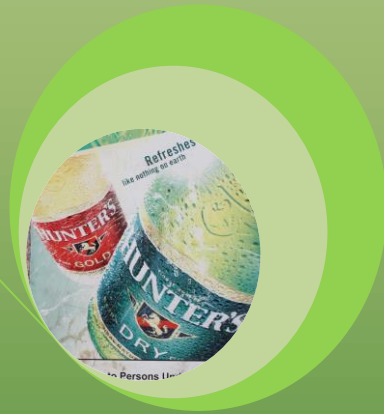


Monitoring Alcohol Marketing in Africa



***FINDINGS FROM
KENYA, MALAWI,
NAMIBIA AND ZAMBIA***

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Findings from Kenya, Malawi, Namibia and Zambia

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SUMMARY

Introduction

Alcohol is the leading risk factor for ill health and death in developing countries with low rates of child and adult mortality. Consumption of commercial alcoholic beverages is expected to rise in the next years as economic conditions continue to improve in some African countries and as a result of increasing alcohol marketing and promotion activities by the global alcohol industry.

This publication reports on alcohol marketing in Africa by focusing on alcohol marketing practices in four African countries, namely: Kenya, Malawi, Namibia and Zambia. This report is commissioned by the World Health Organization of the African Region and was supported by the Ministries of Health and WHO counterparts in Kenya, Malawi, Namibia and Zambia. First, a general description will be given on alcohol producing companies and themes in alcohol advertising in Kenya, Malawi, Namibia and Zambia based on alcohol marketing practices collected. Second, the potential effect of exposure by alcohol marketing will be described by discussing the results of a cross-national survey on alcohol marketing held in the four countries.

Method

Data has been collected by NGOs in the participating countries in the year 2012. The data collection included a systematic monitoring exercise in which alcohol marketing practices in various media outlets have been studied as well as a school-based survey in each country.

A sample of 6.912 adolescents, with a Mean age of 14.87 (SD=1.17) from Kenya, Malawi, Namibia and Zambia took part in the study. With the use of Structural Equation Modeling, associations between two latent variables (alcohol marketing exposure and positive alcohol expectancies) and two observed variables (onset of alcohol use and onset of binge drinking) were examined.

Findings

The African drinking market is dominated by a small number of global alcohol companies which are very active in Kenya, Malawi, Namibia and Zambia. These companies use sophisticated marketing strategies aiming to increase alcohol

consumption. They either try to increase alcohol consumption of existing drinkers or try to reach new (potential) consumers (e.g. young people and women). Themes identified in alcohol marketing practices in the four African countries studied were: drinking alcohol to be successful in life, enjoying the drink with your family, and alcohol as part of the tradition and culture. Additionally, opportunities to win money by purchasing the product had been encountered frequently.

Analyzing the survey data revealed that alcohol marketing exposure was found to increase the likelihood of onset of drinking alcohol and to increase the likelihood of heavy episodic drinking (binge drinking). Findings suggest that the effect of alcohol marketing exposure on drinking alcohol is robust in all countries studied. This confirms findings found in impact studies held in developed countries (Anderson, de Bruijn et al. 2009; Smith and Foxcroft 2009).

The conducted analyses suggest that the impact of alcohol marketing exposure can be partly explained by the increase of positive expectancies towards alcohol generated by exposure to alcohol.

Conclusion

Themes in alcohol marketing in Kenya, Malawi, Namibia and Zambia mirror the themes encountered in alcohol marketing practices found in other Sub-Saharan African countries (DeBruijn 2011). Attractive elements in alcohol advertising such as linking alcoholic products to a successful lifestyle or national pride can be seen as undesirable from an ethical and public health perspective.

Findings presented in this study are in line with research conducted in more developed countries and suggest a robust impact of alcohol marketing exposure on adolescents' drinking behavior across countries. Higher exposure to alcohol marketing is associated with a higher likelihood of (1) starting to drink alcohol at an early age and; (2) being engaged in heavy episodic drinking (binge drinking). The size of the influence of alcohol marketing on alcohol use and the content of the ads suggest a need for policy makers to take action at the national and supra-national level to restrict adolescents' exposure to alcohol marketing in order to protect a new generation against the harmful consequences of alcohol use.

Policy recommendations

1. Recognizing that a comprehensive ban on advertising, promotion and sponsorship would reduce alcohol-related harm, and that self-regulation is an ineffective mechanism to reduce alcohol-related harm, effective legislation is necessary to strictly regulate alcohol marketing activities;
2. The total volume of alcohol marketing should be restricted as much as possible. Alcohol marketing tools that are difficult to monitor (e.g. alcohol advertising on the internet) should be prohibited;
3. Alcohol marketing practices identified refer to values that are highly appreciated by large groups of Africans in the participating countries. In media where alcohol advertising is allowed, it should be restricted to information of the product only; which includes that the product is not to be exhibited in a setting with people or any other context glamorizing the alcoholic product.
4. The use of direct or indirect incentives that encourage the purchase of alcohol should be prohibited;
5. The adherence to alcohol marketing regulations should be monitored regularly by the government or a board independent from economic interests of the sale of alcohol. The monitoring method described in the MAMPA project (DeBrujin 2011) can be a starting point of monitoring systematically by non-economic operators;
6. In order to provide governments with adequate information, alcohol companies should be obliged to disclose alcohol marketing expenditures to appropriate governments.

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INTRODUCTION

Alcohol creates physical and psychological harm to the individual as well as damage to society. The adolescent brain is particularly susceptible to alcohol. Research suggests that heavy episodic drinking (binge drinking) damages the development of the (adolescent) brain (Welch et al 2013). Besides direct consequences, alcohol consumption during adolescence is associated with alcohol problems later in life ((McCambridge, McAlaney, and Rowe, 2011).

Alcohol is the leading risk factor in those developing countries with low rates of child and adult mortality (Obot & Jos, 2006): in Sub-Saharan Africa 2.2% of all deaths and 2.5% of all adjusted life years (DALYs) are related to alcohol (WHO 2011). Consumption of commercial beverages is expected to rise in the next years as economic conditions continue to improve in some African countries and as a result of increasing alcohol marketing and promotion activities by the global alcohol industry (Obot and Jos 2006; Casswell and Thamarangsi 2009). The youth population, which constitutes the largest demographic group in African countries, has increased in size and is expected to further increase their alcohol consumption. Several authors have noted that adolescents and young adults have become the specific target audience for alcohol marketers (Jernigan 2001; Odejide and Ibadan 2006).

This report is commissioned by the World Health Organization of the African Region and was supported by the Ministries of Health and WHO counterparts in Kenya, Malawi, Namibia and Zambia. In this report we study alcohol marketing in Africa by focusing on alcohol marketing practices in four African countries, namely: Kenya, Malawi, Namibia and Zambia.

Data has been collected by NGOs in the studied countries in the year 2012. The data collection included a systematic monitoring exercise in which alcohol marketing practices in various media outlets have been studied and a school-based survey in each country. The monitoring exercise was piloted in an earlier WHO commissioned project named the Monitoring Alcohol Marketing Practices in Africa - MAMPA 2010 study (DeBruijn 2011).

Firstly, a general description will be given on alcohol producing companies and themes in alcohol advertising in Kenya, Malawi, Namibia and Zambia based on

alcohol marketing practices collected. Secondly, the potential effect of exposure by alcohol marketing will be described by discussing the results of a cross-national survey on alcohol marketing held in the four countries.

ALCOHOL CONSUMPTION AND POLICY

The sampled countries differ in alcohol consumption rates, accessibility of alcohol and existing regulations covering alcohol marketing (ICAP 2001; WHO 2011). All selected countries (i.e., Kenya, Malawi, Namibia, and Zambia), like most African countries, have a young population. Between 38% and 47% of the population in these countries is under the age of 15 (WHO, 2011). The number of lifetime abstainers (age 15+) in Africa is generally high (57.3%) compared to for example the European continent (18.9%); ranging in the selected countries from 59.7% in Kenya through 77.8% in Malawi (WHO, 2011). The per capita consumption of alcohol among adults ranges from 1.7 liters in Malawi through 9.6 liters in Namibia, with Zambia (3.9 liters) and Kenya (4.1 liters) falling in between. Frequency of heavy episodic drinking (binge drinking) is higher among men than among women in all selected countries. The proportion of adult males engaging in binge drinking are as follows: 25% in Namibia, 29.7% in Kenya, 30.6% in Malawi, and 48.1% in Zambia.

Table 1 illustrates that all four countries can be classified as beer drinking countries. The beer consumption in Malawi and Zambia is largely classified under the category 'other' due to the popularity of opaque beer in Southern Africa. Opaque beer (or sorghum beer) is a type of beer based on sorghum and is thought to be a drink for the lower-class. The market of commercially manufactured spirits is rather modest and the market share of commercially produced wine almost negligible compared to beer.

In Malawi, Namibia and Zambia, no legally binding alcohol advertising regulation or self-regulation code (ICAP, 2001; WHO 2010) is in force. Since 2012, the Zambian government put a prohibition of possessing, manufacturing and selling alcohol in small quantities and especially in small plastic sachets ("Tujilijili") (The Government of Zambia, 2012).

Among the countries selected, only Kenya has legally binding regulations on alcohol advertising. The Alcoholic Drinks Control Act of 2010, includes a restriction alcohol promotion on any event, activity or promotional item associated with persons on the eighteen years (46.1.a/b). Other than this, only content restrictions were included (see text box 1).

In 2013, important amendments of the Act in 2010 have been put in place realizing a more restrictive alcohol advertising regulation. Besides additional content restrictions, the new regulations include a watershed on all electronic media, and a ban on outdoor alcohol advertising in residential areas and placement within a distance of 300 meters from education centers, health care centers and public land and properties. Enforcement of these regulations and others stated in the Act is challenging but gains increased priority for the Kenyan body National Authority for the Campaign Against Alcohol and Drug Abuse (NACADA) (Ngei, 2013).

Table 1. WHO country figures on alcohol use and policy

Country	Adult (15+) per capita consumption, average 2003–2005 (in litres of pure alcohol): recorded	Adult (15+) per capita consumption , average 2003–2005 (in litres of pure alcohol): unrecorded	% beer	% wine	% spirits	% other*	(Selling / Purchasing / Drinking) Age limit	Available legislation on alcohol marketing
Kenya	1.6	2.5	44%	1%	27%	28%	18	Yes
Malawi	1.2	0.5	13%	<1%	20%	67%	18	No
Namibia	5.9	3.7	67%	7%	20%	6%	18	No
Zambia	2.4	1.5	18%	<1%	12%	70%	18	No

Text box 1. Fragment of the Kenyan Alcoholic Drinks Control Act 2010 (blue) and Alcoholic Drinks Control Act 2013 (green).

45.1 Subject to this Part, no person shall promote an alcoholic drink so as to create a false impression that-

- (a) a link exists between consumption of that drink and social or sexual success;
- (b) consumption of that drink is acceptable before or while engaging in driving, operating machinery, sports or other activities that require concentration in order to be carried out safely;
- (c) that the alcoholic drink has a therapeutic value or that it has the ability to prevent, treat or cure any human disease;
- (d) it is wrong or foolish to refuse that drink.

45.1

1A) A person shall not promote an alcoholic drink or brand related element by—

- (a) way of outdoor advertisement or billboard in places demarcated as residential areas or within a distance of three hundred metres from a nursery, primary or secondary school, or other institution of learning for persons under the age of eighteen years or a place of worship, health facility or a public playground or any other public land or property or public service vehicle;
- (b) way of broadcasting in any electronic media between the hours of 6:00 a.m. and 10:00 p.m.;
- (c) including anything in the promotion which might appeal to persons under the age of eighteen years by implying that the consumption of an alcoholic drink is fashionable or the accepted course of behavior;
- (d) portraying or using a sports or entertainment personality to endorse an alcoholic drink or including any statement, picture or illustration implying that the consumption of an alcoholic drink enhances the prowess or success of that personality, or any statement, picture or illustration referring to any known, if such statement, picture or illustration implies, or if the reader may reasonably infer, that the use of alcoholic drink contributed to such known personality's achievements;
- (e) is misleading by exaggerating the capability or performance of an alcoholic drink;
- (f) painting or decorating a residential building with the

ACTIVE ALCOHOL COMPANIES

Changes in social and cultural conditions together with increasing marketing efforts by alcohol companies, are expected to raise alcohol consumption and consequently to increase alcohol-related harm worldwide (Casswell and Thamarangsi 2009). Alcohol companies active in the four countries examined are mostly global alcohol companies.

Traditionally, the production of alcoholic drinks was done at home. Alcohol use especially consumption of commercially produced goods among Africans was strongly promoted by colonial governments (Gordon 2003; Glazer 1997). Ironically, alcohol and especially beer has become a symbol of national identity (Gordon 2003).

In the post-colonial era, global players came active in the African markets. Large profits and investments have been made. Currently, 80% of the African beer market is held by four players (SABMiller, Diageo, Heineken and Castel) (Jones 2012). The global alcohol company Diageo has seen African profits rise 15% in each of the last five years, while the African market now accounts for 14% of their total profits (Jones 2012). Meanwhile, the competitor SABMiller has plans for a \$2.5 billion investment into Africa in the next five years (Tiisetso & Tebogo 2012).

Tusker, brewed by the Kenya Breweries Limited which is fully owned by the East African Breweries Limited (EABL), is the most popular beer in Kenya. Tusker is marketed as a source of Kenyan pride which was highlighted in the late 1990s when East African Breweries played the patriotic card to win a marketing war against Castle Breweries, a subsidiary of international brewing giant SABMiller. Although the largest shareholder of EABL is the international giant Diageo, Castle and SABMiller, also international giants, were depicted as foreign and uncommitted to Kenya. The prolonged marketing wars came to an end in 2002, when the two alcohol companies reached a settlement: Castle agreed to exit Kenya, and EABL decided to leave the Tanzanian market to the SABMiller subsidiary (SABMiller, 2002). Since 2010, however, the marketing war continued (Okulo, 2013) after SABMiller took ownership of the Kenyan brewery Crown Beverages Limited (SABMiller, 2014). At this moment, growth of the beer market is led by the brand Senator keg which was introduced seven years ago by Diageo's controlled EABL (Jones 2012). Due to the low price of this beer (at a

fifth of the price of its mainstream beer Tusker), Senator keg has rapidly grown to account for over 40 percent of the Kenyan beer market (Jones 2012).

As described above, beer based on sorghum is the type of alcohol consumed most often in Malawi. Sorghum or opaque beer was generally produced informally. Alcohol companies took parts of this market by commercially producing opaque beer, promoting the drink as a *nutritious* beer and a healthy alternative to moonshine (Findlay, 2012). The international company SABMiller owns a majority share of Chibuku Products Limited (CPL) and has a market share of 99% of the

formal sorghum beer market in Malawi. Since 2005, sorghum beer (by the brand Eagle) is also produced in Zambia by commercial breweries as an alternative to the home brown alternatives (Mutumweno, 2011). SAB Miller announced to start producing cassava beer in order to get another cheap and accessible beer on the Zambian market, after its success in Zimbabwe and more recently in Mozambique (Findlay, 2012).

SABMiller is already an important player in Zambia. Zambia's main beer is SABMiller's *Mosi Lager*, for the indigenous name for Victoria Falls (Mosi Oa Tunya). Castle by SABMiller is also found on most places in Zambia.

The largest brewer in Namibia, Namibian Brewery Limited (NBL), produces the popular beer brand Windhoek Lager, named for the country's capital. The company collaborates with the giant alcohol companies Heineken International and Diageo and produces under license and distributes their international brands.

Introducing
Chibuku **SHAKE SHAKE**

- Chibuku Shake Shake is a nutritious beer made from Maize & Sorghum.
- Low alcohol and can be taken without refrigeration
- Drink within **5 days** after production
- Once opened, drink all.
- Can be served at parties, funerals, Outdoorings etc.

Not for sale to persons under **18 years**

Chibuku is available at:
Ahenfie Bar - Alajo
Super Obaa Yaa - Pig Farm
Even Paradise - Kotobabi Down
Martins Spot - Bukom

Don't litter

Global companies in the countries examined try to accelerate the consumption of spirits. The herbal and fruit Ready-to-Drink category is rapidly growing (Paskin, 2012). New products are launched and designed specifically for the African market such as the apple drink Snapp, aimed at younger women. Diageo avoided putting the drink in more classic brown beer bottles as many West Africans associate those bottles with prostitutes. Diageo aimed to present Snapp as a stylish and sophisticated alternative to beer. In its first year, Snapp delivered £10 million of net sales making it Diageo's most successful launch of a new brand (Diageo, 2014). In the year 2011-2012, 24 new brand extensions have been launched by Diageo in Sub-Saharan Africa alone (Paskin, 2012).

Some general characteristics and trends of alcohol advertising alcohol companies active in Kenya, Malawi, Namibia and Zambia can be identified and are discussed in the next paragraph.



THEMES IN ALCOHOL ADVERTISING

To identify characteristics and trends in alcohol advertising in Kenya, Malawi, Namibia and Zambia, alcohol advertising in various marketing channels were monitored systematically in 2012.



Monitoring alcohol marketing practices in these countries revealed a base level of advertising instances that only presented a logo and a general slogan. For instance Senator Keg lager: Jitambulishel. Bamba Senator leo. – Swahili for: Introduce yourself. Order a plate of Senator today. However, there were also a number of common themes identified in the content of marketing practices.

Drinking alcohol to be successful in life

Consuming or purchasing alcohol is found to be often connected to having a successful career and/or being popular and rich. A successful life is a theme that was also found in a previous monitoring exercise conducted in the African continent (DeBrujin 2011). For example, A Namibian poster marketing the Carling Black Label beer enticed consumers by boldly stating: “You’ve earned an award winning beer.” This message also comes through in the Kenyan newspaper advertisement by Tusker, inviting readers to: “Discover the Tusker Lite Experience. With Johny Gill (ed. An American R&B singer)”. The imaging and text of the advertisement imply that ‘relaxing’ at a concert organized by a beer brewer is part of a successful lifestyle. The most





flagrant example of a marketing instance connecting a brand to a successful lifestyle, is the Malawi poster by Global Beverages Ltd. promoting sachets of their brands Boss, Zero Gin, Champion, Mafia and Sports Star. This poster features the slogan “Great people, great choice,” and depicts photographic portraits of (from left to right) former King of pop Michael Jackson, football star Pelé, US president Barack Obama and former South African president Nelson Mandela. The poster implies that these Africans (or Afro Americans in the case of Michael Jackson and Barack Obama) at least drink the promoted beverages and perhaps even suggests a causal relationship between their beverage of choice and their success.



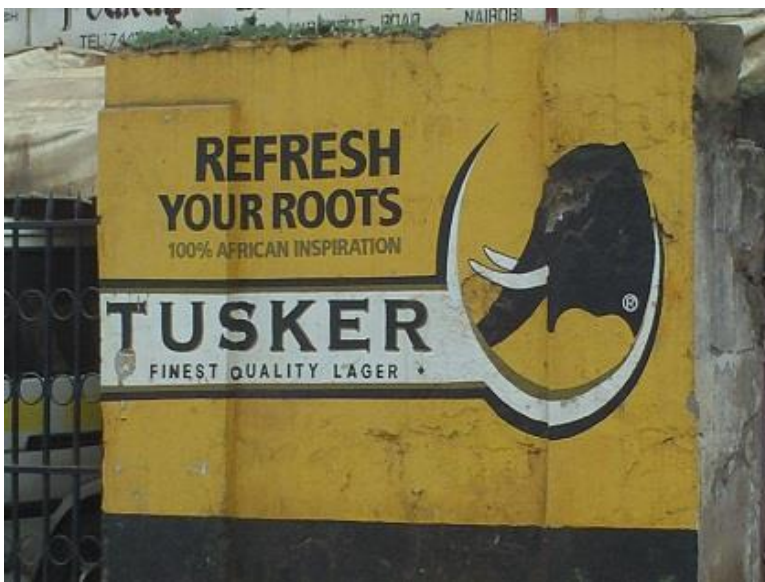
Enjoy with your family

Another recurring message found in the countries examined emphasizes good living with friends and family. An example of this is the Kenyan magazine advertisement for Baileys that reads: “To those who I feel at home with. Baileys. Share it with your VIPs.” Similarly, Carlsberg in a Malawi outdoor advertisement implores viewers to: “Chill-out. With the family.” With a comparable text, a Namibian outdoor advertisement describes Castle Lager as the place “where good friends come together.”

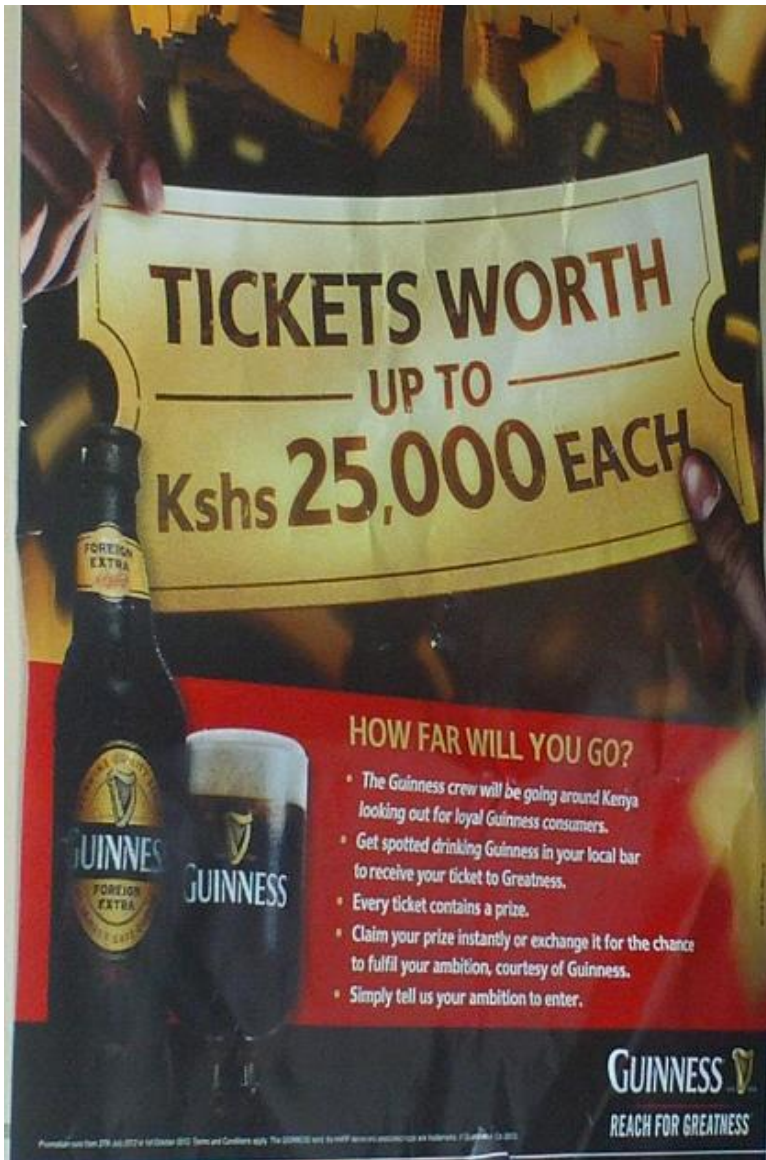


Drinking the brand is part of your tradition and culture

Another theme in commercial alcohol advertising messages suggests that drinking (industrially produced) alcohol is part of the national tradition and portrays the national pride. Marketing a brand or alcohol company as part of the cultural heritage was already addressed earlier in this report and is found in alcohol marketing practices identified in other African countries as well (DeBrujin 2011). For example, a poster found in Kenya indicates that Summit Lager is “Natural Beer, Sugar Free. Truly Kenyan.” The last line was also used to promote the vodka brand Vienna Ice in an outdoor advertisement and four newspaper ads. Another example is identified in Malawi, where an outdoor advertisement for Napolo describes the brand as: “A beer of national pride.” In Namibia the same trend was identified in marketing instances for different brands. For instance, Windhoek Lager, in an outdoor advertisement, is referred to as Namibia’s favorite beer. While identified advertisements for Tafel Lager used slogans like: “Born and brewed in Namibia. Share your pride,” and “What a country, what a beer.”



However, it is not just the sentiment of nationalism that is used for marketing purposes, but also the sentiment of continental pride as is shown by the beer brand Tusker. In Kenya, outdoor and online alcohol marketing instances for Tusker used slogans like: “Refresh your Roots. 100% African Inspiration,” and “Share the African



Spirit.” It may be assumed that the choice for referring to the whole continent of Africa instead of one of its individual countries is strategic for a brand that is available and promoted in multiple countries.

References to symbols in the local nature are also very common in African alcohol advertisements (DeBruijn 2011). The elephant in the logo of Kenya’s most popular beer brand Tusker or the reference of the beer brand *Mosi* to the Victoria Falls are only two examples.

The common element in the various phrasings and references to nationalism or the nation is that they give potential consumers the idea that they can belong to the national (or even continental) population by buying and consuming the product that is promoted.

Sweepstakes

Another theme that was identified in the four countries is that of sweepstakes. An example is the ‘How far will you go?’-campaign that was organized by Guinness

in Kenya in multiple media channels. To win monetary prizes of up to 25.000 Kenyan Shillings (\$290 USD), people are asked to be spotted drinking Guinness in their local bar. Guinness consumers can then receive a ‘ticket to greatness,’ from members of the Guinness crew who are looking specifically for Guinness consumers. It can be argued that in a country where people generally have a low income, this promotional campaign is particularly attractive.

Active alcohol companies, their marketing efforts and frequently used themes in alcohol advertising found in the four countries have been described. In the next paragraphs of the report, we will discuss the potential impact of young people being exposed to these alcohol advertisements.

IMPACT OF ALCOHOL MARKETING EXPOSURE

INTRODUCTION

Research shows the potential influence of exposure to alcohol marketing on young people's drinking in Western countries (Anderson, de Bruijn et al. 2009) and on their drinking behavior (Anderson, de Bruijn et al. 2009; Smith and Foxcroft 2009). The literature suggests a cumulative effect of various alcohol marketing channels on drinking among youth (Gordon, Harris et al. 2010; Gordon, MacKintosh et al. 2010; Gordon, Harris et al. 2011). Various alcohol marketing measures have been used in previous research, which were mostly conducted in the US and the Pacific.

The present study was designed to examine the relationships between alcohol marketing exposure and drinking behaviors among adolescents in four African countries: Kenya, Malawi, Namibia and Zambia. It was expected that in developing countries, where there is no situation of saturated markets, alcohol advertising and promotion would have a stronger impact on the level of consumption than in developed countries. As Jernigan suggests, more sophisticated and ubiquitous marketing strategies are used to target African youth (Jernigan, Obot et al. 2006). As described above, alcohol is for example, portrayed as an emblem of success, and a symbol of patriotism. New generations of drinkers are encouraged to use alcohol by advertising in TV commercials, billboards, newspapers, magazines, internet and (event) sponsoring (Jernigan, Obot et al. 2006; Jernigan 2008). **It is hypothesized that there is a direct impact of alcohol marketing exposure on adolescents' onset of drinking alcohol, even when controlling for possible confounding factors including accessibility of alcohol, social influences and media use.**

The cross-national character of the research design is thought to increase the external validity of the study, which suggests that a presumed causal relationship can be generalized beyond a specific national context (Nelson et al., 2010). **It is hypothesized that the impact of alcohol marketing exposure on adolescents' onset of drinking alcohol is robust and holds in different national contexts.**

The current study aims to provide some understanding in potential mechanisms on how alcohol marketing is expected to affect adolescents' drinking behavior. Positive attitudes towards smoking have been found to mediate the exposure to tobacco advertising and the likelihood of smoking (Aloise-Young et al, 2006). A similar effect is expected to be found on the impact of alcohol advertising. **It is hypothesized that since alcohol marketing suggests to adolescents that drinking alcohol has positive influences on their behavior, this will then increase the likelihood for underage drinking.**

METHOD

1. Procedure

A questionnaire was developed to investigate the hypotheses; For Kenya, the sample contains schools from the areas of Nairobi (Capital) and Machakos (regional area). For Malawi, the sample contains schools from the areas of Lilongwe (Capital), Kasungu, Dowa and Salima (regional areas). For Namibia, the sample contains schools from the areas of Windhoek and Rehoboth. For Zambia, the sample contains schools from the areas Lusaka (Capital) and Chibombo (regional area). Ethical clearance was obtained in each country (from the Ministry of Health or national ethical board). After schools consented to the questionnaire being handed out at their school and the parents had given passive consent for the student to fill it out, adolescents were provided with the information that the answers they were giving were anonymous and voluntary. Active consent from the participants was obtained.

2. Sample

The final sample (N=6912) had a mean age of 14.87 (SD=1.17) ranging from 12 to 18 years old, of which 45.7% were male. Social economic status (availability of a bathroom in the house) and cigarette use among respondents varied among the four different African countries (Kenya, Malawi, Namibia, and Zambia).

Table 2. Descriptive statistics Total Sample and per Country

	<i>Kenya</i>	<i>Malawi</i>	<i>Namibia</i>	<i>Zambia</i>	<i>Overall</i>
N	1533	2003	1700	1675	6912
Mean Age (SD Age)	15.49 (.917)	14.83 (.997)	14.38 (1.11)	14.86 (1.38)	14.87 (1.17)
Range Age	12-18	12-18	12-18	12-18	12-18
% Boys	40.0	46.2	45.4	50.5	45.7
%Smokers	11.6	6.0	18.9	6.4	10.5
SES % NO_{bathroom}	24.6	26.9	16.5	51.8	29.8

3. Measures

Alcohol use

The adolescents were asked how old they were when they had their first drink of alcohol other than a few sips. Students answering 'I have never had a drink of alcohol other than a few sips' were coded as a non-drinker (initiation=0), students answering the age they had their first drink were coded as 'ever drinker'(initiation=1). Furthermore, students were asked whether they had had 5 or more drinks at one occasion over the last 30 days. Students answering none were coded as not a recent binge drinker (binge=0), Students answering one or more times were coded as a recent binge drinker (binge=1). Questions were adapted from the Global School-Based Student Health Survey (GSHS) (WHO 2010) and the European School Survey Project on Alcohol and Other Drugs (ESPAD) (Hibell et al 2011).

Alcohol Marketing Exposure

To measure alcohol marketing exposure the adolescents were asked to mark how many times they were confronted with alcohol advertisements on several outlets, including TV, radio, magazines, newspapers and billboards during a period of time adapted from the GSHS (WHO, 2009) and Gordon et al (2010). All items depend on self-reported measures of exposure. The level of exposure by alcohol advertising on television is measured with the question: 'In the past week, how many TV adverts have you seen for alcoholic drinks like beer wine or spirits?' (no ads thru 6 or more ads). A similar question is asked for alcohol advertising on the radio. To measure the level of exposure by alcohol advertising in printed media, students are asked 'In the past week, how many adverts have you seen in newspapers and magazines for alcoholic drinks like beer wine or spirits?' (no ads thru 6 or more ads), 'During the past 30 days, how many advertisements for alcohol have you seen in newspapers?' (none, a few, a lot) and 'During the past 30 days, how many advertisements for alcohol have you seen in magazines?' (none, a few, a lot). Exposure to outdoor alcohol advertising is measured with the question 'During the past 30 days, how many advertisements for alcohol have you seen on billboards?'(none, a few, a lot). Finally, to measure the level of exposure to alcohol event sponsoring students are asked 'When you go to sport events, fairs concerts community events, or social gatherings how often do you see advertisements for alcohol?' (none, a few, a lot). Answers were rescaled ranging between 0 and 1.

Positive Alcohol Expectancies

Alcohol expectancies were measured with the question 'We would like to know your expectations of using alcohol. Please fill in this question even if you do not drink alcohol.' taken from Wiers et al (2008; Wiers et al 2008). To measure positive alcohol expectancies, a selection of items was taken from a scale developed by Wiers et al (2008; Wiers et al 2008).

Confounders

In addition to age (measured in years) and gender (0= female; 1=boy), cigarette use and social economic status were measured. Smoking was measured through a question adopted from GSHS (WHO 2010), by asking whether the person had ever smoked [0= No) or not [2=Yes]. Social economic status (SES) was measured by asking whether they have a bathroom in their house [0=No, 1=Yes] (Faria et al 2011).

To take into account social influences, perceived alcohol use among friends, female caretaker, male caretaker and alcohol prevention lessons in class was measured. Perceived alcohol use among friends was measured by the question 'How many of your 4-closest friends drink alcohol?' (answers ranging from none to four). Alcohol use among female caretaker(s) was measured by the question 'How often does your mother or step-mother (or other female care taker) drink beer, wine, or another drink with alcohol? Answers ranging from never to about every day. A similar question was asked about male caretaker(s). Additionally, students were asked whether 'During this school year, were you taught in any of your classes the dangers of alcohol use? (0=No/I do not know; 1=Yes).

To control for drinking behavior being dependent on the accessibility of alcohol, the adolescents were asked how hard they thought it would be to get access to beer (-2=Impossible, -1 =Hard, 0= Neither hard nor easy/ I do not know, 1=Easy).

To measure media use the adolescents were asked to mark how many times they used several outlets, including TV, radio, magazines, newspapers and billboards during a period of time. Answers were rescaled ranging between 0 and 1.

4. Analyses

In the analyses conducted with SPSS, descriptive statistics and correlations of the variables of interest are presented. Further statistical analyses were conducted to examine relationships between drinking behavior and alcohol marketing exposure and positive alcohol expectancies.

Findings of structural equation modeling will be presented in several steps. In the first step, model of fit indices of separate measurement models will be presented. In the second step, possible complex interrelationships between variables will be examined in a structural model with onset of alcohol use as a dependent variable. In the third step, possible differences between selected countries are examined.

Finally, the structural model developed will be adapted to explain onset of binge drinking.

RESULTS

1. Survey Variables: Drinking behavior and Marketing exposure

For all variables an overview will be given of the descriptive statistics. Also, patterns for every individual country will be shown.

Drinking behavior

Drinking behavior was measured by asking whether respondents had had their first drink, meaning more than just a few sips. If they answered yes they were asked whether during the last 30 days they had had 5 or more drinks on one occasion, which is considered to be binge drinking.

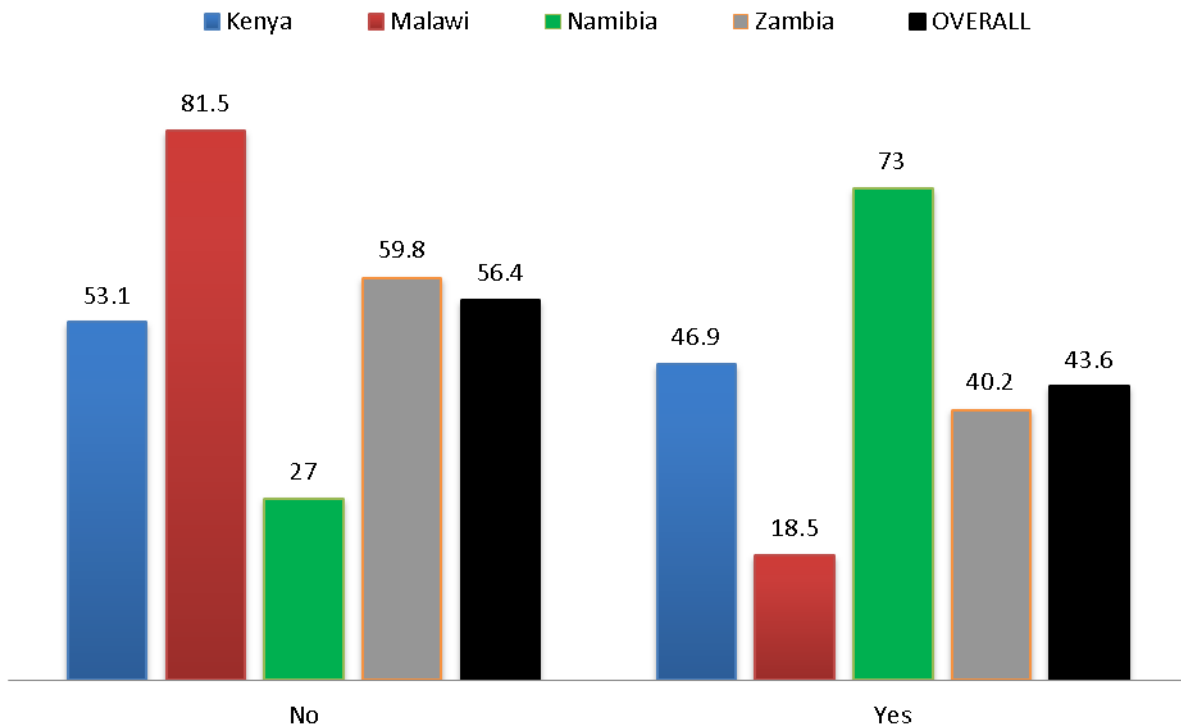


Figure 1. Percentage of adolescents who have had a drink in their life.

Figure 1 shows that from the 6912 students sampled, 43.6% answered that indeed they have had a (first) drink. Namibia had the highest percentage of adolescents who have had a (first) drink (73.0%) and that Malawi has by far the lowest percentage (18.5%).

The adolescents were then asked if they have had 5 or more drinks on one occasion during the last 30 days. Figure 2 shows that 16.8% of all adolescents could be considered to have had at least one occasion at which they engaged in binge drinking.

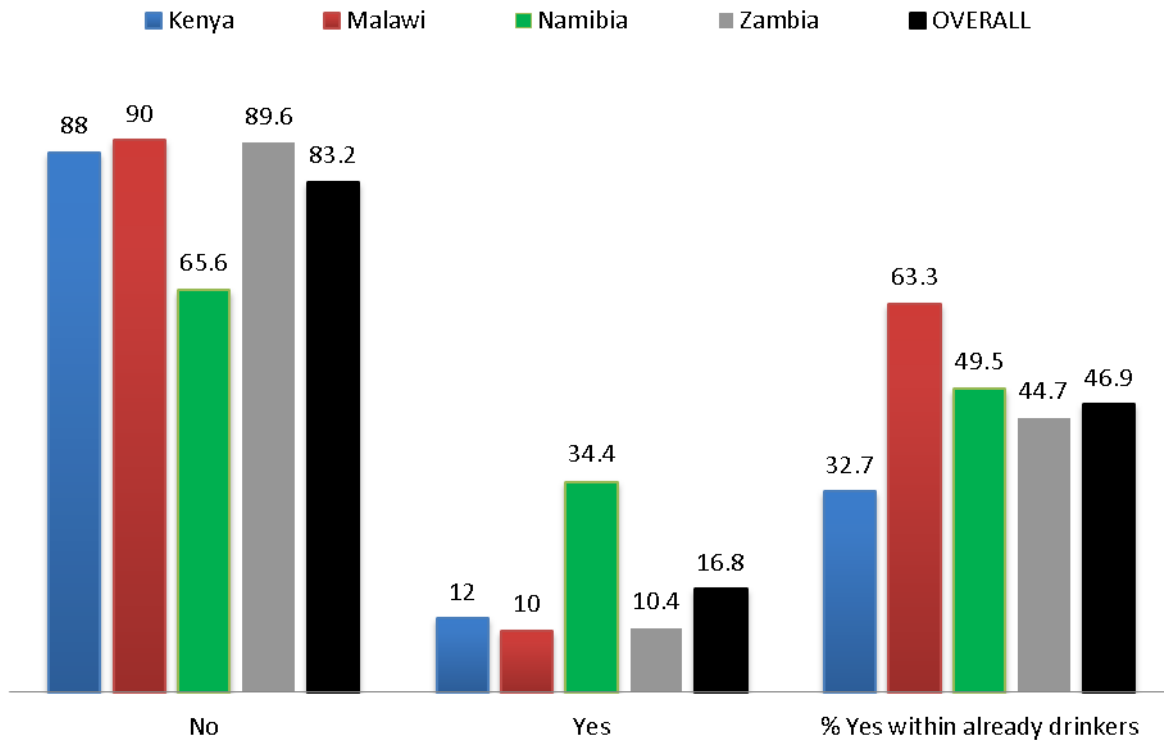


Figure 2. Percentage of adolescents who have participated in onset binge drinking at least once

More importantly, when we examine the level of binge drinking only among existing drinkers, Malawi has a higher ‘onset binge drinking/onset drinking’ ratio compared to the other countries and the *overall* ‘onset binge drinking/ onset drinking’ ratio, which suggests that even though Malawi has a relatively low percentage of drinkers, more of these drinkers have had 5 or more drinks on one occasion than in the other countries. Among already drinkers, the percentage of young drinkers binge drinking alcohol at least once are: in Malawi, 63.3%; in Kenya 32.7%, in Namibia 49.5%, and in Zambia 44.7%. This “all or nothing” behavior is also found among adults in this country (WHO, 2011).

1.2 Exposure to Alcohol Marketing

In order to study the relationship of alcohol marketing exposure with adolescents' drinking behaviors, the respondents were asked to answer questions on self-reported exposure to alcohol marketing. They were asked to rate the amount of alcohol branded advertisements on TV, radio, billboard, newspaper, and magazine they had encountered during a period of time. Also, adolescents were asked the amount of advertising they were exposed to during certain events, such as sport events, fairs, concerts, community events and/or social gatherings.

1.2.1 Televised alcohol advertising past week

The adolescents were asked to rate the amount of televised alcohol commercials they had seen during the past week. The results from the survey show that 18.6% of the sample reported to not have seen any alcohol related advertisement on TV, 25.0% reported 1 advertisement, 11.9% reported 2 advertisements, 11.5% reported 3 advertisements, 10.2% reported 4 advertisements, 5.3% reported 5 advertisements and 17.6% reported 6 or more.

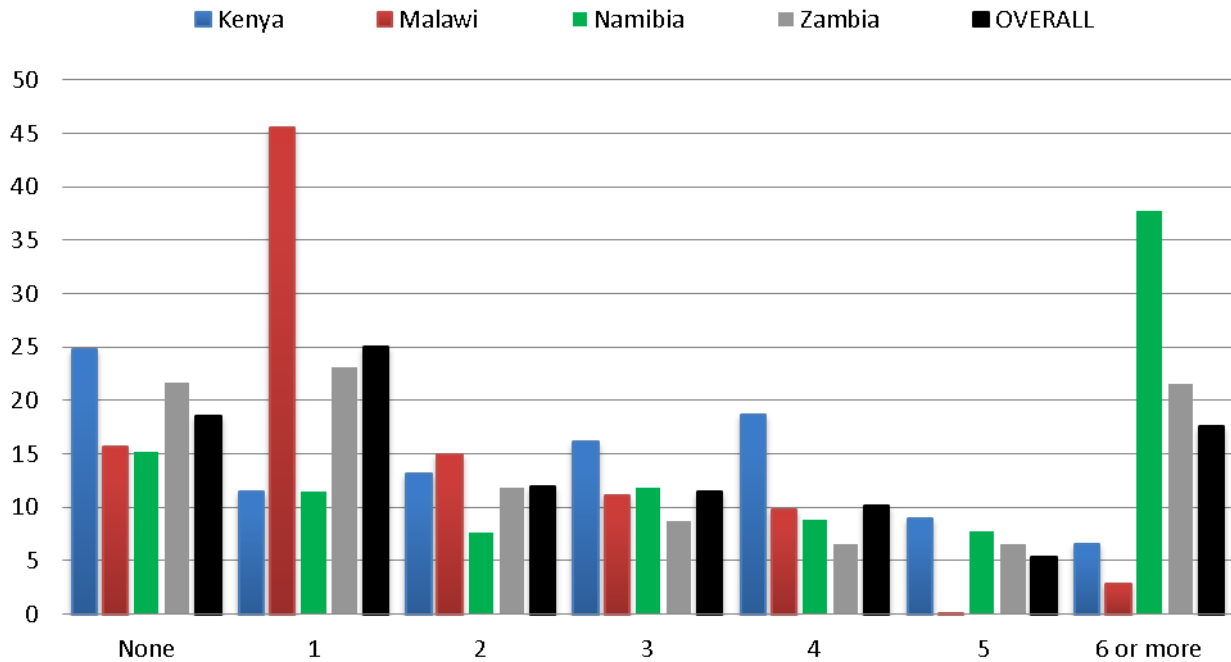


Figure 3. Percentage of adolescents that have reported amounts of alcohol branded TV advertisements in the past week.

Figure 3 shows that this pattern of results can be seen in all countries. It is notable that in Namibia the amount of exposure to televised alcohol marketing

practices is somewhat higher than the overall average and in Malawi somewhat lower.

1.2.2 Radio past week

The respondents were also asked to rate the amount of broadcasted alcohol marketing they had heard on the radio during the past week. Among participating adolescents, 19.5% reported to not have heard any alcohol related advertisement on the radio, 27.9% reported to have heard 1 advertisement, 11.4 % reported to have heard 2 advertisements, 11.6% reported to have heard 3 advertisements, 6.7% reported to have heard 4 advertisements, 5.8% reported to have heard 5 advertisements and 17.1% reported to have heard 6 or more advertisements.

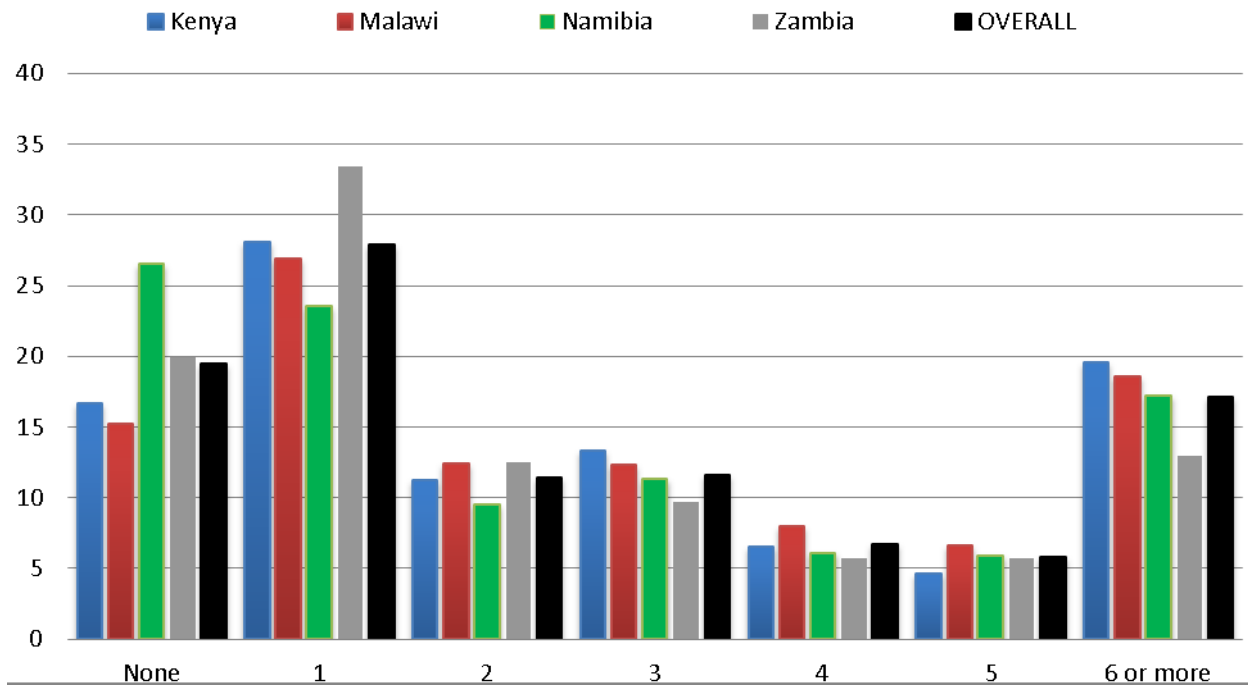


Figure 4. Percentage of adolescents that have reported amounts of alcohol branded Radio advertisements

Figure 4 indicates that the pattern for reported exposure to alcohol ads on radio is similar to that found for the exposure to televised alcohol marketing.

1.2.3 Print: Magazines and Newspapers past week

Respondents were also asked to rate the amount of printed alcohol advertisements they had encountered in magazines and newspapers during the past week. Among those who participated, 19.9% reported to not have seen any printed alcohol branded advertisements, 28.3% reported to have seen 1

advertisement, 12.0% reported 2 to have seen advertisements, 11.4% reported to have seen 3 advertisements, 7.2% reported to have seen 4 advertisements, 5.3% reported to have seen 5 advertisements and 16.0% reported to have seen 6 or more advertisements.

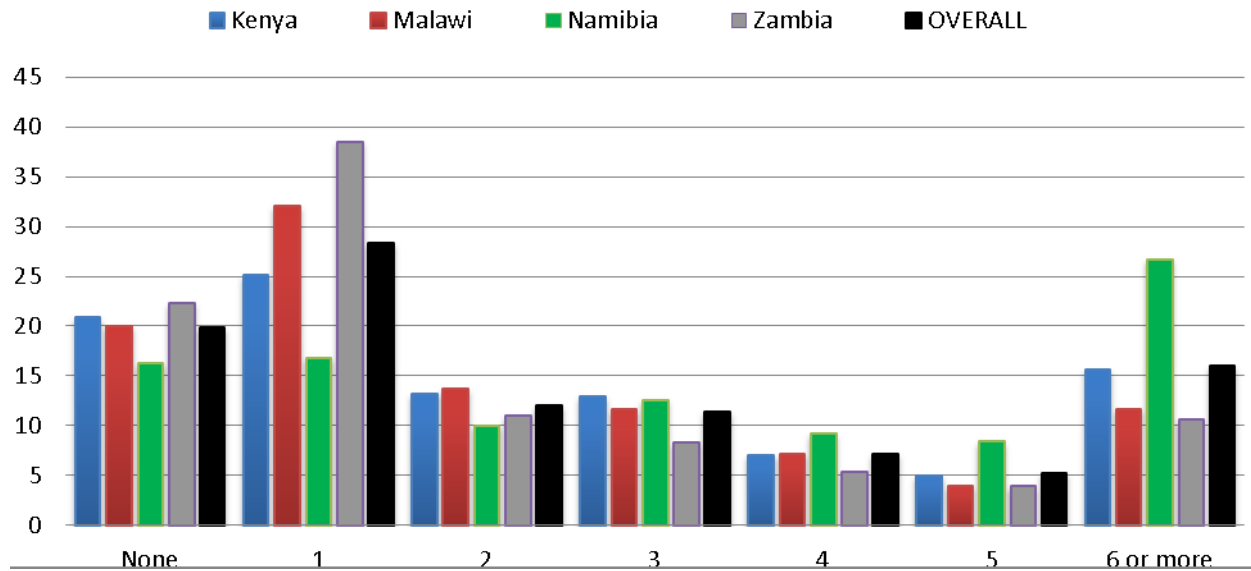


Figure 5. Percentage of adolescents that have reported amounts of alcohol branded Print advertisements

Figure 5 suggests that the same overall pattern is found as those reported on exposure to alcohol advertising on TV and radio. Again, Namibia has a somewhat higher exposure to print alcohol marketing practices than the overall average and in Zambia, there is a somewhat lower amount reported than the average.

1.2.4 Billboards past month

The adolescents were additionally asked to rate the amount of alcohol advertisements they had encountered on billboards during the past 30 days. Among those who participated, 36.4% of the adolescents reported to not have seen alcohol related advertisement on billboards, 37.3% reported to have seen a few alcohol related advertisement on billboards, and 26.3% reported to have seen a lot of alcohol related advertisement on billboards.

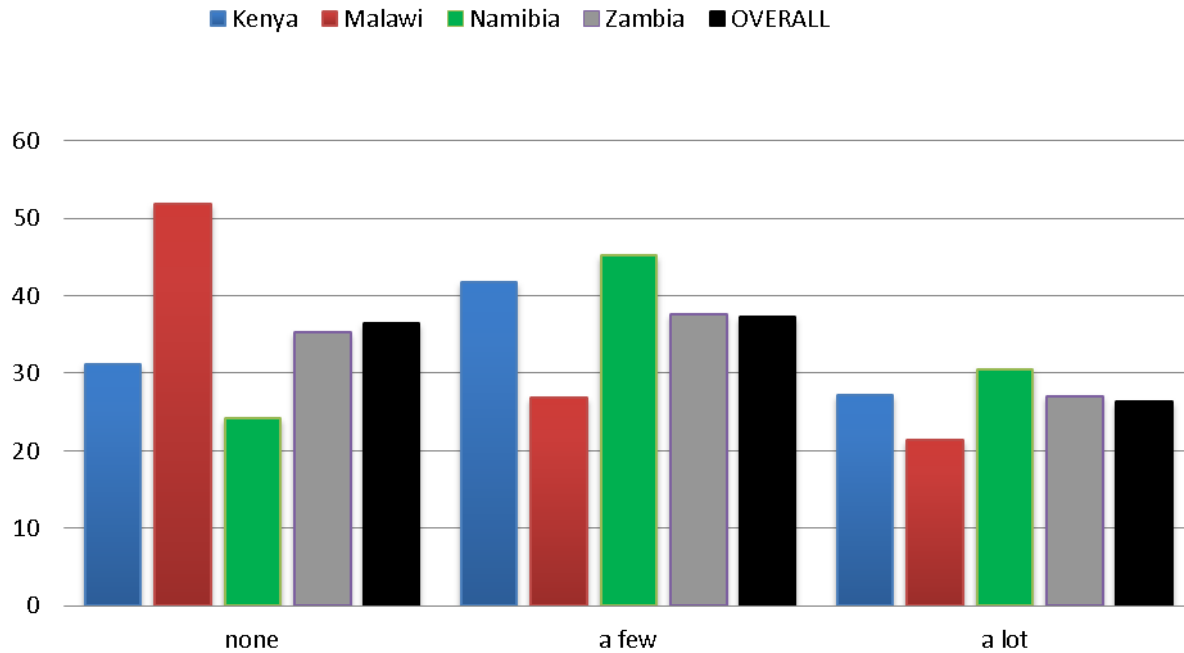


Figure 6. Percentage of adolescents that have reported amounts of alcohol branded advertisements on billboards

As seen in Figure 6, Malawi has more adolescents who report to have seen no alcohol branded billboards (51.8%) compared to Kenya, Namibia and Zambia.

1.2.5 Magazines past month

Respondents were asked to rate the amount of alcohol marketing practices they had encountered in magazines during the past 30 days. From those who participated, 48.0% of the adolescents reported to not have seen alcohol related advertisement in magazines, 31.2% reported to have seen a few in magazines, and 20.8% a lot in magazines.

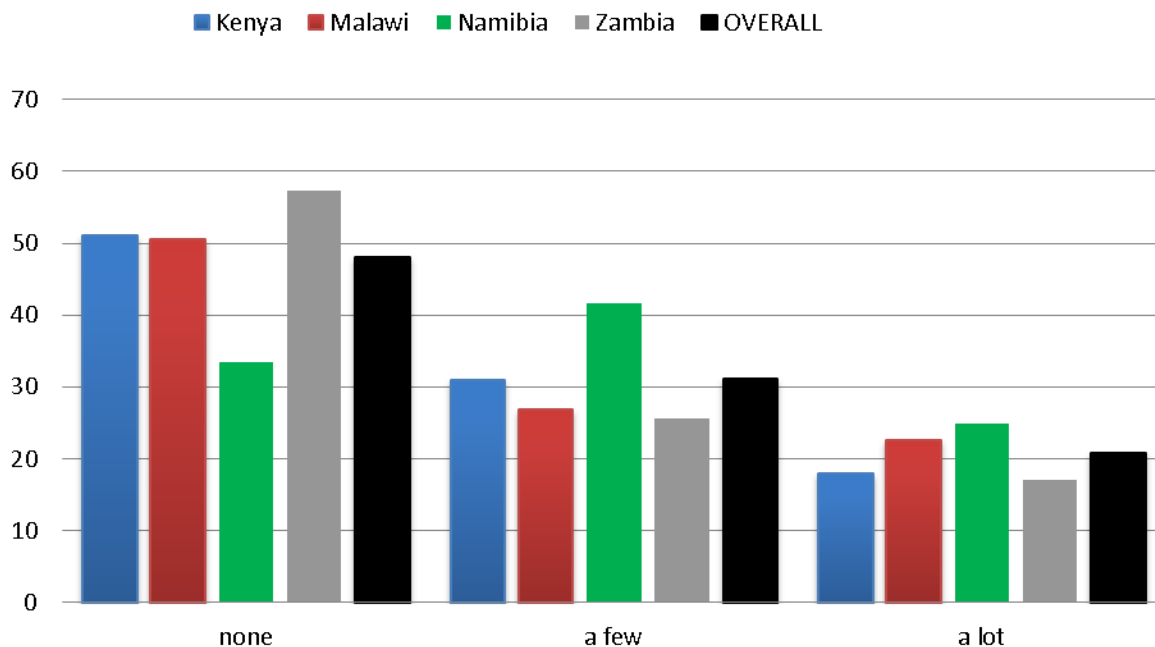


Figure 7. Percentage of adolescents that have reported amounts of advertisements that contained Alcohol Marketing in Magazines

Figure 7 shows that especially in Namibia adolescents encounter more alcohol advertising in magazines, especially the category 'a few' is much higher for Namibia (41.6%).

1.2.6 Newspapers past month

Furthermore, respondents were asked to rate the amount of alcohol advertisements they had encountered in newspapers during the past 30 days. From those who participated, 35.9% reported to not have seen an alcohol branded advertisement in newspapers during the past 30 days, 39.5% reported to have seen a few in newspapers during the past 30 days, and 24.7% a lot in newspapers during the past 30 days.

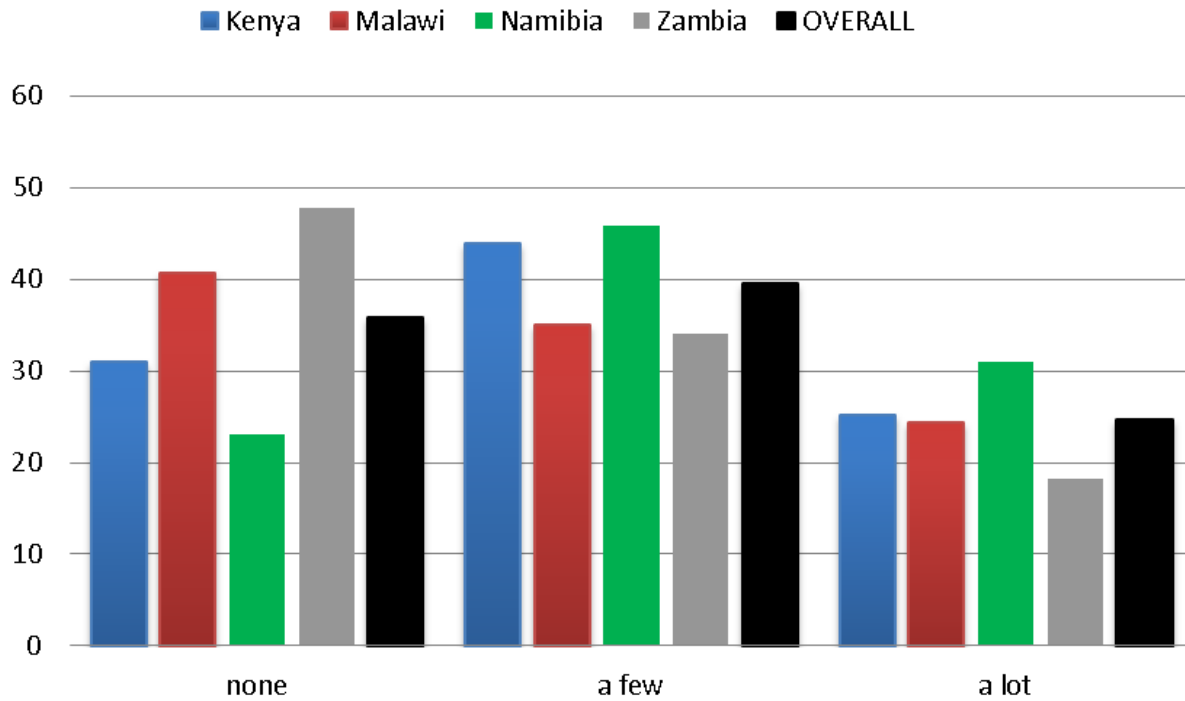


Figure 8. Percentage of adolescents that have reported amounts of alcohol branded advertisements in Newspapers

Figure 8 shows that again Namibia reports slightly more alcohol related advertisement in newspapers, in Zambia there are slightly more adolescents that do not encounter alcohol branded advertisements in newspapers compared to the other countries in the sample.

1.2.7 Events

Finally, adolescents were asked to report how often they see alcohol marketing practices during certain events, such as sporting events, fairs, concerts, community events and/or social gatherings. From those who participated, 35.4% reported to not have seen alcohol marketing practices during events, 11.0% reported that they rarely see alcohol marketing practices during events, and 29.5% reported they sometimes see alcohol marketing practices during events, 14.5% report the see alcohol marketing practices most of the time during events, and 9.5% report to always see alcohol marketing practices during events.

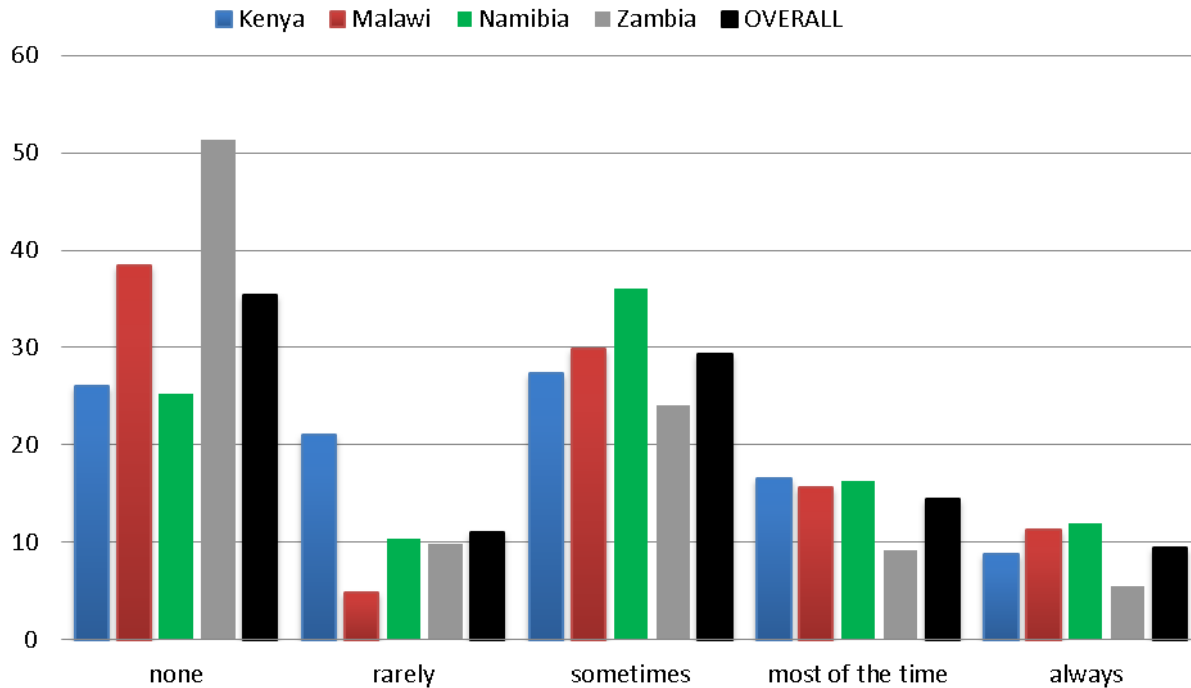


Figure 9. Percentage of adolescents that have reported amounts of alcohol marketing practices during Events

From Figure 9 we can see that only Zambia has a different pattern of seeing alcohol marketing practices during events where 51.3% report never to have seen these.

2. Control Variables

2.1 Media use

To control for the actual use of media we measured how much time adolescents spent watching TV on an average day, as well as listening to the radio on an average day, how many billboards they have seen during the last 30 days, as well as how many magazines and newspapers they have read during the past 30 days.

2.3.1 TV

On average adolescents watched 3.22 hours TV (SD= 2.50) per day. See the table in appendix 1 for the average hours of watching television per day per individual country.

2.3.2 Radio

On average adolescents listened 2.59 hours to the radio (SD= 2.29) per day. See the table in appendix 1 for the average hours of listening to the radio per day per individual country.

2.3.3 Billboards

During the past 30 days 32.4% of the adolescents did not see any billboards, 22.6% saw a few, 11.9% saw quite some, and 33.2% saw a lot of billboards. See the table in appendix 1 for the percentages per individual country.

2.3.4 Magazines

During the past 30 days, 28.1% of the adolescents had not read any magazines, 15.9% had read magazines 1 to 3 times, 25.9% had read a magazine once a week, 13.7% had read a magazine 2 to 4 times a week, 6.2% had read a magazine 5-7 times a week, and 10.1% more than once a day. See the table in appendix 1 for the percentages per individual country.

2.3.5 Newspapers

During the past 30 days 18.0% of the adolescents had not read any newspapers, 18.2% had read newspapers 1 to 3 times, 28.3% had read a newspaper once a week, 17.2% had read a newspaper 2 to 4 times a week, 7.4% had read a newspaper 5-7 times a week, and 10.8% had read a newspaper more than once a day. See the table in appendix 1 for the percentages per individual country.

2.2 Other Control Variables:

2.2.1 SES, smoking, gender and age

Moreover, gender (45.7% male), age (Mean = 14.87; SD = 1.17), social economic status (SES) and smoking status were added as control variables. SES was measured by asking the adolescents whether they had a bathroom in their house, and 29.8% of respondents indicated they did not. Notable from the table in Appendix 1 is that in Zambia this percentage is much higher than in any other country (51.8%).

With respect to smoking, a large majority (89.5%) of the adolescents sampled had never smoked cigarettes. In Namibia, this is lower than in the other countries (80.1%). See the table in Appendix 1 for percentage smokers, SES, gender, and mean age for each individual country.

2.2.2 Accessibility of beer and social influences

In examining the accessibility of beer, Figure 10 illustrates that it is notable that adolescents in Namibia find it the least hard to get access beer and in Malawi, adolescents find it quite hard to get access to alcohol. According to the responses given by the adolescents in our sample, a majority is not exposed to alcohol use by parents or other caretakers on a regular basis. While alcohol use among peers seems to be somewhat more common in the perception of the respondents, almost two-third of the adolescents (66.4%) report that none of their four best friends use alcohol. In Namibia, however, half of the students reported that at least one of their four best friends uses alcohol.

Figures reported in Appendix 1 illustrate that 70.3% of the adolescents did not have had any educative lessons on the dangers of alcohol use. The percentage of adolescents that have had anything taught in class on the dangers of alcohol was highest in Zambia (39.5%) and lowest in Kenya (22.8%).

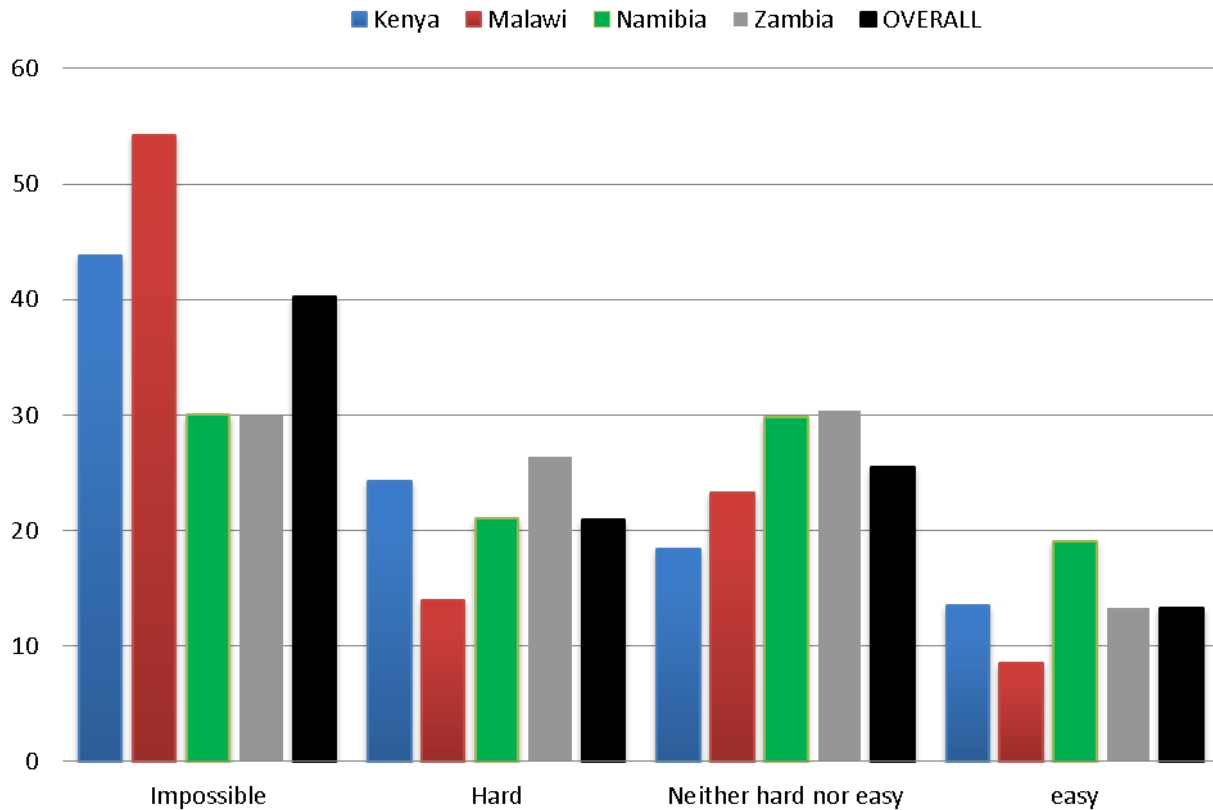


Figure 10. Percentage of adolescents that have reported how difficult it is for them to get access to beer.

3. Correlations between variables

Appendix 2 and 3 display the correlations between all survey variables for the overall sample. From this table, it becomes apparent that there are some gender differences. Boys drink more often than girls, and they also engage more often in binge drinking. Also, more boys than girls smoke, and smoking is expected to be positively related to drinking and binge drinking. Notable for media exposure it becomes apparent that girls see more printed alcohol advertisements and boys see more alcohol branded event sponsoring, but no gender differences are found for media usage.

Some age differences also become apparent from the table in Appendix 2. Some positive expectations towards alcohol as well as alcohol marketing exposure measures are associated with age, as is smoking. On the contrary, no association was found between drinking behaviors and age.

Adolescents who smoke also reported having easier access to beer. When friends, female caretakers, and male caretakers are perceived to drink, youngsters are more likely to drink alcohol or to be engaged in binge drinking. Drinking use of the social environment is positively associated with alcohol marketing exposure in various channels and positive alcohol expectancy measures.

Self-reported exposure to alcohol advertisements is higher when SES is higher, which is to be expected when use is also dependent on SES. Surprisingly, access to beer is considered harder when SES is high.

Furthermore, the table in Appendix 3 illustrates that drinking behaviors and most alcohol marketing measures and positive alcohol expectancy measures are (positively) interrelated. The same can be said on correlation between the latent constructs alcohol marketing exposure, positive alcohol expectancies and alcohol drinking outcomes (see Appendix 2). In order to develop a greater understanding of potential relationships between these concepts we performed structural equation modeling (SEM).

4. Model testing

Onset Drinking

Initially, the direct paths to the observed indicators from the latent construct 'alcohol marketing exposure' and 'positive alcohol expectancies' were constrained to be equal across the four countries. The results of the Confirmed Factor Analyses suggest that the developed measurement models fit the data well: alcohol marketing exposure (CFI=.971, TLI=.956, RMSEA=.042; Cronbach Alpha=.674); positive alcohol expectancies (CFI=.970; RMSEA=.040; Cronbach Alpha=.879). For more details on Confirmed Factor Analyses, see Appendix 4.

Model 1 in Table 3 illustrates estimates of a plain model with alcohol marketing exposure and initiation of alcohol use in the model. Findings suggest a positive effect of alcohol marketing exposure on adolescents drinking (B=.255, SE=.036 with $p < .001$) in a model with a just acceptable fit.

In the next step, a latent construct of positive alcohol expectancies was introduced (see Model 2 in Table 3). We found a main effect of positive alcohol expectancies on initiation of alcohol use (B=.269, SE=.024 with $p < .001$). The main effect of alcohol marketing exposure on initiation of alcohol use was still found (B=.216, SE=.036 with $p < .001$) but an additional indirect effect through positive alcohol expectancies was found. This indirect effect of alcohol marketing exposure on initiation of alcohol use by increasing positive alcohol expectancies is estimated to be significant (B= .105, SE= .032 with $p = .001$).

Table 3. SEM results on the odds of onset of lifetime drinking and binge drinking in last 30 days.

	Model 1.Plain model Initiation		Model 2. Mediation model Initiation		Model 3.Full model Initiation		Model 4. Full model binge drinking	
	Stndz beta	(95% CI)	Stndz beta	(95% CI)	Stndz beta	(95% CI)	Stndz beta	(95% CI)
Alcohol use								
Alc marketing exp	.255***	(.164-.314)	.216***	(.122-.276)	.179***	(.099-.257)	.214***	(.132-.300)
Positive Alcohol Expectancies			.269***	(.206-.309)	.167***	(.106-.228)	.239***	(.170-.307)
Smoking					.219***	(.167-.271)	.176***	(.128-.224)
Friends use					.217***	(.161-.273)	.235***	(.175-.293)
Father use					.070***	(.022-.118)	.049**	(.003-.094)
Country					.108*	(-.021-.238)	.121(p=.051)	(-.038-.280)
Availability alcohol					.073***	(.023-.123)	.068**	(.010-.126)
Positive alcohol expectancies								
Alc marketing exp			.146***	(.090-.182)	.081***	(.025-.136)	.079***	(.025-.136)
Smoking					.146***	(.107-.184)	.146***	(.107-.184)
Friends use					.151***	(.102-.200)	.151***	(.102-.200)
Father use					.079***	(.034-.123)	.079***	(.034-.123)
Availability alcohol					.146***	(.104-.188)	.146***	(.104-.188)
Alc mark exposure								
Friends use					.198***	(.147-.255)	.198***	(.146-.254)
N	6912		6912		5414		5636	
R ² alcohol use	0.065		0.136		0.28		.333	
R ² pos alc expextancies			.021		.111		.111	
R ² alc mark exposure					.039		.039	
CFI	0.880		.933		.950		.954	
RMSEA	0.032		0.014		0.021		0.017	

***p<.001; **p<.001; *p<.05. Adjusted for all predictors shown in the table. CI=Confidence interval

Model 3 in Table 3 illustrates that all effects were found while correcting for potential confounders, meaning that alcohol marketing exposure ($B=.179$, with $p=.001$) and positive alcohol expectancies ($B=.167$, with $p=.001$) were significant predictors even when control variables and covariates were significantly related to alcohol initiation. Respondents were found to be more exposed to alcohol marketing when they were in an environment in which friends were drinking alcohol ($B=.198$; with $p<.001$). Non-significant paths between confounders and alcohol marketing exposure and positive alcohol expectancies were omitted from the model presented. Other confounders (age, SES, gender, alcohol use mother and media behavior) in the model were not found to be significant predictors of alcohol use and were omitted from the final model 3 to increase the model of fit of the model ($CFI=.910$; $RMSEA=.030$).

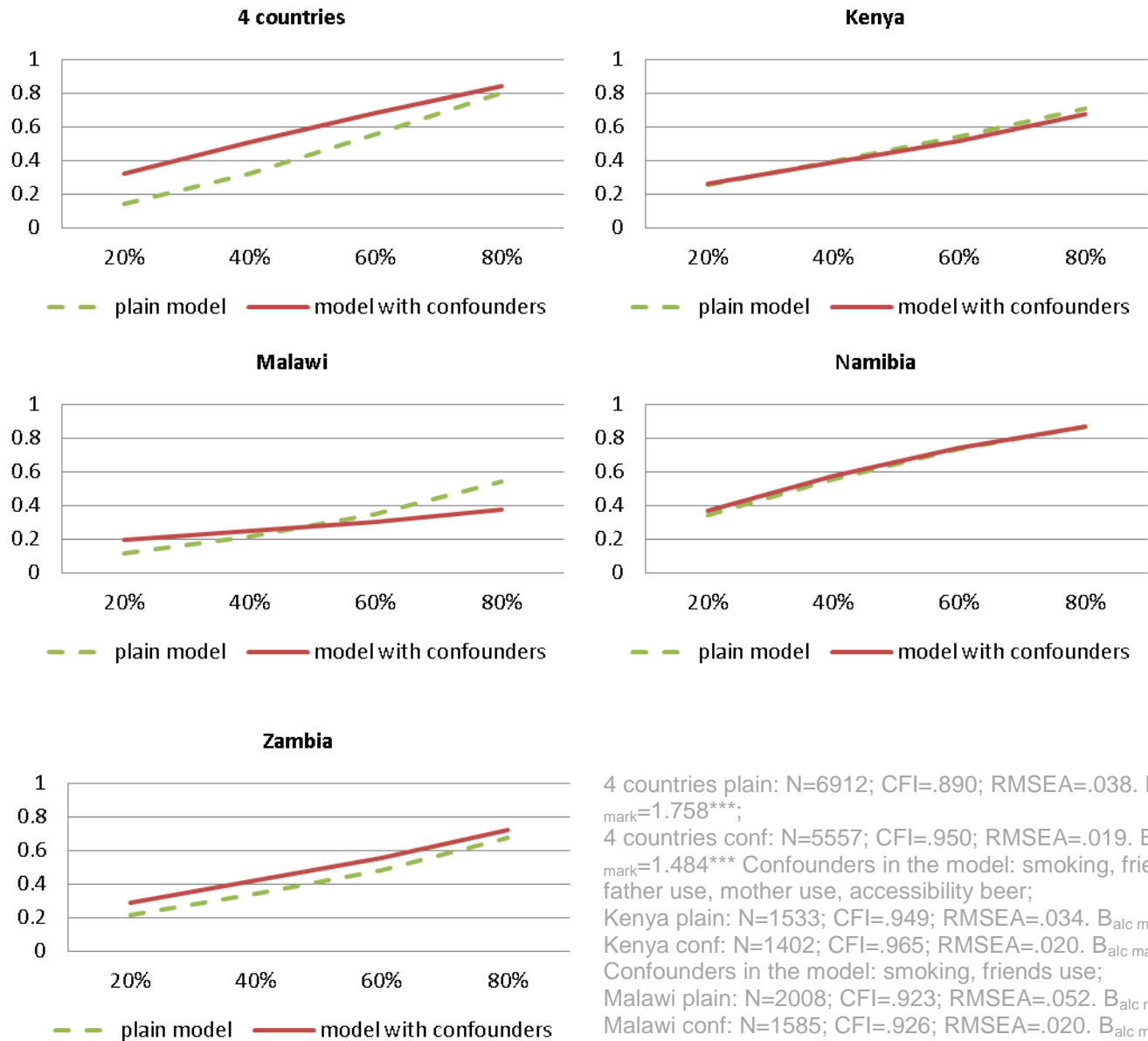
Furthermore, the structural equation models were fitted for each country separately. A summary of the findings of the country analyses is presented in Figure 11. In this figure, the probability of the onset of drinking is plotted against different percentiles of exposure to alcohol marketing. Respondents (within the country) are split in five equal groups (taking the quintiles). The dotted lines in Figure 11 illustrate the relationship between alcohol marketing exposure and initiation of life time alcohol use per country in a model without any confounders. This relationship was found to be significant in every of the four countries sampled. Findings suggest for example that among youngsters in Kenya, the 20% youngsters who have been least exposed to alcohol marketing have a probability of .25 to drink alcohol compared to a probability of .71 to drink alcohol among the 20% youngsters who are most exposed to alcohol marketing. A steeper line indicates a stronger linear association between onset of drinking and alcohol marketing exposure.

The solid lines in Figure 11 illustrate the relationship between alcohol marketing exposure and initiation of life time alcohol use when taking into account relevant confounding factors. Relevant confounders were not found to be the same across countries: in Kenya, Namibia and Zambia only smoking and alcohol use among friends were found to be significant predictors of the initiation of alcohol use. In Malawi alcohol use by the father and mother, accessibility to beer, age, gender and SES were also found to be relevant confounders and were therefore included in the final country model presented.

Onset of binge drinking

The model of fit indices shown in model 4 of Table 3 illustrates that a similar set of variables predicting initiation of binge drinking instead of initiation of life time alcohol use with similar estimated parameters fits the data well (CFI=.954; RMSEA=.017). Alcohol marketing was found to be a significant predictor of binge drinking (B=.218, with $p<.001$), an effect that is partly mediated by positive expectancies towards alcohol which also determines onset of binge drinking (B=.239, with $p<.001$). The indirect effect of alcohol marketing exposure on binge drinking by increasing positive alcohol expectancies is estimated to be significant (B= 0.151, SE= 0.043 with $p<0.001$).

Figure 11. Probability of onset of life time drinking among youngsters with different levels of alcohol marketing exposure in all countries together and each of the four countries

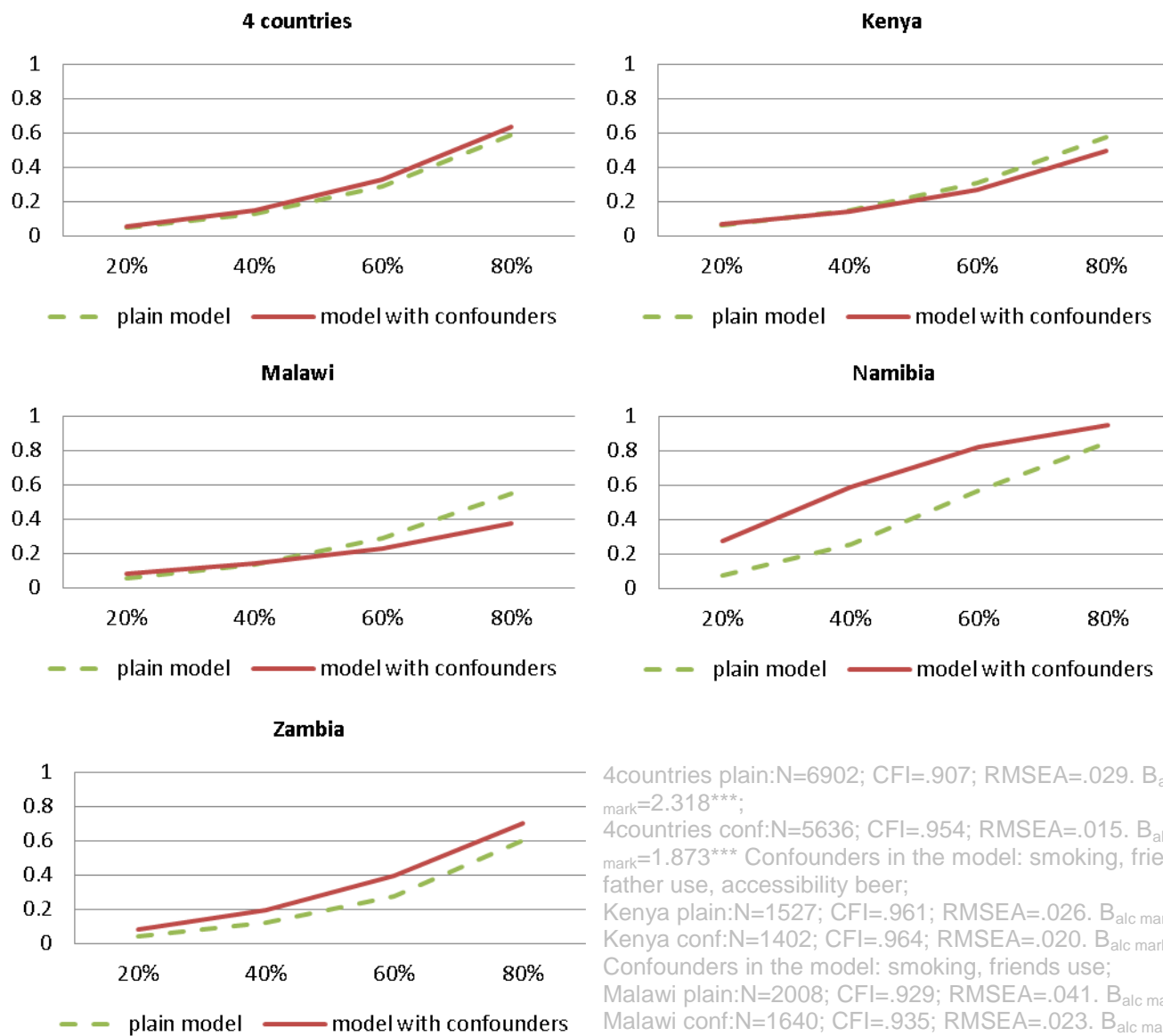


Different categories of levels of exposure to alcohol marketing are shown on X-axis (adolescents are divided in five equal groups). The probability of drinking is shown on the Y-axis.

*p<.05; **p<.01; ***p<.001.

4 countries plain: N=6912; CFI=.890; RMSEA=.038. $B_{alc\ mark}=1.758^{***}$;
 4 countries conf: N=5557; CFI=.950; RMSEA=.019. $B_{alc\ mark}=1.484^{***}$ Confounders in the model: smoking, friends use, father use, mother use, accessibility beer;
 Kenya plain: N=1533; CFI=.949; RMSEA=.034. $B_{alc\ mark}=1.099^{**}$;
 Kenya conf: N=1402; CFI=.965; RMSEA=.020. $B_{alc\ mark}=.967^*$
 Confounders in the model: smoking, friends use;
 Malawi plain: N=2008; CFI=.923; RMSEA=.052. $B_{alc\ mark}=1.228^{***}$;
 Malawi conf: N=1585; CFI=.926; RMSEA=.020. $B_{alc\ mark}=.503$ (p=.08) Confounders in the model: smoking, friends use, father use, mother use, accessibility beer, age, gender, SES;
 Namibia plain: N=1696; CFI=.936; RMSEA=.028. $B_{alc\ mark}=1.402^{***}$;
 Namibia conf: N=1630; CFI=.971; RMSEA=.014. $B_{alc\ mark}=2.111^{***}$
 Confounders in the model: smoking, friends use;
 Zambia plain: N=1675; CFI=.907; RMSEA=.037. $B_{alc\ mark}=1.131^*$;
 Zambia conf: N=1538; CFI=.969; RMSEA=.016. $B_{alc\ mark}=1.032^*$
 Confounders in the model: smoking, friends use.

Figure 12. Probability of binge drinking within last 30 days among youngsters with different levels of alcohol marketing exposure in all countries together and each of the four countries



4countries plain:N=6902; CFI=.907; RMSEA=.029. $B_{alc\ mark}=2.318^{***}$;
 4countries conf:N=5636; CFI=.954; RMSEA=.015. $B_{alc\ mark}=1.873^{***}$ Confounders in the model: smoking, friends use, father use, accessibility beer;
 Kenya plain:N=1527; CFI=.961; RMSEA=.026. $B_{alc\ mark}=1.677^{***}$;
 Kenya conf:N=1402; CFI=.964; RMSEA=.020. $B_{alc\ mark}=1.470^{**}$ Confounders in the model: smoking, friends use;
 Malawi plain:N=2008; CFI=.929; RMSEA=.041. $B_{alc\ mark}=1.701^{***}$;
 Malawi conf:N=1640; CFI=.935; RMSEA=.023. $B_{alc\ mark}=1.063^{**}$ Confounders in the model: smoking, friends use, father use, accessibility beer, age;
 Namibia plain:N=1696; CFI=.876; RMSEA=.037. $B_{alc\ mark}=2.357^{***}$;
 Namibia conf:N=1578; CFI=.938; RMSEA=.017. $B_{alc\ mark}=2.111^{***}$;
 Zambia plain: Confounders in the model: smoking, age, education lessons;
 Zambia conf:N=1671; CFI=.946; RMSEA=.026. $B_{alc\ mark}=1.966^{***}$;
¹⁰ N=1538; CFI=.972; RMSEA=.015. $B_{alc\ mark}=1.834^{***}$.
 Confounders in the model: smoking

Different categories of levels of exposure to alcohol marketing are shown on X-axis (adolescents are divided in five equal groups). The probability of drinking is shown on the Y-axis. * $p < .05$; ** $p < .01$; *** $p < .001$.

The effect of alcohol marketing exposure and positive alcohol expectancies on binge drinking was found to be robust after introducing relevant confounders. Non-significant paths between confounders and alcohol marketing exposure and positive alcohol expectancies were omitted from the model presented.

Again, the structural equation models were fitted for each country separately, this time with onset of binge drinking as a dependent variable. A summary of the findings of the country analyses are presented in Figure 12. In this figure, the probability of onset of binge drinking is plotted against different percentiles of exposure to alcohol marketing. As has been described above, respondents (within the country) are split in five equal groups (taking the quintiles). The dotted lines in Figure 12 illustrate the relationship between alcohol marketing exposure and the probability of onset of binge drinking per country in a model without any confounders. This relationship was found in all countries. Findings suggest for example that among youngsters in Kenya, the 20% youngsters who have been exposed to the least alcohol marketing have a probability of .06 to onset binge drinking (in the past 30 days) compared to a probability of .49 among the 20% youngsters who are most exposed to alcohol marketing. A steeper line indicates a stronger (linear) association between onset of drinking and alcohol marketing exposure.

CONCLUSION

Giant global alcohol companies are very active in African countries studied using sophisticated marketing strategies aiming to increase alcohol consumption.

Themes found in alcohol marketing practices in all African countries studied were: drinking alcohol to be successful in life, enjoy the drink with your family, and alcohol as part of the tradition and culture. Opportunities to win money by purchasing the product have been encountered frequently.

Alcohol marketing exposure was found to increase the likelihood of onset of drinking alcohol and to increase the likelihood of heavy episodic drinking (binge drinking).

We may conclude that the effect of alcohol marketing exposure on drinking alcohol seems to be robust in all developing countries studied.

The impact of alcohol marketing exposure can be partly explained by the increase of positive expectancies towards alcohol generated by exposure to alcohol

The current report examined alcohol marketing and its impact on adolescents in four African countries: Kenya, Malawi, Namibia and Zambia. It was described in how countries differ in alcohol consumption patterns. Nevertheless, we have seen that giant global alcohol companies are very active in all countries aiming to increase alcohol consumption. To increase their market share, alcohol companies have developed sophisticated marketing strategies aiming to increase consumption among existing drinkers as well as reaching new potential markets (e.g. minors and women). Commonly used themes used in alcohol advertisements in the four countries examined have been discussed and showed to mirror themes found in other African countries, identified in earlier monitoring exercises (DeBruijn 2011).

The report described the method section and results of a survey study conducted. The impact of alcohol marketing exposure in four countries in Kenya, Malawi, Namibia and Zambia has been examined. Most of the impact studies available are conducted within the US and Australia/New Zealand, with several additional studies in Europe. Jernigan (Jernigan, Obot et al. 2006) warns that with more sophisticated and ubiquitous marketing strategies than those allowed in developed nations, African youth may be particularly vulnerable. This conclusion was confirmed by initial monitoring exercises conducted in four African countries (De Bruijn 2011):

Alcohol marketing exposure was found to increase the likelihood of onset of drinking alcohol and to increase the likelihood of onset of heavy episodic drinking (binge drinking). Findings illustrate that effect sizes are not only statistical significant, but that alcohol marketing is an influential determinant of starting to drink alcohol and heavy episodic drinking. We may conclude that the effect of alcohol marketing exposure on drinking alcohol seems to be robust in all countries. We should keep in mind that causality in cross-sectional research can be only speculated and tentatively accepted. Findings presented in the current study suggest an impact of alcohol marketing exposure on drinking behavior can be found among adolescents in selected developing countries, countries where alcohol marketing activities have been rising recently. Findings suggest that the impact of alcohol marketing exposure on drinking behavior among adolescents can be partly explained by the increase of positive expectancies towards alcohol

Kenya is among the countries studied the only country with legislation on the content and placement of alcohol.

The actions taken by the Kenyan government to regulate the volume of alcohol marketing are a good start and can be seen as an example to other in the African region.

generated by exposure to alcohol marketing. Positive messages on alcohol (e.g. living a successful life or patriotism) integrated in alcohol advertisements could be responsible for the increase of positive expectancies on alcohol.

Alcohol marketing encountered in Kenya in 2012 did not differ in content between the countries studied. Also, the impact of alcohol marketing was found to be comparable among Kenya, Malawi, Namibia and Zambia.

Kenya is the only country with legislation on the content and placement of alcohol marketing practices among the countries studied. Regulations in place at the time of collecting the data did not seem to protect young people sufficiently against large volumes of attractive alcohol advertisements. However, existing regulations have become more stringent in 2013, a year after the monitoring project. To make a regulation effective enforcement is crucial. This is and will be a challenge for the Kenyan government. However, the actions taken by the Kenyan government to regulate the volume of alcohol marketing are a good start and can be seen as an example to other in the African region. More specific policy recommendations to policy makers are provided in the next chapter.

POLICY RECOMMENDATIONS

The results presented in this report confirm the findings of previous research conducted in developed countries. The robust effects found in the present study suggest a clear warning for policy makers, especially in developing countries. In these new markets where alcohol marketing is increasing rapidly due to accumulating investments by the alcohol industry, alcohol marketing is mostly unregulated or relies fully on voluntary rules by the alcohol industry. Evidence that banning alcohol advertising is likely to be an effective intervention (Babor et al 2010; Saffer and Dave 2006) is reflected in WHO strategy documents on non-communicable diseases and harmful use of alcohol (Perry et al 2012). The Member States of the World Health Organization have emphasized the importance of limiting exposure to alcohol marketing, especially in low-income countries by endorsing the draft Global Strategy to reduce the harmful use of alcohol in May 2010 (WHO 2010). This point of view is also reflected by the Ministers of Health in the African Region endorsing a declaration that states the intensity of advertising leads to excessive consumption of alcohol and undermines good policies and initiatives to limit consumption and abuse of alcohol.

The findings presented in this study confirm the need for policy makers to take action at the national and supra-national level to restrict the volume of adolescents' exposure to alcohol marketing and to introduce alcohol marketing bans to protect a new generation against the harmful consequences of alcohol use.

Recommendations that can be given to these policy makers mirror the six policy recommendations presented in an earlier published WHO report on alcohol marketing in the African continent (DeBrujin 2011) and are relevant to repeat:

POLICY RECOMMENDATIONS:

1. Recognizing that a comprehensive ban on advertising, promotion and sponsorship would reduce alcohol-related harm, and that self-regulation is an ineffective mechanism to reduce alcohol-related harm, effective legislation is necessary to strictly regulate alcohol marketing activities;
2. The total volume of alcohol marketing should be restricted as much as possible. Alcohol marketing tools that are difficult to monitor (e.g. alcohol advertising on the internet) should be prohibited;
3. Alcohol marketing practices identified refer to values that are highly appreciated by large groups of Africans in the participating countries. In media where alcohol advertising is allowed, it should be restricted to information of the product only; which includes that the product is not to be exhibited in a setting with people or any other context glamorizing the alcoholic product.
4. The use of direct or indirect incentives that encourage the purchase of alcohol should be prohibited;
5. The adherence to alcohol marketing regulations should be monitored regularly by the government or a board independent from economic interests of the sale of alcohol. The monitoring method described in the MAMPA project (DeBruijn 2011) can be a starting point of monitoring systematically by non-economic operators;
6. In order to provide governments with adequate information, alcohol companies should be obliged to disclose alcohol marketing expenditures to appropriate governments.

CONFLICT OF INTEREST

No conflict of interest has been declared by the authors. The study is part of the MAMPA 2012 (Monitoring Alcohol Marketing Practices in Africa 2012) project, a project commissioned and financed by the WHO Regional Office Africa.

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APPENDICES

Appendix 1. Frequency table

Variable	Answer categories	Valid cases		Countries				
		N	Percent	Kenya	Malawi	Namibia	Zambia	Total
1. Initiate life time alcohol use		6629	95.8%					
	0 Non drinker			53.1%	81.5%	27.0%	59.8%	56.4%
	1 Ever drinker			46.9%	18.5%	73.0%	40.2%	43.6%
2. Initiation Binge drinking last 30 days		5959	86.1%					
	0 Non binge drinker			88.0%	90.0%	65.6%	89.6%	83.2%
	1 Binge drinker			12.0%	10.0%	34.4%	10.4%	16.8%
3. Alcohol Billboards last 30 days ^a		6704	96.9%					
	.0 No exposure			31.1%	51.8%	24.2%	35.3%	36.4%
	.5 A few			41.7%	26.8%	45.2%	37.6%	37.3%
	1.0 A lot			27.2%	21.4%	30.6%	27.1%	26.3%
4. Alcohol sponsorship at Events last 30 days ^a		6676	96.5%					
	.0 No exposure			26.1%	38.4%	25.3%	51.3%	35.4%
	.3 Rarely			21.1%	4.8%	10.4%	9.9%	11.0%
	.5 Sometimes			27.4%	29.9%	36.0%	24.1%	29.5%
	.8 Most of the time			16.6%	15.7%	16.3%	9.2%	14.5%
	1.0 Always			8.8%	11.3%	12.0%	5.5%	9.5%
5. Alcohol ads in Magazines and Newspapers last week ^a		6724	97.2%					
	.0 No exposure			20.9%	20.0%	16.3%	22.3%	19.9%
	.2 1 ads			25.1%	32.0%	16.8%	38.5%	28.3%
	.3 2 ads			13.2%	13.7%	10.0%	11.0%	12.0%
	.5 3 ads			13.0%	11.6%	12.6%	8.3%	11.4%
	.7 4 ads			7.1%	7.2%	9.2%	5.4%	7.2%
	.8 5 ads			5.0%	4.0%	8.4%	3.9%	5.3%
	1.0 6 ads or more			15.6%	11.6%	26.7%	10.6%	16.0%

6. Alcohol ads in Magazines last 30 days ^a	6707	96.9%					
.0 No exposure			51.1%	50.5%	33.5%	57.4%	48.0%
.5 A few			31.0%	26.9%	41.6%	25.6%	31.2%
1.0 A lot			17.9%	22.5%	24.9%	17.0%	20.8%
7. Alcohol ads in Newspapers last 30 days ^a	6723	97.2%					
.0 No exposure			31.0%	40.7%	23.1%	47.8%	35.9%
.5 A few			43.9%	35.0%	45.9%	34.1%	39.5%
1.0 A lot			25.1%	24.3%	31.0%	18.2%	24.7%
8. Alcohol ads on the Radio last week ^a	5668	81.9%					
.0 No exposure			16.7%	15.2%	26.5%	19.9%	19.5%
.2 1 ads			28.1%	26.9%	23.5%	33.4%	27.9%
.3 2 ads			11.2%	12.4%	9.5%	12.5%	11.4%
.5 3 ads			13.3%	12.3%	11.3%	9.7%	11.6%
.7 4 ads			6.5%	8.0%	6.1%	5.7%	6.7%
.8 5 ads			4.6%	6.6%	5.9%	5.7%	5.8%
1.0 6 ads or more			19.6%	18.6%	17.2%	13.0%	17.1%
9. Alcohol ads on TV last week ^a	5811	84.0%					
.0 No exposure			24.8%	15.7%	15.2%	21.7%	18.6%
.2 1 ads			11.5%	45.6%	11.5%	23.1%	25.0%
.3 2 ads			13.2%	15.0%	7.6%	11.8%	11.9%
.5 3 ads			16.2%	11.1%	11.8%	8.7%	11.5%
.7 4 ads			18.7%	9.8%	8.7%	6.6%	10.2%
.8 5 ads			9.0%	0.1%	7.7%	6.6%	5.3%
1.0 6 ads or more			6.6%	2.8%	37.5%	21.6%	17.6%
10. Alcohol makes me: Funny ^b	5689	82.2%					
-1.0 Never			55.7%	64.7%	47.5%	61.5%	57.3%
.0 Sometimes			25.1%	21.5%	35.7%	23.4%	26.6%
1.0 Often			19.2%	13.8%	16.8%	15.1%	16.1%
11. Alcohol makes me: Good ^b	5642	81.5%					

	-1.0 Never			78.0%	75.5%	66.5%	79.2%	74.5%
	.0 Sometimes			15.1%	17.4%	27.1%	13.1%	18.5%
	1.0 Often			6.9%	7.1%	6.4%	7.7%	7.0%
12. Alcohol makes me: Healthy ^b		5595	80.9%					
	-1.0 Never			83.7%	80.1%	85.0%	84.8%	83.2%
	.0 Sometimes			10.2%	12.2%	10.9%	8.1%	10.5%
	1.0 Often			6.1%	7.7%	4.1%	7.1%	6.3%
13. Alcohol makes me: Relaxed ^b		5734	82.9%					
	-1.0 Never			64.5%	66.5%	53.6%	69.1%	63.1%
	.0 Sometimes			21.2%	21.0%	32.8%	18.6%	23.7%
	1.0 Often			14.3%	12.5%	13.7%	12.3%	13.2%
14. Alcohol makes me: Energetic ^b		6906	99.8%					
	-1.0 Never			72.1%	69.6%	58.3%	72.0%	67.7%
	.0 Sometimes			15.5%	18.3%	26.3%	16.1%	19.3%
	1.0 Often			12.4%	12.1%	15.3%	12.0%	13.0%
15. Alcohol makes me: Rich ^b		6826	98.7%					
	-1.0 Never			84.2%	83.1%	83.7%	83.0%	83.5%
	.0 Sometimes			9.2%	9.2%	11.6%	9.0%	9.8%
	1.0 Often			6.6%	7.7%	4.7%	8.1%	6.7%
16. Gender		6789	98.1%					
	0 Female			60.0%	53.8%	54.6%	49.5%	54.3%
	1 Male			40.0%	46.2%	45.4%	50.5%	45.7%
17. Smoking behavior		6919	100.0%					
	0 non smoker			88.4%	94.0%	81.1%	93.6%	89.5%
	1 smoker			11.6%	6.0%	18.9%	6.4%	10.5%
18. Availability bathroom (Social Economic Status)		6515	94.2%					
	0 No bathroom in the house			24.5%	26.9%	16.5%	51.8%	29.8%
	1 bathroom in the house			75.5%	73.1%	83.5%	48.2%	70.2%
19. Age		6346	91.7%					

	12 years			0.3%	0.2%	0.4%	2.1%	0.8%
	13 years			0.8%	11.2%	19.8%	15.1%	12.0%
	14 years			13.4%	24.1%	43.3%	25.1%	26.7%
	15 years			31.6%	34.2%	20.4%	25.4%	28.1%
	16 years			44.8%	30.0%	11.6%	21.1%	26.6%
	17 years			7.8%	0.2%	3.4%	6.9%	4.3%
	18 years			1.4%	0.0%	1.2%	4.2%	1.6%
20.	Alcohol use among four best friends	6309	91.2%					
	0 No friends/ I am not sure			71.2%	67.3%	49.5%	78.7%	66.4%
	1 1 friend			5.9%	9.4%	10.6%	6.9%	8.3%
	2 2 friends			7.1%	7.3%	11.2%	6.6%	8.1%
	3 3 friends			4.9%	6.5%	8.7%	3.2%	5.9%
	4 4 friends			11.0%	9.5%	19.9%	4.7%	11.3%
21.	Alcohol use mother/female caretaker	6530	94.4%					
	0 No awareness using alcohol			87.9%	85.5%	68.7%	80.7%	80.6%
	1 Once a month			3.9%	3.8%	12.3%	5.9%	6.5%
	2 Once a week			3.8%	5.3%	13.5%	8.4%	7.8%
	3 Every day			4.3%	5.4%	5.5%	5.0%	5.1%
22.	Alcohol use father/male caretaker	6680	96.5%					
	0 No awareness using alcohol			73.9%	72.9%	62.1%	69.7%	69.6%
	1 Once a month			6.5%	6.7%	13.1%	5.1%	7.9%
	2 Once a week			10.1%	10.7%	15.5%	13.4%	12.4%
	3 Every day			9.5%	9.7%	9.3%	11.7%	10.0%
23.	Exposure Billboards last 30 days	6676	96.5%					
	.0 I have not seen a billboard/ I don't know			23.8%	49.1%	20.8%	32.4%	32.4%
	.3 A few			23.6%	19.5%	24.8%	22.9%	22.6%
	.7 Quite some			19.4%	4.0%	15.2%	10.9%	11.9%
	1.0 A lot			33.2%	27.5%	39.1%	33.7%	33.2%
24.	Readership Magazines last 30 days	5980	86.4%					

	.0 No magazines read		26.3%	28.0%	17.2%	41.7%	28.1%
	.2 1-3 times in the past 30 days		16.2%	15.6%	16.9%	15.0%	15.9%
	.3 1 time per week		31.3%	26.6%	24.9%	21.0%	25.9%
	.5 2-4 times per week		15.3%	13.9%	14.4%	11.3%	13.7%
	.7 5-7 times per week		3.9%	5.9%	10.0%	4.6%	6.2%
	.8 More than one magazine per day		7.0%	10.0%	16.6%	6.5%	10.1%
25.	Readership Newspapers last 30 days	6448	93.2%				
	.0 No newspapers read		15.1%	13.8%	18.1%	25.9%	18.0%
	.2 1-3 times in the past 30 days		17.6%	15.2%	22.2%	18.3%	18.2%
	.3 1 time per week		33.0%	32.4%	24.5%	22.9%	28.3%
	.5 2-4 times per week		18.7%	19.3%	13.7%	17.1%	17.2%
	.7 5-7 times per week		6.3%	6.8%	9.6%	6.9%	7.4%
	.8 More than one newspapers per day		9.3%	12.6%	11.9%	8.9%	10.8%
26.	Average hours Radio listening per day	6629	95.8%				
	Mean (SD)		2.38(2.44)	3.23(2.28)	2.47(2.37)	2.10(1.89)	2.59(2.29)
27.	Average hours TV watching per day	5959	86.1%				
	Mean (SD)		2.78(2.51)	3.04(2.18)	4.19(2.63)	2.79(2.41)	3.22(2.50)
28.	Perceived accessibility beer	6704	96.9%				
	-2 Impossible		43,8%	54,2%	30,0%	29,9%	40,2%
	-1 Hard		24,3%	14,0%	21,1%	26,4%	20,9%
	0 Neither hard nor easy/ I don't know		18,4%	23,3%	29,8%	30,4%	25,5%
	1 Easy		13,5%	8,5%	19,1%	13,3%	13,4%
29.	Education lessons on alcohol	6676	96.5%				
	0 No/I don't know		77.2%	75.5%	67.6%	60.5%	70.3%
	1 Yes		22.8%	24.5%	32.4%	39.5%	29.7%

Appendix 2. Estimated Correlation Matrix for the latent variables

	1	2	3	4
1. Initiate	1			
2. Binge	.600**	1		
3. Alcohol marketing exposure	.256**	.340**	1	
4. Positive alcohol expectancies	.300**	.377**	.146**	1

Appendix 3. Correlation Matrix for observed variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Initiate	1															
2. Binge	.600**	1														
3. Ad Billboards ^a	.112**	.097**	1													
4. Ad Events ^a	.112**	.137**	.223**	1												
5. Ad Magazines ^a	.131**	.139**	.231**	.248**	1											
6. Ad Mag30 days ^a	.096**	.143**	.259**	.237**	.298**	1										
7. Ad Newspaper ^a	.090**	.108**	.295**	.252**	.377**	.394**	1									
8. Ad Radio ^a	.041**	.097**	.229**	.203**	.364**	.210**	.262**	1								
9. Ad TV ^a	.186**	.159**	.232**	.169**	.310**	.204**	.189**	.242**	1							
10. Funny ^b	.168**	.170**	.059**	.074**	.044**	.062**	.048**	.015	.083**	1						
11. Good ^b	.206**	.260**	.057**	.082**	.045**	.066**	.063**	.025	.043**	.344**	1					
12. Healthy ^b	.067**	.106**	.022	.056**	.022	.016	.036**	.024	-.021	.293**	.388**	1				
13. Relaxed ^b	.179**	.220**	.046**	.062**	.054**	.039**	.054**	.025	.062**	.503**	.437**	.333**	1			
14. Energetic ^b	.145**	.151**	.045**	.064**	.049**	.053**	.061**	.012	.054**	.453**	.360**	.333**	.443**	1		
15. Rich ^b	.075**	.119**	.033	.063**	.041**	.041**	.041**	.026	-.001	.289**	.339**	.528**	.335**	.320**	1	
16. Boy	.056**	.053**	.025	.029	-.026*	-.033**	-.007	-.005	.018	.014	.013	.020	.012	-.007	.025	1
17. Smoking	.238**	.253**	.038**	.036**	.040**	.032**	.012	.012	.061**	.125**	.143**	.051**	.129**	.147**	.051**	.106**
18. SES	.039**	.043**	.063**	.090**	.088**	.109**	.091**	.001	.090**	.041**	.023	-.017	.022	.045**	-.017	-.016
19. Age	.018	.015	-.005	.017	-.021	-.049**	-.022	.053**	-.104**	.012	.030*	.076**	.020	-.009	.047**	.085**
20. Use friends	.276**	.327**	.117**	.176**	.100**	.117**	.101**	.088**	.106**	.154**	.182**	.062**	.177**	.127**	.072**	.067**
21. Use mother	.129**	.112**	.033	.062**	.062**	.066**	.059**	.026*	.057**	.076**	.102**	.052**	.075**	.052**	.050**	.023
22. Use father	.103**	.104**	.063**	.053**	.061**	.058**	.036**	.036**	.057**	.071**	.061**	.033*	.049**	.057**	.047**	.004
23. Media Billboards	.091**	.051**	.392**	.141**	.136**	.155**	.163**	.135**	.192**	.059**	.025	-.024	.035*	.037**	-.012	.043**
24. Media Magazines	.107**	.105**	.139**	.176**	.226**	.320**	.211**	.157**	.137**	.039**	.076**	.025	.051**	.042**	.032*	-.063**
25. Media Newspapers	.010	-.011	.072**	.112**	.165**	.158**	.218**	.123**	.047**	.029*	.035**	.022	.026	.023	.032*	.011
26. Media Radio	.015	-.027*	-.035**	-.062**	-.075**	-.085**	-.077**	-.111**	-.022	-.030*	-.017	-.021	-.020	-.018	-.013	-.007
27. Media TV	-.074**	-.074**	-.098**	-.063**	-.080**	-.131**	-.108**	-.091**	-.185**	-.042**	-.015	.025	-.028*	-.023	.020	-.019
28. Access beer	.074**	.069**	.007	.005	.004	-.009	-.022	-.007	.017	.055**	.092**	.061**	.072**	.080**	.037**	-.022
29. Education lessons	-.030*	.029*	.049**	.069**	.045**	.039**	.041**	.070**	-.007	.027*	-.011	-.050**	-.006	.012	-.028*	-.017

Appendix 3. Continued.

	17	18	19	20	21	22	23	24	25	26	27	28	29
17. Smoking	1												
18. SES	.063**	1											
19. Age	.030*	-.117**	1										
20. Use friends	.183**	.079**	.036**	1									
21. Use mother	.043**	.019	.023	.152**	1								
22. Use father	.042**	-.001	.010	.135**	.398**	1							
23. Media Billboards	.044**	.051**	-.012	.091**	.048**	.061**	1						
24. Media Magazines	.056**	.115**	-.065**	.109**	.058**	.047**	.117**	1					
25. Media Newspapers	-.025*	.076**	-.044**	.034**	.032*	.018	.083**	.303**	1				
26. Media Radio	.005	-.010	-.012	-.038**	-.024	-.016	-.014	-.073**	-.097**	1			
27. Media TV	-.030*	-.134**	.135**	-.094**	-.048**	-.035**	-.099**	-.121**	-.109**	.272**	1		
28. Access beer	.069**	-.044**	.010	.046**	.018	.021	.009	-.020	-.052**	.015	-.001	1	
29. Education lessons	-.005	.009	.024	.029*	-.006	.009	.087**	.031*	.007	-.021	.042**	-.047**	1

Appendix 4. Results Confirmed Factor Analyses

Construct: ALCOHOL MARKETING EXPOSURE

Cronbach Alpha=.674

RMSEA = 0.042

CFI=0.971

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
ADV BY				
ADEVENTS	0.421	0.018	23.010	0.000
ADMAG	0.616	0.015	42.239	0.000
ADMAG30	0.536	0.017	32.253	0.000
ADNEWS	0.610	0.015	40.210	0.000
ADRADIO	0.490	0.020	25.073	0.000
ADTV	0.422	0.026	16.015	0.000
ADBILL	0.462	0.019	24.877	0.000
Intercepts				
ADEVENTS	1.122	0.034	32.680	0.000
ADMAG	1.135	0.028	41.014	0.000
ADMAG30	0.926	0.033	28.016	0.000
ADNEWS	1.151	0.042	27.248	0.000
ADRADIO	1.148	0.026	44.791	0.000
ADTV	1.206	0.038	32.124	0.000
ADBILL	1.142	0.046	24.832	0.000
Variances				
ADV	1.000	0.000	999.000	999.000
Residual Variances				
ADEVENTS	0.823	0.015	53.539	0.000
ADMAG	0.620	0.018	34.456	0.000
ADMAG30	0.713	0.018	40.027	0.000
ADNEWS	0.628	0.019	33.924	0.000
ADRADIO	0.759	0.019	39.588	0.000
ADTV	0.822	0.022	36.856	0.000
ADBILL	0.787	0.017	45.853	0.000

Construct: POSITIVE ALCOHOL EXPECTANCIES
 Cronbach Alpha=.879
 RMSEA=0.040
 CFI=0.970

STDYX Standardization

	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
EXPP BY				
FUNNY	0.651	0.014	46.997	0.000
GOOD	0.621	0.020	31.331	0.000
HEALTHY	0.503	0.026	19.095	0.000
RELAXED	0.708	0.012	58.461	0.000
SOCIABLE	0.564	0.021	26.622	0.000
ENERG	0.643	0.015	43.799	0.000
RICH	0.480	0.020	24.291	0.000
RICH WITH				
HEALTHY	0.384	0.022	17.584	0.000
Intercepts				
FUNNY	-0.539	0.031	-17.522	0.000
GOOD	-1.117	0.043	-25.855	0.000
HEALTHY	-1.388	0.062	-22.268	0.000
RELAXED	-0.688	0.036	-19.229	0.000
SOCIABLE	-1.066	0.048	-22.305	0.000
ENERG	-0.758	0.040	-18.874	0.000
RICH	-1.361	0.054	-25.402	0.000
Variances				
EXPP	1.000	0.000	999.000	999.000
Residual Variances				
FUNNY	0.576	0.018	31.921	0.000
GOOD	0.614	0.025	24.933	0.000
HEALTHY	0.747	0.027	28.130	0.000
RELAXED	0.499	0.017	29.076	0.000
SOCIABLE	0.682	0.024	28.541	0.000
ENERG	0.587	0.019	31.140	0.000
RICH	0.770	0.019	40.646	0.000