	235 (30.6%)	456 (40.3%)
Agree	67 (13.5%)	61 (9.6%)	58 (16.0%)	****	128 (11.3%)
Neither agree or disagree	232 (46.9%)	314 (49.5%)	83 (22.9%)	70 (9.1%)	547 (48.4%)
Disagree				464 (60.3%)	
Desirability					
People in alcohol adverts look like they make good decisions while drinking	150 (30.3%)	177 (27.8%)	163 (44.9%)	164 (21.3%)	327 (28.9%)
Agree	114 (23.0%)	137 (21.5%)	95 (26.2%)	****	251 (22.2%)
Neither agree or disagree	231 (46.7%)	322 (50.6%)	105 (28.9%)	156 (20.3%)	554 (48.9%)
Disagree				449 (58.4%)	
People drinking beer in adverts seem to have lots of friends	266 (53.7%)	358 (56.3%)	261 (71.9%)	363 (47.2%)	624 (55.1%)
Agree	74 (15.0%)	101 (15.9%)	56 (15.4%)	****	175 (15.5%)
Neither agree or disagree	155 (31.3%)	177 (27.8%)	46 (12.7%)	119 (15.5%)	333 (29.4%)
Disagree				287 (37.3%)	
The women in alcohol adverts are always good looking	302 (61.4%)	389 (61.4%)	296 (81.8%)	395 (51.6%)	691 (61.3%)
Agree	58 (11.8%)	64 (10.1%)	26 (7.2%)	****	122 (10.8%)
Neither agree or disagree	132 (26.8%)	181 (28.6%)	40 (11.1%)	96 (12.6%)	314 (27.9%)
Disagree				274 (35.8%)	
Skepticism					
Alcohol adverts make drinking look like only good things happen while drinking	285 (57.6%)	370 (58.4%)	261 (72.1%)	395 (51.4%)	656 (58.1%)
Agree	78 (15.8%)	105 (16.6%)	58 (16.0%)	****	183 (16.2%)
Neither agree or disagree	132 (26.7%)	159 (25.1%)	43 (11.9%)	125 (16.3%)	291 (25.8%)
Disagree				248 (32.3%)	
Alcohol adverts make drinking seem better than it is	329 (66.6%)	417 (65.6%)	256 (70.5%)	491 (63.9%)*	747 (66.1%)
Agree	81 (16.4%)	97 (15.3%)	57 (15.7%)	121 (15.8%)	178 (15.7%)
Neither agree or disagree	84 (17.0%)	122 (19.2%)	50 (13.8%)	156 (20.3%)	206 (18.2%)
Disagree					
Companies that make adverts want me to buy things that I really don't need	223 (45.1%)	252 (53.1%)	304 (39.7%)	172 (47.5%)	476 (42.2%)
Agree	75 (15.2%)	127 (62.9%)	118 (58.4%)	****	202 (17.9%)
Neither agree or disagree	196 (39.7%)	254 (40.1%)	344 (44.9%)	84 (23.2%)	450 (39.9%)
Disagree				106 (29.3%)	

Note: * p < 0.05 **p < 0.01 ***p < 0.001 p < 0.0001

compared to youth not intending to drink ($\chi^2=217.19$, $df = 2$, $p < 0.0001$). Statistically significant differences were also found for the statements: 'I want to have as much fun as the people in the beer adverts' ($\chi^2=224.42$, $df = 2$, $p < 0.0001$), and 'I wish I were as good looking as most people in the beer adverts' ($\chi^2=137.93$, $df = 2$, $p < 0.0001$). Desirability was also statistically significantly associated with intention to drink, including the following statements: 'People in the alcohol adverts look like they make good decisions while drinking' ($\chi^2=95.04$, $df = 2$, $p < 0.0001$), 'People drinking beer in adverts seem to have lots of friends' ($\chi^2=78.22$, $df = 2$, $p < 0.0001$), and 'The women in alcohol adverts are always good looking' ($\chi^2=97.03$, $df = 2$, $p < 0.0001$). Lastly, each item for skepticism was also statistically significantly associated with intention to drink, including: 'Alcohol adverts make drinking look like only good things happen while drinking' ($\chi^2=57.85$, $df = 2$, $p < 0.0001$), 'Alcohol adverts make drinking seem better than it is' ($\chi^2=27.53$, $df = 2$, $p < 0.0001$), and 'Companies that make adverts want me to buy things that I don't really need' ($\chi^2=8.03$, $df = 2$, $p = 0.02$).

Factor models for alcohol advertisement identifications, desirability, and skepticism for the full sample ($n = 1,134$) are presented in Table 2 and the subsample of non-drinking youth ($n = 788$) are presented in Table 3. The factor models had adequate fit statistics.

Table 2. Measurement models for alcohol advertisement identification, desirability, and skepticism among youth living in the slums of Kampala, Uganda ($N = 1,134$).

	Estimate (95% CI)	Standardized Estimate (95% CI)	Standard Error	P-value
Identification				
'I want to have as many friends as the people in the beer ads do'	1.00 (1.00, 1.00)	0.95 (0.93, 0.97)	0.00	<0.001
'I want to have as much fun as the people in the beer adverts'	1.04 (1.00, 1.08)	0.98 (0.96, 1.00)	0.02	<0.001
'I wish I were as good looking as most people in the beer adverts'	0.81 (0.78, 0.85)	0.77 (0.74, 0.80)	0.02	<0.001
Desirability				
'People in alcohol adverts look like they make good decisions while drinking'	1.00 (1.00, 1.00)	0.70 (0.65, 0.75)	0.00	<0.001
'People drinking beer in adverts seem to have lots of friends'	1.21 (1.08, 1.33)	0.85 (0.79, 0.90)	0.08	<0.001
'The women in alcohol adverts are always looking good'	1.04 (0.95, 1.14)	0.73 (0.68, 0.78)	0.06	<0.001
Skepticism				
'Alcohol adverts make drinking look like only good things happen while drinking'	1.00 (1.00, 1.00)	0.70 (0.65, 0.76)	0.00	<0.001
'Companies that make adverts want me to buy things that I really don't need'	0.87 (0.79, 0.95)	0.61 (0.56, 0.66)	0.05	<0.001
'Alcohol adverts make drinking seem better than it is'	1.37 (1.19, 1.55)	0.96 (0.90, 1.03)	0.11	<0.001

Note. Model fit for each latent factor was just-identified. Model fit for all three factors (without any observed variables): Root Mean Square Error of Approximation (RMSEA):0.082; 95% Confidence Interval (CI): 0.070, 0.095. Comparative Fit Index (CFI): 0.988. Tucker-Lewis index (TLI): 0.982. Standardized Root Mean Square Residual (SRMR): 0.046.

Table 3. Measurement models for alcohol advertisement identification, desirability, and skepticism among non-drinking youth living in the slums of Kampala, Uganda (N = 788).

	Estimate (95% CI)	Standardized Estimate (95% CI)	Standard Error	P-value
Identification				
'I want to have as many friends as the people in the beer ads do'	1.00 (1.00, 1.00)	0.94 (0.92, 0.97)	0.00	<0.001
'I want to have as much fun as the people in the beer adverts'	1.05 (1.01, 1.10)	0.99 (0.97, 1.02)	0.03	<0.001
'I wish I were as good looking as most people in the beer adverts'	0.82 (0.78, 0.87)	0.78 (0.74, 0.82)	.03	<0.001
Desirability				
'People in alcohol adverts look like they make good decisions while drinking'	1.00 (1.00, 1.00)	0.72 (0.66, 0.78)	0.00	<0.001
'People drinking beer in adverts seem to have lots of friends'	1.21 (1.06, 1.35)	0.87 (0.81, 0.93)	0.09	<0.001
'The women in alcohol adverts are always looking good'	1.00 (0.90, 1.11)	0.72 (0.66, 0.78)	0.06	<0.001
Skepticism				
'Alcohol adverts make drinking look like only good things happen while drinking'	1.00 (1.00, 1.00)	0.74 (0.67, 0.80)	0.00	<0.001
'Companies that make adverts want me to buy things that I really don't need'	0.80 (0.71, 0.88)	0.59 (0.53, 0.65)	0.05	<0.001
'Alcohol adverts make drinking seem better than it is'	1.30 (1.10, 1.51)	0.96 (0.88, 1.04)	0.12	<0.001

Note. Model fit for each latent factor was just-identified. Model fit for all three factors (without any observed variables): Root Mean Square Error of Approximation (RMSEA):0.082; 95% Confidence Interval (CI): 0.070, 0.095. Comparative Fit Index (CFI): 0.988. Tucker-Lewis index (TLI): 0.982. Standardized Root Mean Square Residual (SRMR): 0.046.

Table 4 presents unadjusted and adjusted odds ratios for the structural equation model for the intention to drink (Figure 1). Model 1 consists of demographic and alcohol advertisement perception scale predictors, whereas model 2 incorporates the additional predictors of social normative beliefs and attitudes of friends, parents, and other adults. For the multivariable model 1, current drinking status (OR: 6.55, 95% CI: 5.17, 8.31) was associated with intention to drink, after adjusting for all other covariates. Additionally, perceived alcohol advertisement effectiveness was associated with the intent to drink for both those reporting to agree (OR: 3.73; 95% CI: 2.93, 4.74) compared to those disagreeing. For the multivariable model 2 with social norms included, past-year drinking status (OR: 5.13; 95% CI: 3.93, 6.72) and 'If I see a good ad for an alcohol drink, I want to try it' (Agree OR: 3.71; 95% CI: 2.88, 4.78; Neither agree nor disagree OR: 2.28; 95% CI: 1.54, 3.40) were associated with intention to drink. Lastly, disagreeing with friends' attitudes ('Most of my friends think I should not drink alcohol') was associated with intention to drink in the multivariable model (OR: 1.83; 95% CI: 1.31, 2.55).

Table 5 presents results for 'intention to drink' among non-drinking youth (n = 788) (Figure 2). In the multivariable model 1, intention to drink was only associated with 'If I see a good ad for an alcohol drink, I want to try it' (Agree OR: 3.95; 95% CI: 2.88, 5.41; Neither agree nor disagree OR: 2.57; 95% CI: 1.62, 4.09). In multivariable model 2, intention to drink was also associated with 'If I see a good ad for an alcohol drink, I want to try it' along with attitudinal friends' beliefs (Neither agree nor disagree OR: 2.13; 95% CI: 1.21, 3.74). None of the interaction terms between the advertisement items and the normative/attitudinal beliefs were statistically significant.

Table 4. Adjusted and unadjusted odds ratios for intention to drink among youth living in the slums of Kampala, Uganda, (N = 1,134).

	Intention to drink Model 1 (Demographics + Alcohol Ad Perceptions)		Intention to drink Model 2 (Demographics + Alcohol Ad Perceptions + Friend/Parents Normative Beliefs/ Attitudes)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
School	1.00	1.00	1.00	1.00
Less than primary	0.94 (0.67, 1.32)	0.98 (0.71, 1.36)	0.94 (0.67, 1.32)	1.04 (0.74, 1.49)
Completed primary	1.06 (0.80, 1.41)	1.11 (0.85, 1.43)	1.06 (0.80, 1.41)	1.23 (0.93, 1.63)
Secondary or higher				
Age	1.37 (1.27, 1.49)	1.01 (0.93, 1.09)	1.37 (1.27, 1.49)	1.00 (0.91, 1.09)
Gender	1.00	1.00	1.00	1.00
Male	1.04 (0.81, 1.33)	1.04 (0.83, 1.30)	1.04 (0.81, 1.33)	1.09 (0.86, 1.40)
Female				
Alcohol advertisement identification	1.99 (1.87, 2.12)	0.72 (0.24, 2.17)	1.99 (1.87, 2.12)	0.51 (0.13, 1.90)
Alcohol advertisement desirability	2.24 (2.00, 2.52)	0.57 (0.11, 2.89)	2.24 (2.00, 2.52)	4.09 (0.40, 41.87)
Advertisement skepticism	1.48 (1.32, 1.65)	0.99 (0.69, 1.42)	1.48 (1.32, 1.65)	0.66 (0.38, 1.15)
Alcohol advertisement perceived marketing effectiveness	28.98 (20.40, 41.18)	3.73 (2.93, 4.74)	28.98 (20.40, 41.18)	3.71 (2.88, 4.78)
'If I see a good ad for an alcohol drink, I want to try it'	8.54 (5.08, 14.34)	1.00	8.54 (5.08, 14.34)	1.00
Agree				
Neither agree nor disagree				
Disagree				
Current drinker	1.00	1.00	1.00	1.00
No	56.70 (38.71, 83.07)	6.55 (5.17, 8.31)	56.70 (38.71, 83.07)	5.13 (3.93, 6.72)
Yes				
'I see alcohol ads every day'	1.34 (0.98, 1.82)	0.90 (0.68, 1.19)	1.34 (0.98, 1.82)	0.87 (0.64, 1.18)
Agree	1.01 (0.66, 1.56)	1.07 (0.76, 1.51)	1.01 (0.66, 1.56)	1.07 (0.74, 1.54)
Neither agree nor disagree	1.00	1.00	1.00	1.00
Disagree				
Normative Friends	–	–	1.00	1.00
Agree			3.79 (2.60, 5.51)	1.18 (0.79, 1.75)
Neither agree nor disagree			7.37 (5.38, 10.10)	1.28 (0.93, 1.77)
Disagree				
Attitudes Friends	–	–	1.00	1.00
Agree			5.05 (3.43, 7.46)	1.75 (1.14, 2.68)
Neither agree nor disagree			9.55 (6.99, 13.05)	1.83 (1.31, 2.55)
Disagree				
Normative Adults	–	–	1.00	1.00
Agree			3.31 (2.21, 4.96)	0.79 (0.55, 1.13)
Neither agree nor disagree			7.23 (4.61, 11.34)	1.18 (0.75, 1.85)
Disagree				
Attitudes Parents	–	–	1.00	1.00
Agree			6.28 (4.03, 9.80)	1.23 (0.78, 1.93)
Neither agree nor disagree			13.51 (7.80, 23.40)	1.31 (0.76, 2.25)
Disagree				

Note. Significant findings are bold faced. Normative Friends: 'Most of my friends do not plan to drink alcohol until they are older'; Attitudes Friends: 'Most of my friends think I should not drink alcohol'; Normative Adults: 'Most adults I know discourage people my age from drinking alcohol'; Attitudes Parents: 'My parents would be upset if they found out that I'm drinking alcohol'.

Discussion

Consistent with our hypothesis and other previous research in Europe and North America, alcohol marketing receptivity, past-year drinking status, and social norms related to peer attitudes were all associated with intention to use alcohol in the

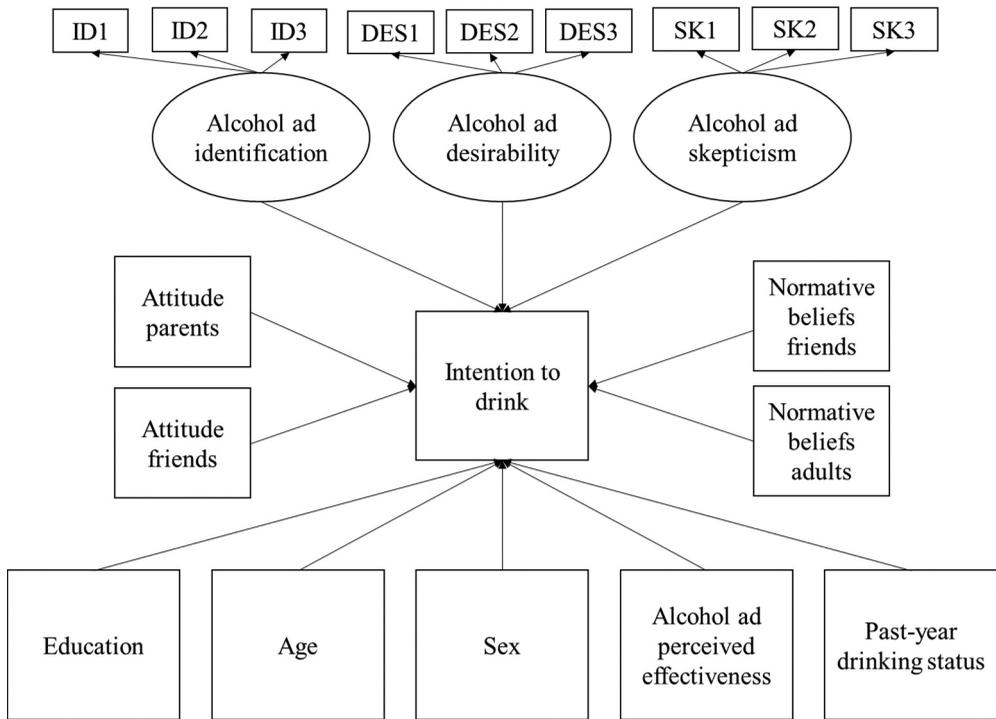


Figure 1. Path model diagram of predictors for intention to drink among youth participating in the Kampala Youth Survey (n = 1,134). Note. Ad = advertisement; id = identification; des = desirability; sk = skepticism. Indicators are as follows: ID1: ‘I want to have as many friends as the people in the beer ads do;’ ID2: ‘I want to have as much fun as the people in the beer adverts;’ I wish I were as good looking as most people in the beer adverts;’ DES1: ‘People in alcohol adverts look like they make good decisions while drinking;’ DES2: ‘People drinking beer in adverts seem to have lots of friends;’ DES3: ‘The women in alcohol adverts are always looking good;’ SK1: ‘Alcohol adverts make drinking look like only good things happen while drinking;’ SK2: ‘Companies that make adverts want me to buy things that I really don’t need;’ SK3: ‘Alcohol adverts make drinking seem better than it is’.

upcoming year. Most notably, intention to drink among non-drinking youth was associated with alcohol advertisement effectiveness. Peer attitudes may be an important driver of alcohol use among these youth, potentially more so than adult normative beliefs. Many of the youth in the current study are orphans, which may be one of the reasons why peer attitudes was a strong predictor for intention to drink (Swahn et al. 2017; Perry et al. 2020).

Moreover, our findings show that positive perceptions of alcohol ads did not vary for boys and girls. While males in this population tend to drink more than females, alcohol advertisements seem to be perceived the same among males and females. This is concerning for the initiation of alcohol use among females, particularly due to the association between alcohol marketing and intention to drink (Fisher et al. 2007; Fleming, Thorson, and Atkin 2004; Morgenstern 2011).

Table 5. Adjusted and unadjusted odds ratios for intention to drink among non-drinking youth living in the slums of Kampala, Uganda, (n = 788).

	Intention to drink Model 1 (Demographics + Alcohol Ad Perceptions)		Intention to drink Model 2 (Demographics + Alcohol Ad Perceptions + Friend/Parents Normative Beliefs/ Attitudes)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
School	1.00	1.00	1.00	1.00
Less than primary	0.97 (0.68, 1.37)	0.92 (0.60, 1.42)	0.97 (0.68, 1.37)	0.93 (0.58, 1.53)
Completed primary	1.28 (0.96, 1.70)	1.32 (0.93, 1.86)	1.28 (0.96, 1.70)	1.39 (0.96, 1.99)
Secondary or higher				
Age	1.04 (0.96, 1.13)	0.99 (0.64, 1.52)	1.04 (0.96, 1.13)	1.00 (0.89, 1.12)
Gender	1.00	1.00	1.00	1.00
Male	1.08 (0.84, 1.39)	1.09 (0.81, 1.48)	1.08 (0.84, 1.39)	1.17 (0.85, 1.62)
Female				
Alcohol advertisement identification	1.47 (1.22, 1.76)	0.83 (0.33, 2.28)	1.47 (1.22, 1.76)	0.80 (0.29, 2.20)
Alcohol advertisement desirability	1.71 (1.19, 2.46)	1.29 (0.23, 7.26)	1.71 (1.19, 2.46)	1.43 (0.24, 8.44)
Advertisement skepticism	1.22 (0.94, 1.58)	0.88 (0.52, 1.48)	1.22 (0.94, 1.58)	0.88 (0.52, 1.48)
Alcohol advertisement perceived marketing effectiveness	3.83 (2.83, 5.18)	3.95 (2.88, 5.41)	3.83 (2.83, 5.18)	3.90 (2.80, 5.42)
'If I see a good ad for an alcohol drink, I want to try it'	1.00	1.00	1.00	1.00
Agree				
Neither agree nor disagree				
Disagree				
'I see alcohol ads every day'	1.06 (0.91, 1.23)	1.03 (0.71, 1.49)	1.06 (0.91, 1.23)	(0.68, 1.52)
Agree	1.09 (0.95, 1.26)	1.39 (0.91, 2.13)	1.09 (0.95, 1.26)	1.30 (0.82, 2.06)
Neither agree nor disagree	1.00	1.00	1.00	1.00
Disagree				
Normative Friends	–	–	1.00	1.00
Agree			1.54 (1.15, 2.07)	1.12 (0.66, 1.89)
Neither agree nor disagree			1.72 (1.25, 2.36)	1.09 (0.72, 1.66)
Disagree				
Attitudes Friends	–	–	1.00	1.00
Agree			1.69 (1.24, 2.31)	2.13 (1.21, 3.74)
Neither agree nor disagree			2.05 (1.46, 2.90)	1.36 (0.87, 2.12)
Disagree				
Normative Adults	–	–	1.00	1.00
Agree			1.82 (1.19, 2.76)	0.95 (0.60, 1.58)
Neither agree nor disagree			1.93 (1.17, 3.20)	1.79 (0.88, 3.63)
Disagree				
Attitudes Parents	–	–	1.00	1.00
Agree			1.35 (0.59, 3.07)	0.80 (0.40, 1.59)
Neither agree nor disagree			1.44 (0.84, 2.47)	0.71 (0.16, 3.21)
Disagree				

Note. Normative Friends: 'Most of my friends do not plan to drink alcohol until they are older'; Attitudes Friends: 'Most of my friends think I should not drink alcohol'; Normative Adults: 'Most adults I know discourage people my age from drinking alcohol'; Attitudes Parents: 'My parents would be upset if they found out that I'm drinking alcohol'.

In terms of factors that may exacerbate the link between positive perception of alcohol ads and intention to drink alcohol, we found that only a peer group of non-drinkers was protective and seemed to buffer against the intention to drink: youth who reported that most of their friends do not plan to drink alcohol until they are older were less likely to intend to drink alcohol even if they viewed alcohol ads favorably.

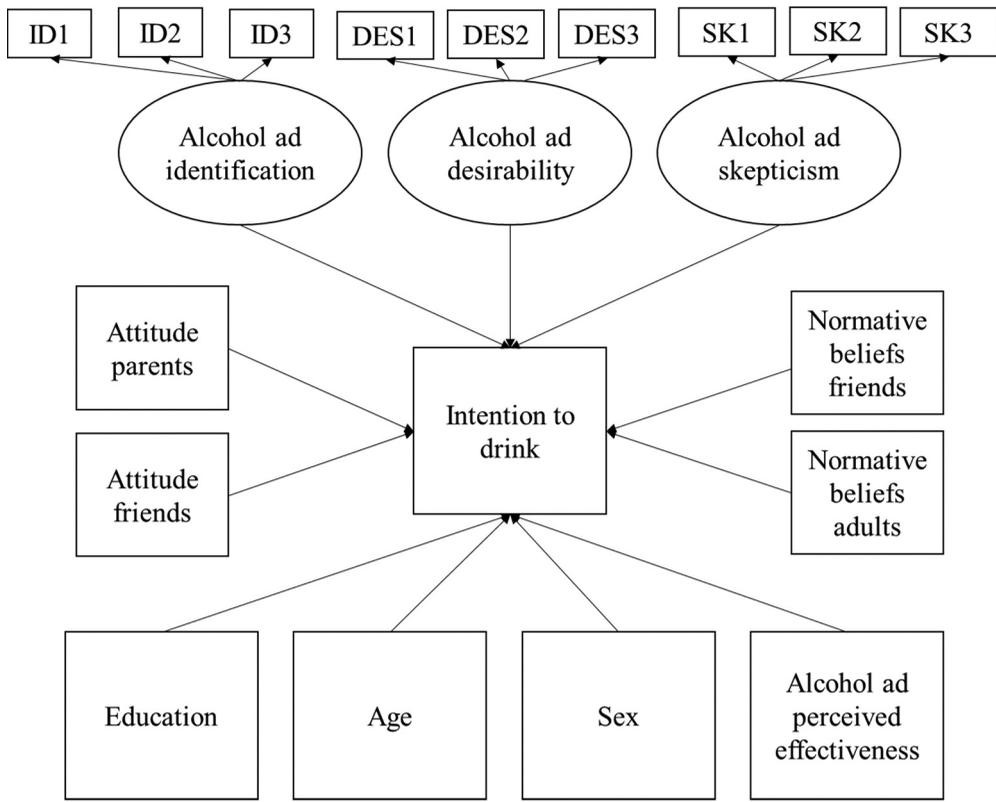


Figure 2. Path model diagram of predictors for intention to drink among non-drinking youth participating in the Kampala Youth Survey (n = 746). Note. Ad = advertisement; id = identification; des = desirability; sk = skepticism. Indicators are as follows: ID1: ‘I want to have as many friends as the people in the beer ads do;’ ID2: ‘I want to have as much fun as the people in the beer adverts;’ I wish I were as good looking as most people in the beer adverts;’ DES1: ‘People in alcohol adverts look like they make good decisions while drinking;’ DES2: ‘People drinking beer in adverts seem to have lots of friends;’ DES3: ‘The women in alcohol adverts are always looking good;’ SK1: ‘Alcohol adverts make drinking look like only good things happen while drinking;’ SK2: ‘Companies that make adverts want me to buy things that I really don’t need;’ SK3: ‘Alcohol adverts make drinking seem better than it is’.

Interestingly, when we examined the potential role of friends’ attitudes towards drinking, adult’s approval of drinking and also parental attitudes about drinking, they were not significant moderators. However, these factors were important correlates of intention to drink.

Limitations

There are several limitations that should be considered when interpreting these findings. Due to the cross-sectional nature of this study, causal mechanisms cannot be assumed. The convenience sample of service-seeking youth is also limiting; however, it should be noted that this population is hard-to-reach and a clear sampling frame does not exist. Additionally, our data were collected in 2014 and do not capture any recent changes or

trends with respect to alcohol use or marketing in Uganda. Moreover, since all measures were self-reported, results may be influenced by self-reporting and social desirability bias.

Implications and recommendations

Despite our limitations, this study is the first to our knowledge to document the perceptions of alcohol advertising among vulnerable youth in Kampala. This study presents important findings on a hard-to-reach and understudied population that is heavily exposed to alcohol marketing, in order to inform prevention initiatives (Swahn, Palmier, and Kasirye 2013). Our study clearly demonstrates a strong association between positive perceptions of alcohol ads and intention to drink alcohol, both among current drinkers and among current non-drinkers. Relatedly, a key factor in our analyses of intentions to drink is the role of perceived peer norms (having friends who support drinking). These will be key issues to address given the high level of exposure to alcohol marketing and the very limited regulations in Uganda that protect youth from seeing the ads combined with limited alcohol prevention measures among youth. While some progress has been made since our study was conducted, including the banning of alcohol sachets in 2019 and the Cabinet approval of a new National Alcohol Control Policy in 2019, the existing laws are loosely enforced and poorly regulated (Ssebunnya et al. 2020). Furthermore, alcohol use has been documented as a driver of poverty ('Drinking into Deeper Poverty. The New Frontier for Chronic Poverty in Uganda' 2021), which has broad implications beyond this study population.

In a number of countries in Sub-Saharan Africa (i.e. Kenya, Nigeria, South Africa, and Uganda) alcohol is a major contributor to the burden of social problems and health (Obot 2013). Although, many African countries have a substantial proportion of their populations who abstain from alcohol consumption, primarily due to religious practices, drinkers in African countries consume 13% more alcohol per capita than the average among drinkers globally (World Health Organization 2014). Large producers (i.e. Heineken, Diageo, and SABMiller) have sought to expand the alcohol market in African countries by heavily advertising their brands and building new breweries (Obot 2013; van Beemen 2019). With limited research on alcohol marketing exposure among vulnerable youth in sub-Saharan Africa (Swahn, Palmier, and Kasirye 2013) and the changing alcohol environment, it has been suggested that stronger alcohol marketing regulations are needed to reduce alcohol-related problems (Ferreira-Borges et al. 2015; Jernigan and Trangenstein 2020). Policy and intervention suggestions include restricting or banning promotions targeting youth, counteracting marketing strategies on the harmful effects of alcohol, and implementing statutory restrictions to reduce both alcohol marketing exposure and the distribution of alcohol among youth (Swahn et al. 2011; Swahn, Palmier, and Kasirye 2013; World Health Organization 2018).

Finally, a large proportion of youth in our study were under the legal drinking age for Uganda (age 18). As such, our findings underscore the need to restrict exposure to alcohol ads among underage youth and to strengthen underage drinking policies and enforcement of the legal drinking age. Awareness campaigns should target youth,

particularly those out of school, and emphasize the direct and indirect harms of alcohol consumption. Future research should also investigate strategies to buffer against extensive alcohol marketing exposures. Furthermore, prospective studies that examine resilience against alcohol marketing and abstaining from alcohol may be particularly informative for prevention programs seeking to strengthen coping skills and delay alcohol use, particularly in vulnerable populations in resource-limited settings.

Disclosure statement

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