

## **SOCIAL MEDIA ADVERTISING AND BEHAVIOUR CHANGE OF ALCOHOL CONSUMERS IN CALABAR, NIGERIA**

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### **Background to the study**

The excess consumption of alcohol causes adverse health and social consequences. Alcohol use is associated with increased risk of acute health conditions. Harmful use of alcohol can cause high blood pressure, liver cirrhosis, some cancers (mouth, intestine and breast) and cardiovascular diseases. It is also the cause of several accidents, marital problems and other social problems. Babor and Higgin-Biddle (2001) stated that most of the harms associated with alcohol use occur among people who are not dependent on alcohol but drink above recommended levels. In the whole world, 3.3 million deaths every year results from harmful use of alcohol, also in the age group 20-39 years, approximately 25 percent of total deaths are alcohol-induced (WHO, 2015). In 2017, a 35 year old man and friend of a leading Nigerian musician 'Davido' died after consuming ten 'tequila' shots in a drinking competition on his birthday (Punch, 2017).

Visits to drinking bars across Calabar Metropolis reveals that most persons, many of who are university students, spend their evening (especially weekends) in drinking parlours and wine bars, consuming alcohol. These persons are influenced to drink alcohol excessively due to aggressive marketing by alcohol manufacturers, (Shaikh, Pathak & Kapilashrami, 2015). Other causes of alcohol consumption are social norms, the urge to make and sustain friendship, and peer pressure. Most alcohol consumers engage in this behaviour because they are not aware of the harm they can cause to themselves and/or their relatives.

The key to improving health lies in our ability to change harmful behaviour. Approximately four in five drinkers would decrease their risk of death if they reduced their drinking by one unit of alcohol per week, (OECD, 2015). Behaviour change can be achieved through social marketing interventions, where deeply held beliefs or habits are challenged in order to influence the status quo. Social marketing interventions aimed at changing harmful alcohol consumption can be carried out through traditional face to face or through online media channels. Online channels such as social media possess several advantages, which include availability, confidentiality, flexibility, low cost, ease of access, comfort and many other advantages not obtained in traditional face to face media channels.

Social Media are web-based communications tools that enable people to interact with each other by both sharing and consuming information, (Nation, 2017). Since the advent of social media, young adults have been early adopters and voracious users of these tools, (Purcell, Smith & Zickuhr, 2010). Young adults are immersed in social media such as Facebook and Twitter, (Lernhardt, 2005).

The cost of using traditional media in reaching a large number of persons is exorbitant. Since most persons have been immersed in the use of social media channel, (Lernhardt, 2005).

This makes it easy for advertisers to reach these persons at a lower cost. Gough, Hunter, Ajao, Jurek, Mckeown, Hong, Barrett, Ferguson; McElwee, McCarthy and Kee (2017) stated that social media have the advantages of tailored messaging at low cost and large reach, but little is known about their feasibility as tools for inducing behaviour change. Literature to date is scant on interventions using social media to reduce harmful alcohol consumption, (Moreno & Whitehall, 2014). Banner, Asare and Bawole (2017) also observed that almost no research focuses on the effectiveness of social media as a health messaging tool, particularly in developing countries. This situation has kept social marketers in the dark; as they do not know the actual ability of social media in changing alcohol consumers' behavior. This study is anchored on the agenda setting theory propounded by McCombs and Shaw in 1972 and this theory describes the power of the news media to influence the salience of topics on the public agenda.

### **Objectives of the study**

The main objective of the study was to determine the difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria, who receive social media alcohol intervention advertising and those who do not receive these interventions. The following are the specific objectives:

1. to determine the difference between alcohol consumption behaviour of alcohol consumers in Calabar Metropolis, Cross River State, Nigeria, who receive Facebook alcohol intervention advertising and those who do not receive these interventions.
2. to examine the difference between alcohol consumption behaviour of alcohol consumers in Calabar Metropolis, Cross River State, Nigeria, who receive twitter alcohol intervention advertising and those who do not receive these interventions
3. to examine the difference in behaviour change between users of Facebook and Twitter alcohol intervention advertising in Calabar metropolis, Cross River State, Nigeria, over alcohol consumption.

### **Research questions**

The following are the research questions for the study:

1. What is the difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria who receive Facebook alcohol intervention advertising and those who do not receive these interventions?
2. What is the difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria who receive twitter alcohol intervention advertising and those who do not receive these interventions?
3. What is the difference in behaviour change between users of Facebook and Twitter alcohol intervention advertising in Calabar Metropolis, Cross River State, Nigeria over alcohol consumption?

### **Research hypotheses**

The following are the research hypotheses for the study expressed in their null forms:

1. There is no significant difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria who receive Facebook alcohol intervention advertising and those who do not receive these interventions.

2. There is no significant difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria who receive twitter alcohol intervention advertising and those who do not receive these interventions.
3. There is no significant difference between users of Facebook and Twitter alcohol intervention advertising in Calabar Metropolis, Cross River State, Nigeria, in terms of their behavioural change.

## **Literature review**

### **Social media concept**

The internet and its platforms are revolutionizing the communication process. New platforms like social media have come up and are being used in various ways to disseminate information to a large heterogeneous group of people in the same or different environment who are socially related or emotionally connected to us (Jacobs & Solo- Anaeto, 2015). Haida and Rahim (2015) defined social media as the means of interaction among people in which they create, share, and /or exchange information and ideas in virtual communities and networks. Social media are web-based communications tools that enable people to interact with each other by both sharing and consuming information (Nation, 2017). These sites started among university students in the United States in the early 2000s, but their use has quickly spread around the world, (Boyd, 2014).

Social media takes on different forms including internet forums, micro blogging, podcasts, social networking, bookmarking, wikis, social curation, weblogging (Jacobs & SoloAnaeto, 2015). Social media encompasses a spectrum of web-based communications tools and channels (Korda & Itani, 2013). First, they are Social Networking Sites (SNS) in which individuals create personal profiles and share same with a list of other users (Taylor, 2013). Examples of Social Networking Sites include: Facebook, Twitter, and LinkedIn (Laranjo, Arguel, Nerves, Gallahter, Kaplans, Mortimer & Lau, 2015). The second category are known as content sharing sites, for example, Youtube, instagram and Flickr, (Rainie, Brenner & Purcell, 2012).

### **Types of social media**

The following are the types of social media platforms;

#### **1. Facebook**

Facebook is a social networking website and service where users can post comments, share photographs and links to news or other interesting contents on the web, play games, chat live and even stream live videos (Nations, 2016). Maurer (2011) averred that Facebook describes itself as the perfect marketing tool because it developers have created an advertising system which allows businesses to use the information of each Facebook user for target advertising. Companies can utilize Facebook's features to reach their audience in different ways. Gangadharbatla (2009) stated that Social Networking Sites (SNS) are changing the way advertisers reach consumers, and that these changes are transforming online advertising altogether. More so, there are a variety of ways to use Facebook, and the different features allow creativity in advertising. Facebook advertisements are relatively easy to generate, and allow the creator a variety of choices when making an advertisement. Also, advertisers can view the result of who is clicking their advertisement.

#### **2. Twitter**

Twitter is a free social networking micro blogging service that allows registered member to broadcast short posts called tweets (McMahon, 2015). These posts can only be 280 characters or less in length. Information on twitter can contain photos,

videos, quote, article links and more,(Socialmediatoday,2017). Twitter advertisement include: promoted accounts, promoted trends and promoted tweets (Newberry, 2016).

Promoted accounts helps suggest account that people do not currently follow and may find interesting. This type of campaign promotes your twitter account to desktop and mobile users in places like the “who to follow” panel and their home timeline. Promoted trends appear at the top of the trending topics list on twitter and are clearly marked as ‘promoted’. They can boost conversations around your product or brand (Root, 2015). Promoted tweets are regular tweets with the added bonus that they can reach more people. They are purchased by advertisers who want to reach a wider group of users.

### **Social media advertising**

Social media is turning into an important advertisement channel (Eken, 2014). They are a good option for advertisers because of the advanced targeting options, reliable conversion tracking and prevalence of mobile devices (Ganguly, 2015; Nyekwere, Kur & Nyekwere, 2013). Social media advertising campaign is a fantastic way to reach new users. When you create an advertisement, you can determine exactly what type of user you want to target, and place their content directly in their news feed (Sidley, 2017). Social media has made it possible for an individual to communicate with other people all over the world about an organization, product or service (Haida & Rahim, 2015). It has been observed that companies which are using social media for their marketing and promotions have more sales values as compared to the companies not using social media (Arshad, Sharafatullah & Akhtar, 2015).

Media not only provide information to general public but it can be used as a tool to mobilize people for specific issues bringing up a change in the society (Sadaf, 2011). Technological advances are increasing the role of the media and its capacity to shape the public opinion (Rediscover.archsps, 2016). Chauhan and Shukla (2016) stated that social media has become an instrument to accelerate the process of change where it promotes social awareness and advertising in the society. They also states that advertisements portraying social issues should promote social change in the mind set of society towards these issues. Dorji (2017), asserts that one way to combat diminishing values in the society is to create stories calling attention to the situation and ensure that these stories are shared and heard.

### **Concept of behaviour change**

Behaviour change campaigns strives to make people to change their knowledge, attitudes and practice. It aims for the target group to change their behaviours to sustainable ones. The new behaviour must be seen as having higher value than the current behaviour (Anh-baily, 2013). However, some people have difficulty with behaviour change because the new behaviour is something they have never done or it is a behaviour they have not practiced in a while, (Citcassociates, 2018). Martinovich (2017) posited that focusing on how norms are changing can help people alter their behaviour. Just learning that other people are changing can instigate all the psychological processes that motivate further change. People can begin to think that change is possible, that change is important and that in the future, the norms will be different. Social marketing is a tool for changing behaviour. To change behaviour, social marketers need to identify interventions that work and use communications to support these interventions (Mitchell & Souder, 2009). Interventions that only address factors at the individual level and do not take into account the social and environmental influences are unlikely to work.

Information is rarely sufficient to change behaviour. Application of emotional stimuli and visuals to information can foster behaviour change (Futera, 2005). It is very often true

that what you want to sell might not be what the public wants to buy. When faced with a resistant or uninterested audience, the lessons from commercial marketing and from successful social marketing programmes is to be applied, (Brides & Farland, 2003). Providing information is therefore only a first step towards influencing behaviour change rather than an end point.

Understanding all the factors that influence the behaviour you want to change is an essential starting point, as it will enable one to start identifying the most effective interventions. 'Formative research is used in behaviour change campaign to examine the prospective target audience, their behaviour and the factors which influence it. This enables researchers collect knowledge on knowledge, attitude and practice (KAP) of target audience with respect to campaign', (Endvawnow, 2017). Researchers must also understand what their target audience perceive to be the barriers to change (Cepsm, 2016). Jeffrey (2015) asserted that a behaviour change campaign must give people a reason to change the behaviour and must change factors that are leading people to engage in the unwanted behaviour.

### **Alcoholic beverages consumption**

Drinking alcohol above the recommended level may be very harmful, (Linke & Murray, 2017). Binge drinking may be harmful even though the weekly total may not seem too high. For example, if you only drink once or twice a week but when you do, you drink four to five pints of beer each time, this is a risk to your health (Surgery, 2017). Alcohol consumption is measured in standard drinks or standard units. Self-reports and surveys are frequently used in measurements of alcohol consumed by a person. This is because it is rarely possible to obtain objective physiological measures, such as blood alcohol levels, (Linke & Murray, 2017). The National Institute on Alcohol Abuse and Alcoholism recommends no more than seven drinks per week for women, and no more than four drinks per day for women and five drinks for men on any single day and no more than 14 drinks per week for men. A standard drink is defined as a bottle of beer, (Federal Occupational Health, 2018).

Nigeria is among thirty countries with the highest per capita consumption and alcohol related problems, (Dumbilis,2015). Alcohol causes several problems, some of which include; marital conflicts, family problems, loss of jobs, among others. Thus, there is need to counter market alcohol to achieve responsible drinking.

### **Responsible drinking**

If any amount of alcohol causes you to act in a manner contrary to your values, or create distress or risks for others, you are not drinking responsibly (Drew, 2005). 'For some people, responsible drinking implies safety precautions. For others, it may mean cutting back on amounts consumed. For still others it may mean quitting' (HAM, n.d.). To achieve responsible drinking, we need a sustained counter-marketing campaign that broadly reaches youths with more realistic messages about drinking and its consequences (American Medical Association, 2016). Center for Disease Control (2003) asserted that counter-marketing uses methods to attempt to permanently reduce demand for a product or services. Teaching people how they can be manipulated by various forces, whilst also showing them how they can develop skills to negate these, are two central themes of counter marketing (Elliot, Morleo, & Cook, 2009).

### **Brief Intervention**

Brief intervention means implementing an intervention that takes very little time. These interventions can be delivered in as little as a few minutes (brief advice) (Rose, 2015). Craig (2018) stated that brief intervention essentially includes the screening and assessment of all patients about alcohol use. He maintains that brief interventions are more effective in people who are at risk of developing dependent rather than those who are already dependent or

experiencing several related harms. Brief intervention provides an opportunity to highlight potentially harmful behaviour and provide individuals with the tools to make informed choices about how they drink and reduce the risk to their health. The Department of Health, (2004) asserted that brief intervention involves using the most of an opportunity to raise awareness, share knowledge and get people to think about making changes to improve their health and behaviour.

### Research methodology

The area of this study is the University of Calabar, in the south-south region of Nigeria. Quasi experimental design was used for the study. Specifically, the separate pre-post sample design was used. The basic idea in the separate pre-post samples design (and its variations) is that the respondents used for the pretest are not the same as the ones used for the post-test. The design was employed with the assumptions that both samples have similar characteristics and nothing else changed except the interventions. That is, the experimental (post-test) group members remain alcohol consumers before the intervention begins. The main point in experimental design is to find a design that can rule out the threats to internal validity as much as possible. This design was used because it is not possible to hold the control group constant due to the peculiar nature of Facebook and twitter, where posts and tweets can be seen by other Facebook users who it was not actually sent to, and tweets can be accessed by anyone who is connected to the internet. Hence, it is possible for the control group members who were supposed to be held constant to also receive the intervention which was not actually meant for them. This will have caused post-test measurement of the control group to be wrong if true experimental design was used. The pretest measured in the control group was only there to serve as a 'proxy' which was used to compare with the post-test experimental group measurement; as if the pretest measure was taken at the post-test period. This is valid because alcohol abuse is habitual and it is a social norm. So, the behaviour of the control group members will remain the same over time. The figure below shows the design notation for the study;

R	O <sub>1</sub>	(X)
R	X	O <sub>2</sub>

Where R – random assignment, X- treatment, (X) – proxy pretest, O<sub>1</sub>– observation at time 1, O<sub>2</sub>– observation at time 2.

### The population of the study

The population of the study was made up of students of the University of Calabar, who drank alcohol above the recommended level of the National Institute of Alcohol Abuse and Alcoholism (five bottles of beer or more on any single day at least once in the last one month) and were between the age of 18 and 35. They also had accounts on Facebook and twitter social media platforms and were resident in Calabar Metropolis

### Sample size determination

The sample size for the study was determined using the Topman formula. This was because there was no existing (secondary) data on the total number of alcohol consumers who drank five or more bottles of beer and are between the ages of 18 and 35 years in the University of Calabar, to facilitate the computation of the sample size using a finite population formula. It was also not cost effective to gather these data. The formula used is stated as:

$$n = \frac{z^2 p \cdot q}{e^2}$$

Defined as follows: Z<sup>2</sup>- confidence intervals, p- estimate of population which accepted that social media platforms advertising influences behaviour change of alcohol consumers, q- estimate of population which claimed that social media advertising platforms does not influence behaviour change of alcohol consumers (estimate of p and q were obtained from results of pilot study), e- margin of error.

$$n = \frac{(1.96)^2 \times (0.87 \times 0.13)}{(0.05)^2}$$

$$= 173.79 = 174$$

The sample size of each group would be 174, making up a total participant of 348 respondents in the study for both groups.

### **Sampling design and procedure**

A Multi stage sampling method was applied to select the participants for the study. The sampling frame consisted of all the 22 political wards in Calabar Metropolis, made up of 12 wards in Calabar South Council and 10 wards in Calabar Municipal Council. Six wards (three from each Local Government Area) were randomly selected from the 22 wards within the two Local Government Areas. Eight drinking palours (three from two wards and two from one ward) were selected from Calabar South and six drinking palours (two from each of the three wards) were selected from Calabar Municipality. The selection of eight drinking palours from Calabar South and six drinking palours from Calabar Municipality was based on the ratio of the number of wards in both Local Government Areas. From each of the 14 drinking palours, at least 24 alcohol consumers who are students of the university of Calabar were selected for the study to make up the sample of 348. Analyses to show these, is presented in Table 3.1 and 3.2.

Samples for the experiment were selected and randomly assigned to the control and experimental group. The judgmental sampling procedure was employed for the study. To select and randomly assign respondents for the study, we visited selected drinking palours in Calabar Metropolis with two research assistants, where we persuaded every customer and university student that buys beer in the drinking palour to partake in the study. The first person that accepts our request and also posses the characteristics of the population forms a part of the control group, while the next third person that accepts our request and also posses the characteristics of the population automatically forms a part of the experimental group. The respondents in the control group were administered pretest questionnaire to fill instantly. We persuaded respondents in the experimental group to provide their phone numbers as well as their Facebook and twitter user name, so we can reach them later and also send them friends requests on Facebook and follow them on Twitter. This continued until 174 respondents were obtained for each group. Members of the experimental groups were presented with advertisements which relates to the study on Facebook and Twitter simultaneously for a period of three weeks, after which they were administered an online posttest questionnaire. Also, we promised respondents that their privacy will be protected. Video advertisements were embedded on Facebook from Youtube, while video links from Youtube were twitted on twitter using the @ character in front of respondents username. The following youtube videos were used for the study (1). World Health Organization says alcohol abuse a leading cause of death, disability- VOA health report (2). NHS Anti drinking

advert (3). What is a unit of alcohol and how many units should we be drinking per week. (4) One month alcohol break has big health benefits-fix news, 2015. (5) Benefits of quitting drinking-making better choices-Alcohol mastery TV. (6) Alcohol reduction techniques-How to stop drinking alcohol forever. (7) How to cut back drinking alcohol (8) Tips to cut back on alcohol. (9)Alcohol consumption increases cancer risk (10) Alcohol: new risk of cancer even for moderate drinkers. Other social media graphic design advertisements as well as alcohol abusers intervention website links such as that of the National Institute of Alcohol Abuse and Alcoholism were also used as interventions for the study. The respondents for the control group were offered a bottle of table water each while respondents in the experimental group were given ₦ 100 cell phone recharge card.

**Table 3.1**  
**Calabar South Bar respondents**

S/N	Names of drinking palours	Wards	Addresses of drinking palours	N0. of participants in the study
1	Paladium Bar and	1	Mary Slessor	25
2	Restaurant	1	Mary Slessor	25
3	Potomas sitout Flash point	1	Bogobiri	25
4	Tobyor Bar	11	Inyang street, Calabar	25
5	Arize Restaurant, Backery and Bar	11	South	25
6	Eyomma Palm wine joint	11	No 1 Nsit Street, Calabar South	25
7	Urban Bar and Restaurant	4	Eyomma Street	24
8	Rock n Roll	4	Mount Zion road	25
			52 Ekpo Abasi Street Calabar South	25

Source: field work 2018

**Table 3.2**  
**Calabar Municipality Bar respondents**

S/N	Names of drinking palours	Ward	Addresses of drinking palours	N0. of participants in the study
1	Lover's choice Bar and restaurant	1	2a Etta Agbo layout, Calabar	25
2.	Angels Bar and Lounges	1	Atekong drive, Calabar	25
3	Doris Hotel Bar	2	Close to Cuda, off Edim	25
4	Edim Otop by Atimbo Bar	2	Otop, Calabar	25
5	Edilizy Wine Bar	6	Akpabuyo Park	25
		6	Bigqus road, IBB Way, Calabar	25
6	The Vanel Bar	6	Plot 1a, Nseefik Eyo layout-off Marian Calabar	24

Source: fieldwork 2018

### Sources and method of data collection

Data for the study were obtained from primary sources. Primary data for the study were obtained through questionnaire. Pen and Paper copies of the questionnaire were used for collecting data from respondents in the control group, while online copies of questionnaire were administered through Facebook to collect data from the experimental group respondents. Data were all collected and entered into SPSS 21.0 for analysis.

### Instruments for data collection

The major instrument for data collection was the questionnaire. The Likert scaled type questionnaire and the multiple choice questionnaire was used for the study. The questionnaire comprised two sections. Section A consisted of personal information of respondents and are formulated based on multiple choice format. While section B consisted of statements related to the objectives of the study and was Likert scaled. The Likert scale used here comprised five descriptors; strongly Agree (SA); Agree (A); undecided (UD); Disagree (D); Strongly disagree (SDA). Strongly agree possessed the highest value of 5, while strongly disagree possessed the lowest value of 1.

### Validity of the instrument

The content and face validity were used for validating the questionnaire. The questionnaire instrument was vetted by a test and measurement specialist. Also, opinions of ten experts (on social media and behaviour change) about the content validity of the instrument were quantified using the content validity index. To obtain content validity index of each item, the number of those experts judging the item as relevant was divided by the total number of content expert. An item content validity index was calculated along with a scale-level content validity Ratio (Lawshe's). The instrument had an excellent scale level content validity ratio of 0.8. Lawshe's content validity ratio (CVR) =  $(N_e - N/2) / (N/2)$ , where N- the number of panelists or reviewers;  $N_e$ - number of reviewers who rated the item as relevant or appropriate.

$$\begin{aligned} \text{CVR} &= (9 - \frac{10}{2}) / (\frac{10}{2}) \\ &= (9 - 5) / 5 \\ &= 4/5 \\ &= 0.8. \end{aligned}$$

Face-to-face interview was carried out with some members of the target group. Difficulty level of items in the questionnaire, desired suitability and relationship between items and the main objectives of the instrument, ambiguity and misinterpretations of items, and/or incomprehensibility of the meaning of words were the issues discussed during the interviews.

### Reliability of the instrument

The reliability of the instrument was ascertained by test-retest reliability technique. Two tests were conducted at two different points in time (3-weeks interval) on thirty persons (fifteen persons for each group) who consume alcohol above the recommended level, reside in Calabar Metropolis, are University of Calabar students and also use Facebook and Twitter social media platforms. The reliability of the instrument was assessed by comparing the responses respondents provided in the first test to the responses obtained from the second test to determine if the scores obtained from both tests were similar. The data when analyzed produced the following reliability coefficients (item 1-0.873, item 2-0.875; item 3 -0.866, item 4-0.853, item 5-0.810). These all indicated statistical significance, ( $p < 0.05$ ). This implies that the instrument has good test-retest reliability.

### Data analysis techniques

Analyses of data for the study were undertaken using frequency, simple percentage, as well as the Independent T-test. The Independent T- test measured the gain or change scores between the mean of two observations (control and experimental). This was suitable for this study as there was need to measure whether a change will occur as a result of the treatment of the experimental group in the study. Also, the Independent T-test is suitable for analysis in two groups design study.

$$T = \frac{X_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

### Statistical model

Defined as follows: T - independent student T-test;  $X_1$ . mean of first group,  $X_2$ . means of second group,  $S_1$ . Standard deviation of first group,  $S_2$ - standard deviation of second group,  $n_1$ . sample size of first group,  $n_2$ . sample size of second group.

### Model Specification

Regression Model used to represent both control and experimental groups, using a 0, 1 dummy-coded variable is stated as:

$$Y_i = B_o + B_i Z_i + e_i$$

Where:

$Y_i$  = outcome score

$B_o$  = coefficient of the intercept

$B_i$  = coefficient for the slope

$Z_i$  = 1 if ith unit is in the treatment group, 0 if ith unit is in the control group

$e_i$  = residual for the ith unit

By assumption the error term averages to zero for both groups

#### For control group ( $z_i = 0$ )

$$Y_c = B_o + B_i (0) + 0$$

$$Y_c = B_o$$

#### For treatment group ( $z_i = 1$ )

$$Y_t = B_o + B_i (1) + 0$$

$$Y_t = B_o + B_i$$

#### Difference between both groups is:

$$Y_t - Y_c = (B_o + B_i) - B_o$$

$$Y_t - Y_c = B_o + B_i - B_o$$

$$Y_t - Y_c = B_i$$

Thus

$$Y_{tf} - Y_c = B_i, \text{ and}$$

$$Y_{tw} - Y_c = B_i, \text{ where}$$

$Y_{tf}$ - outcome score for Facebook's experimental group

$Y_{tw}$ - outcome score for Twitter's experimental group

$Y_c$ - outcome score for the control group

- △ This explains that:  
 △ B = F (Facebook advertisements which discourage alcohol abuse) B = F (Twitter advertisements which discourage alcohol abuse).  
 △ Where:  
 △B – change in behaviour.

## Result

The aim of the study was to investigate the extent to which social media advertising can influence the behaviour of alcoholic beverages consumers in Calabar Metropolis, Cross River State, Nigeria. Social media advertising intervention program was designed to achieve this aim of the study. The intervention program was targeted at 174 alcoholic beverages consumers (experimental group) in Calabar Metropolis within a 3-week period. The experimental group shrank by 12.6 percent. Thus, these persons did not complete the study. Three hypotheses were tested in the study. The following were the results of the hypotheses test:

**Hypothesis 1:** There is no significant difference between alcohol consumption behaviour of consumers in Calabar Metropolis in Cross River State, Nigeria, who receive Facebook alcohol intervention advertising and those who do not receive these interventions.

**Table 4.2.1**

**Summary of independent t-test results indicating the difference between alcohol consumption behaviour of consumers who receive Facebook advertising interventions and those who do not receive these interventions.**

Experimental		Control		Mean 95% difference		T	Df	Sig.
Mean	S.D.	Mean	S.D.	Lower	Upper			
1.2434	.43057	4.4540	.49932	3.21060	3.10928 3.31192	62.339	323.949	.000

Table 4.1.2 reports the results of the independent t-test analysis carried out to test hypothesis 1. The result shows that there is a significant difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria, who receive Facebook advertising alcohol interventions and those who do not receive these interventions. This implies that Facebook advertising significantly influences behaviour change of alcoholic beverages consumers in Calabar Metropolis in Cross River State, Nigeria. The result shows a mean difference (change score) of 3.21060, 95% CI:3.10928 to 3.31192 which was significant. ( $p < 0.05$ ). Thus hypothesis one was rejected. This is in line with the findings of Ridout and Campell (2014) that at 1 month post-in intervention carried out through Facebook, the quantity and frequency of alcohol consumed by intervention group during the previous month had significantly reduced compared with baseline and controls.

**Hypothesis 2:** There is no significant difference between alcohol consumption behaviour of consumers in Calabar Metropolis in Cross River State, Nigeria, who receive twitter alcohol intervention advertising and those who do not receive these interventions.

**Table 4.2.2**

**Summary of independent t-test results indicating the difference between alcohol consumption behaviour of consumers who receive twitter advertising interventions and those who do not receive these interventions.**

Experimental		Control		Mean 95% difference	CI		T	Df	Sig.
Mean	S.D.	Mean	S.D.		Lower	Upper			
1.5855	.49426	4.4540	.49932	2.86850	2.75995	2.97704	51.989	324	.000

Table 4.2.2 reports the result of the independent t-test analysis carried out to test hypothesis 2. The results indicate that there is a significant difference between alcohol consumption behaviour of consumers in Calabar Metropolis, Cross River State, Nigeria, who receive twitter advertising alcohol interventions and those who do not receive these interventions. This implies that Twitter advertising significantly influences behaviour change of alcoholic beverages consumers in Calabar Metropolis in Cross River State, Nigeria. The analysis provided a mean difference (change score) of 2.86850, 95% CI: 2.75995 to 2.97704 which was significant ( $p < 0.05$ ). Therefore, hypothesis two was rejected. This matches the findings of West, Hall, Pier, Hanson, Carrier, Neeley and Barnes (2012), which indicate that social norms interventions is an effective tool in correcting misperceptions related to problem drinking by informing Twitter followers that problem drinking behaviours are not normative.

**Hypothesis 3:** There is no significant difference between users of Facebook and Twitter alcohol intervention advertising in Calabar Metropolis, Cross River State, Nigeria, in terms of their behavioural change.

**Table 4.2.3**

**Summary of independent t-test result indicating the difference between behaviour change of alcohol consumers which results from Facebook and Twitter advertising in Calabar Metropolis**

Facebook		Twitter		Mean 95% difference	CI		T	Df	Sig.
Mean	S.D.	Mean	S.D.		Lower	Upper			
1.2434	.43057	1.5855	.49426	-0.34211	-.44673	-.23748	-6.434	296.429	.000

Table 4.2.3 reports the result of the independent t-test analysis carried out to test hypothesis 3. The results indicated that there is a significant difference between users of Facebook and Twitter alcohol interventions advertising in Calabar Metropolis, Cross River State, Nigeria, over alcohol consumption. This data analysis provides a change score (mean difference) of -0.34211, 95% CI:

-0.44673 to -0.23748 which was significant ( $p < 0.05$ ). Therefore, hypothesis three was rejected. This result is consistent with result obtained by Whitehall, Pamper and Moreno (2015) who found that Facebook use was more prevalent than twitter use among heavy episodic drinkers. The negative t value and mean difference implies that the sample mean for twitter advertising was less than the sample mean for Facebook advertising.

## Conclusion

Several persons spend more time today on social media. This makes it possible for advertisers to be able to reach them with advertising messages at a low cost through this media to change their behaviour. Facebook and Twitter platforms can be used by social marketers for achieving their objectives. Social marketers can promote their cause through videos, graphic design advertisements, as well as text in these social media channels. The interactivity feature of these media makes it entertaining to people and as a result makes it easy for their attention to be captured on these media. Also, these media can be used to provide intervention privately to alcohol consumers. This makes it convenient for them. Today a large number of persons can receive health related information which can nudge them to change their risky habits. Alcohol consumers can be persuaded through Facebook advertising to change their risky behavior at a very low cost.

Other than Facebook, other social media platform like twitter is also an effective tool for changing alcohol consumers' behaviours. Tweets which provide information about the benefits of avoiding excessive alcohol consumption are useful in changing alcohol consumer behaviour. More so, Twitter's increase of its character limit from 140 to 280 gives a social marketer additional incentive, as he has more space for his persuasive messages.

Finally, even though Facebook and Twitter advertising were both capable of changing alcohol consumption behavior. It is apparent from the third finding in this study that they possess different degrees of potency in changing alcohol consumers' behaviour. Facebook advertising platform possesses greater ability for changing risky alcohol consumption behaviour.

## Recommendations

Based on the outcome of this study, the following recommendations were proffered:

1. Social marketers and alcohol interventionists should use Facebook organic advertising for changing alcohol consumers' behaviour; as this is capable of reaching a large number of persons.
2. Social marketers and alcohol interventionist should employ the tool of Twitter advertising in reaching alcohol consumers with well designed interventions; as this is capable of changing their harmful and risky alcohol consumption behaviour.
3. To achieve optimal resource allocation, social marketers and alcohol interventionist should invest more in Facebook advertising than in Twitter advertising; as Facebook advertising is more effective in changing risky alcohol consumption behaviour than Twitter advertising.

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**Appendix: QUESTIONNAIRE**  
Control group-pretest questionnaire

		SA	A	UD	DA	SDA
1	I drank up to five bottles of beers in a day in the last one month.					

**Experimental group-posttest**

		SA	A	UD	DA	SDA
1	Facebook advertising makes it more likely for me to drink five or more bottles of alcoholic beer in a day.					
2	Facebook advertising makes it likely for me to drink alcoholic beer more often.					
3	Twitter advertising makes it more likely for me to drink five or more bottles of alcoholic beer in a day.					
4	Twitter advertising makes it likely for me to drink alcoholic beer more often.					

**Interview schedule for alcohol consumers screening (adapted from AUDIT C)**

**Instruction:** Answer the questions below:

1. How many social media account do you have (please mention)?-----
2. How often do you drink beer?-----
3. How many bottles of beer do you drink in a day?-----
4. How often do you drink five or more bottles in a day?-----
5. Is there any reason why you drink?-----