

Georgia State University

ScholarWorks @ Georgia State University

Public Health Theses

School of Public Health

Spring 5-4-2021

A Thesis on Aspects of Perceptions of Alcohol Advertisements and Marketing Appeal: Empirical Analyses of Young Adults in the US and Uganda

Amber Grant
Georgia State University

Follow this and additional works at: https://scholarworks.gsu.edu/iph_theses

Recommended Citation

Grant, Amber, "A Thesis on Aspects of Perceptions of Alcohol Advertisements and Marketing Appeal: Empirical Analyses of Young Adults in the US and Uganda." Thesis, Georgia State University, 2021.
doi: <https://doi.org/10.57709/22768044>

This Thesis is brought to you for free and open access by the School of Public Health at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Public Health Theses by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

A THESIS ON ASPECTS OF
PERCEPTIONS OF ALCOHOL ADVERTISEMENTS AND MARKETING APPEAL: EMPIRICAL ANALYSES
OF YOUNG ADULTS IN THE US AND UGANDA

by

Amber Grant

B.S., Georgia State University, 2017

A Thesis

Submitted in Partial Fulfillment of the Requirements for the

Master of Public Health

Department of Epidemiology and Biostatistics

in the Graduate School

Georgia State University

April 2021

Copyright by AMBER GRANT, 2021

All Rights Reserved

THESIS

PERCEPTIONS OF ALCOHOL ADVERTISEMENTS AND MARKETING APPEAL: EMPIRICAL ANALYSES
OF YOUNG ADULTS IN THE US AND UGANDA

By

Amber Carrissa Grant

A Thesis Submitted in Partial
Fulfillment of the Requirements

for the degree of

Master's in public health
in the field of Epidemiology

Approved by:

Dr. Monica Swahn, Chair

Dr. Karen Nielsen

Graduate School

Georgia State University

(May 3rd, 2021)

AN ABSTRACT OF THE THESIS

Amber Grant,

For the Master's in Public Health in Epidemiology

presented on April 16th, 2021,

at Georgia State University.

TITLE:

PERCEPTIONS OF ALCOHOL ADVERTISEMENTS AND MARKETING APPEAL: EMPIRICAL ANALYSES

OF YOUNG ADULTS IN THE US AND UGANDA

EPIDEMIOLOGY PROFESSOR: Dr. M. Swahn

INTRODUCTION: Despite the rapid increase in alcohol marketing and its role in contributing to alcohol use, a growing global health concern, there is limited research examining young adults and their perception of alcohol advertisement and appeal that can inform alcohol counter marketing campaigns and prevention strategies.

AIM: To examine and compare perceptions of alcohol advertisements and marketing appeal in a cross-sectional survey of young adults in two countries, Uganda, and the U.S.

METHODS: The analyses are based on a cross-sectional survey, conducted in 2021, comprised of young adults ages 18 to 25 (N=603; 303 in U.S. and 300 in Uganda) Participants were recruited online for a 20-minute survey that included questions about demographic characteristics, alcohol advert exposure, alcohol use (AUDIT) and responses to 4 specific alcohol adverts including compliance with alcohol marketing codes using the alcohol marketing assessment tool (AMART). The outcome variable was the frequency of selected segments (heatmaps) of the four adverts and the AMART ratings of each ad. Chi-square tests of independence were conducted for selected preferred element of the advert and the participant home country for all four ads. A multivariate analysis was conducted to assess the association between alcohol use, marketing influence and AMART scores for each ad.

RESULTS: There was an association between the country variable and the regions of interests (X^2 (df=2) = 14.21, $p = 0.002$) in advert 3 with a .04 point increase in perception of marketing features that are in violation of industry standards for every 1 point increase in marketing influence scores. The chi-square test for advert 4 reported a significant association between the country of origin and marketing features that are in violation of industry standards (X^2 (df=2) = 33.40, $p < 0.0001$).

DISCUSSION: While culturally different, both the Ugandan and the American participants expressed similar perception and appeal of the selected alcohol adverts. However, there were also unique differences in the specific appeal of each adverts and association with alcohol use and code violations that can inform prevention strategies, and alcohol counter marketing initiatives that seek to reduce alcohol use in similar populations.

DEDICATION

This thesis is dedicated to my parents, Eveleaner and Lemuel Grant for their love and support through this process and being a sound board for challenges and frustrations. To my grandmothers who had always encouraged me to continue to move forward even when it gets difficult and whose own life continues to be an inspiration and lastly to my beloved friends and extended family.

ACKNOWLEDGEMENTS

I would like to thank Dr. Swahn for her invaluable assistance and support leading to the writing of this thesis. Her mentorship was essential in handling the challenges that came with this paper. My sincere thanks also goes to Dr. Nielsen for her feedback and support in my analyses using R software that were monumental in the production of this paper. Without her assistance and encouragement this thesis would not be what it is today.

TABLE OF CONTENTS

AN ABSTRACT OF THE THESIS 4

DEDICATION 5

ACKNOWLEDGEMENTS 6

TABLE OF CONTENTS..... 7

CHAPTER ONE 8

 Introduction of Alcohol Marketing and Risk of Alcohol-Related Diseases in Vulnerable Populations..... 8

 INTRODUCTION 8

CHAPTER TWO 19

 Literature Review of Targeted Alcohol Marketing and Vulnerable Populations 19

 INTRODUCTION 19

 METHODS..... 22

 RESULTS..... 23

 DISCUSSION..... 26

CHAPTER THREE 35

 Perceptions of Alcohol Advertisements and Marketing Appeal: Empirical Analyses of Young Adults in the U.S. and Uganda 35

 INTRODUCTION 35

 METHODS..... 38

 RESULTS..... 43

 DISCUSSION..... 51

REFERENCES 56

APPENDIX 1 66

CHAPTER ONE

Introduction of Alcohol Marketing and Risk of Alcohol-Related Diseases in Vulnerable Populations

INTRODUCTION

This three-chapter thesis introduces alcohol marketing as a public health issue and addresses the influence of alcohol marketing through advertisement, policies, and regulations. The second chapter, a review of the scientific literature presents findings on the associations between alcohol marketing and focus on new marketing strategies referred to as neuromarketing. Lastly, the third chapter presents a manuscript titled “Perceptions of Alcohol Advertisements and Marketing Appeal: Empirical Analyses of Young Adults in the USA and Uganda” which reflects study findings from a recently conducted cross-sectional study of the potential cultural differences in advertisement appeal in Ugandan and United States. The goals of chapters 1 and 2 are to present evidence of the alcohol industries' marketing influence on the general health of the public and address a lack of compliance with voluntary alcohol marketing guidelines designed to protect vulnerable populations from alcohol-related harm. Additionally, the scientific manuscript examines what young adults, who are typically the target of alcohol marketing, find appealing about specific alcohol advertisements and whether their own alcohol use and exposure to marketing influence their opinions.

Chapter 1: Presents the status of alcohol consumption globally and in specific countries, alcohol marketing strategies, and commercial determinants of health to understand how corporations have maximized profits at the expense of public health.

Chapter 2: Outlines and summarizes current research findings on alcohol consumption in young adults and their exposure to traditional alcohol advertisements.

Chapter 3: Provides a manuscript with empirical findings using a novel cross-sectional study using heatmaps to examine the appeal of Ugandan advertisements among young adults in Uganda and in the USA to better understand potential cultural differences in the appeal of alcohol ads.

Alcohol Consumption and Marketing Practices

The World Health Organization lists alcohol consumption as one of the three primary causes of poor health (Pettigrew et al., 2018). Globally, alcohol consumption can be attributed to 3.3 million deaths and alcohol-related disease and injury, responsible for an estimated 4% of mortality and 5% of disability-adjusted life-years (DALYs) (Parry et al., 2009). The effects of alcohol misuse and abuse span from diseases and disorders to accidents, injuries, violence, death, and consequences on personal, communal, and societal levels (Babor et al., 2017; Pettigrew et al., 2018; Sudhinaraset et al., 2016).

Alcohol consumption, and the many harms associated with its use vary by gender, race/ethnicity, and nationality. For example, in the Americas region, 70% of people aged 15 and older consume alcohol, whereas 40% of the equivalent population in Africa consume alcohol (WHO | *Global Status Report on Alcohol and Health 2014*, n.d.). However, there is an increasing prevalence of alcohol consumption seen in low- and middle-income countries (LMICs) (Esser & Jernigan, 2018). A rise in the prevalence of alcohol typically brings a surge in alcohol-related public health problems, this is particularly the case in countries that lack adequate alcohol regulations, policies, and enforcement to protect citizens. Even more, the high total alcohol consumption per capita among drinkers in regions with weak alcohol policies and regulations suggests a dangerous pattern of high-intensity drinking (Caetano & Laranjeira, 2006). In the

U.S., The National Institute on Alcohol Abuse and Alcoholism and Nutrition Examination Survey (NIAAA) defines binge drinking as a pattern of drinking alcohol that brings blood alcohol concentration (BAC) to 0.08 percent or 0.08 grams of alcohol per deciliter or higher (*Binge Drinking | National Institute on Alcohol Abuse and Alcoholism (NIAAA)*, n.d.). Binge drinking has been associated with alcohol-related violence and injuries, such as intimate partner violence, falls, and motor vehicle crashes (Alaniz, 1998; Anderson, 2009; Babor et al., 2017; Caetano et al., 2010). Alcohol misuse and abuse are important public health concerns and pose a significant burden on economies, societies, including criminal justice costs, health care expenses, and loss of productivity (M et al., 2009; J. J. Sacks et al., 2015; Scott et al., 2017).

Alcohol Marketing in Low Resource Settings

While alcohol marketing in its many forms is pervasive and highly prevalent across countries, its presence in low-resource settings have been noted as a growing concern (Esser & Jernigan, 2018). The rationale for the new and aggressive marketing tactics seem to stem from seeking to increase the prevalence of alcohol users in countries where alcohol use, at least in the past, was relatively low. In developing countries with growing populations with disposable income, global alcohol corporations tend to seek fresh opportunities to engage with new consumers through increased use of alcohol marketing strategies that appeal to groups that previously have lower drinking rates. This influx of alcohol industry activity can be seen in product development and promotion catering to segmented groups that have traditionally had lower alcohol consumption rates. These developments are of great concern in the public health community as longitudinal studies of alcohol advertising in the U.S. for example, have

demonstrated a positive relationship between advertising exposure and alcohol consumption (J. K. Noel et al., 2017).

The strong influence of alcohol marketing has been well demonstrated. An interesting case study was reported regarding the introduction of flavored alcohol drinks nearly 20 years ago. Research demonstrated that in the U.S., a marked shift in beverage preferences took place among 17 and 18-year-old binge-drinking girls, from beer to distilled spirits between 2001 and 2005 (D. Jernigan & Ross, 2020). During the same period, flavored alcoholic beverages were introduced into the US market. Marketers spent more than \$360 million on a television advertisement for distilled spirits branded 'flavored alcoholic drinks, such as Smirnoff and Bacardi Silver (Martino et al., 2017). In the traditional media of television, magazines, radio, and billboards, analysis of data from a longitudinal study of 1872 youth aged 15-26 years in 24 media markets found that for every additional advertisement, young people reported seeing or hearing above an average of 23 per month, they drank 1% more, while every extra dollar spent per capita on alcohol advertising in their media was associated with a 3% increase in young people's drinking (Mart, 2011).

The content or themes of alcohol advertisements seem to vary over time and across the regions. As an example, in the 1990s and early 2000s, humor, relaxation, friendship, and masculinity were common themes seen in traditional advertisements from the U.S., with sex appeal used exclusively for male audiences with female actors in the advertisements (J. K. Noel et al., 2017). In contrast, the key themes of alcohol adverts in Uganda, seem to primarily include athletic performance, social success, and financial success. Due to the nature and extent of the alcohol industry's marketing activities and the harmful nature of the product

being promoted, comparisons are increasingly being made between the strategies used by the alcohol companies to attract and retain customers and to avoid or delay regulatory intervention (Pettigrew et al., 2018).

According to a global survey of national health authorities, between 8% and 56% of countries have alcohol marketing regulations to protect youth and other vulnerable populations from the harmful effects of alcohol marketing (Alhabash et al., 2015). Typically, these alcohol marketing guidelines are either statutory or voluntary and can cover the content and placements of advertisements. Exposure guidelines typically specify that no alcohol advertisements should be broadcast or displayed to an audience where the percentage of underage individuals exceeds 30% (Babor et al., 2017). Advertising guidelines and codes are developed under five primary themes: responsible marketing communication, responsible alcohol consumption, health and safety aspects, protection of minors, and the effects of alcohol. While these themes initially appear to consider public health, researchers have conducted studies on the efficacy of the self-regulated standards of alcohol advertisements. Nineteen studies were conducted in 19 countries where advertising content was evaluated in terms of code violations. All studies reported evidence of code violations. The most violated guidelines included associations with social and sexual success and policies intended to protect youth (J. Noel et al., 2017).

In response to alcohol advertisement violations against global standards, public health professionals developed the Alcohol Marketing Assessment Rating Tool (AMART). This shortened questionnaire was originally taken from a larger questionnaire used to identify marketing violations of beer advertisements between 1997 and 2006 (J. K. Noel, Babor, et al.,

2018). AMART questions consist of Likert scale items designed to identify potential violations from advertisements. Previous studies have proven the validity of this assessment tool in accurately detecting code violations in alcohol advertisements (Babor, Xuan, Damon, et al., 2013).

Traditional Advertisement and Advertisement Appeal

While alcohol corporations have stated in guidelines that advertisements should not target vulnerable populations, as previously stated, research on alcohol marketing has proven the contrary, with alcohol ads having a particular focus on segments of people who are at increased risk of alcohol use and harm (García-Álvarez et al., 2020; Randolph et al., 1998). The early study of alcohol marketing effectiveness conducted by Anheuser Busch (an alcohol producing corporation), for example, aimed to increase the potency of advertising by linking products with the personality types of consumers (Stautz et al., 2016). Self-reported exposure to television programs containing alcohol advertisement in a large sample of 12 and 13-year-old schoolchildren from Los Angeles public schools was associated with increased risk of drinking and of heavy drinking a year later (D. H. Jernigan, 2010). Additionally, surveys of 11 and 12-year-old schoolchildren in South Dakota found that exposure to television beer advertisements, alcohol advertisements in magazines, in-store beer displays and beer concessions, radio-listening time, and ownership of beer promotional items was strongly predictive of drinking and intentions to drink one year later (D. H. Jernigan, 2009).

Years of research on traditional alcohol marketing exposure have produced similar findings; the health risks and issues have been addressed (Alaniz, 1998; Alhabash et al., 2015; Dunstone et al., 2017; D. H. Jernigan, 2009), yet alcohol producers continue to target young people

directly through unique ads and marketing campaigns. With the development of digital media, former singularities of television commercials like the Super Bowl advertisements of famous alcohol brands can now be watched repeatedly for years on the social media platform YouTube and others, where any account, regardless of age, can monitor and consume alcohol ad exposure well beyond the lifespan of the original campaign and interact with millions of additional viewers to be shared and viewed (de Lacy-Vawdon & Livingstone, 2020; *WHO / Commercial Determinants of Health*, n.d.). With the established evidence of corporation exposure and influence it is important to discuss the components of influence that corporations have on public health.

Commercial Determinants of Health

The marketing of harmful goods by corporations has had a significant effect on the state of public health. In the last decade, the public health community has focused on understanding the corporate impact on public health and the channels ranging from product advertisement to regulation lobbying. The term commercial determinants of health (CDoH)(Kickbusch et al., 2016; McKee & Stuckler, 2018) has been used to focus attention upon this concept and arises from a recognition that tobacco, alcohol, and food and beverages companies and other harmful commodity producers-through both their market and non-market activities are essential and often overlooked drivers in public health problems in high-, middle-, and low-income countries (Knai et al., 2018; Maani et al., 2020) as well as the "factors that influence health which stems from the profit motive."(Maani et al., 2020). Corporate activities shape our environment and determine the availability, promotion, and pricing of consumables (de Lacy-Vawdon & Livingstone, 2020).

Corporate influence is measured through four main channels: marketing, which enhances the desirability and acceptability of unhealthy products; lobbying, which can impede public health policy barriers such as advocating for plain packaging and required minimum drinking ages; corporate social responsibility strategies, which can deflect attention and whitewash tarnished reputations and be thinly veiled attempts at additional marketing; and extensive supply chains, which amplify global influence on a massive scale (Maani et al., 2020). All four channels combine to establish three inter-related factors to change the worldwide landscape of boasting large companies: rising demand, increasing market coverage, and the continued internationalization of trade and investment (Lacy-Nichols & Marten, 2021). Alcohol interventions are often undermined in the face of corporate activities on the social environment in which people live and work: namely, the availability, cultural desirability, and prices of unhealthy products. This influence on the social environments has shaped the individual consumer's choices and determines health outcomes (Kickbusch et al., 2016).

An example of the marketing influence of alcohol brands on consumers to increase desirability and accessibility is the sponsorship of sporting events worldwide. Research on alcohol marketing during the UEFA Euro 2016 football tournament held in France showed that the tournament sponsor, Carlsberg Group, achieved a substantial number of alcohol marketing references per televised match. Most contacts were often indirect and used the phrases "probably" or "-the best in the world" (de Lacy-Vawdon & Livingstone, 2020). Sports and athletic ability is often presented as a way for people to be more active, and deceptively, alcohol companies attempt to pair their alcohol brands with healthier lifestyles and a part of a healthy diet to athletes (Pettigrew et al., 2018). Besides, to increase desirability and

accessibility in marketing at sporting events, alcohol brands increase their consumer/brand relationship by integrating themselves into the sports viewing experience (Gupta et al., 2018). Strengthening consumer/brand relations benefits corporations in all channels of commercial determinants. It can act as a protective barrier to activate skew attempts to regulate alcohol corporations as a ploy to hurt beloved alcohol brands that have become household names and synonymous with memories of sports outings (D. H. Jernigan, 2010).

Alcohol policies and regulations are typically designed to limit or mitigate the adverse impact of alcohol marketing. However, with the increase of alcohol marketing in low and middle income countries, alcohol corporations also appear to have direct involvement with the development of alcohol policies in African countries which is of great concern (Ferreira-Borges et al., 2015). A case study of draft national alcohol policies in four sub-Saharan African countries (Lesotho, Malawi, Uganda, and Botswana) suggested that the alcohol industry had a lead role in their development, resulting in proposed policies that served the industry's interests, with a disproportionate focus on economic benefits and a lack of evidence-based population-level interventions for effectively reducing the harmful use of alcohol (Casswell, 2013). Alcohol marketing policies in these African countries are often not well developed or enforced. Even in countries where alcohol marketing restrictions exist, alcohol ads appear on the radio, billboards, posters, and product displays, painting on walls or fences, and promotional items (Bruijn et al., 2014; Obot, 2013).

Problem Statement

In this thesis, the marketing channel of corporate influence, one of the determinants in the commercial determinants of health will be examined in closer detail. Using traditional media, marketing agencies and private corporations target segmented populations in ways that potentially violate voluntary self-regulated alcohol guidelines. Current epidemiological studies on alcohol marketing are scarce, particularly in low- and middle-income countries, and have yet to match marketing agencies and neuroscience research in terms of methodology in measuring advertisement effectiveness and appeal for populations of interest. Moreover, the rise of digital and social media usage for alcohol marketing has not been adequately addressed or considered with respect to appropriate regulations for how to protect children and vulnerable populations.

Transnational producers of alcohol have waged a sophisticated and successful campaign during the past three decades, including sponsorship of intergovernmental events, funding education initiatives through corporate social responsibilities, research, publications, and sponsoring sporting and cultural events (Kickbusch et al., 2016). A key aspect of this strategy has been to frame the alcohol-harm debate to focus on the binge drinking behaviors as an individual's choice and fault. To accomplish this, opponents of alcohol policies and regulations tend to focus on "moderate" level of drinking as safe, if even healthy, for consumers while pushing the misconception that "moderate" drinking is not a risk factor for alcohol-related disease and harm. This contrasts with the WHO, who has determined that no level of alcohol consumption can be considered safe (*WHO | Global Status Report on Alcohol and Health 2014*, n.d.). As such, focusing the debate on the drinkers and their poor choices instead of alcohol and

control policies that may restrict alcohol corporations and their aggressive marketing practices and specific targeting of vulnerable populations such as children, women, and minorities.

Significance of Study

This thesis and study are significant because it addresses the association between exposure to alcohol marketing and alcohol use in young adults. In Uganda and the U.S., multiple studies have previously reported substantial alcohol advertising near locations with high concentrations of youth and young adults (J. K. Noel et al., 2019). Not only are young adults the group most likely to consume alcohol, but they are also the most frequent and intense binge drinkers. Further, they are highly vulnerable to related advertising and marketing correlates with alcohol consumption (Alaniz, 1998; Babor & Robaina, 2013; Berey et al., 2017; Brennan et al., 2021; Caetano et al., 2010). When it comes to designing marketing campaigns to increase desirability, alcohol brands typically take a considerable amount of time and resources investing into understanding the culture of the target population to further the desirability factor of the products in their advertisements. This study attempts to present Ugandan alcohol adverts to Ugandans and those from the U.S. to understand aspects of the advertisements that have cultural appeal across the study populations. Likewise, we will examine marketing appeal related to alcohol use, problem drinking and marketing exposure. This study will provide insight into the development of alcohol advertisements and offer data for targeted potential alcohol counter-marketing interventions.

Research Questions

The introduction and problem statement have outlined the case for the importance of examining alcohol marketing and its appeal among young adults. Given the evidence of

corporate alcohol influence, the socio-ecological model (*The Ecology of Human Development* — Urie Bronfenbrenner, n.d.) is key in understanding the connecting alcohol marketing and alcohol consumption in young adult populations. Like other issues, alcohol use can be linked to a complex array of factors ranging from individual-level to population-level cultural and societal relationship between commercial and social determinants of health. Young adults are typically the most vulnerable group with high prevalence of alcohol use, binge drinking and other problem drinking behaviors. A key to understanding and addressing alcohol use in this population is to determine their exposure to alcohol marketing and whether they find certain aspects of alcohol marketing appealing. Moreover, it is important to understand if the appeal of alcohol marketing varies across populations in different countries. As such, the research questions that guided the study were as follows:

RESEARCH QUESTION 1: Among adults who find alcohol advertisements appealing, which features do they highlight as interesting, and do they vary by country?

RESEARCH QUESTION 2: Do alcohol marketing exposure and risk for alcohol-related problems predict perception of violations in alcohol advertisements?

CHAPTER TWO

Literature Review of Targeted Alcohol Marketing and Vulnerable Populations

INTRODUCTION

In 2001, the cash value of underage drinking was \$22.5 billion, 17.5% of total consumer expenditures for alcohol (Foster, Vaughn, Foster, & Califano, 2006), with targeted alcohol marketing increasing 41% from 2001 to 2005 according to The Center on Alcohol Marketing and

Youth (Smith & Geller, 2009). The 26 largest alcoholic beverage companies had a total net revenue of \$155 billion in 2005 and a total operating profit of \$26 billion. The ten most prominent alcohol beverage marketers accounted for 48% of globalized brands (by volume) in 2005 (Pettigrew et al., 2018). Public health concerns about targeted marketing focus on targeting products with potentially adverse effects, especially concerning consumer segments defined as vulnerable or particularly likely to be disadvantaged by the impact of product consumption. Population subgroups considered vulnerable might include children or adolescents, women of child bearing age, the elderly, ethnic minorities, or low-income populations (Grier & Kumanyika, 2010).

Targeted Marketing

Targeted marketing is based on the notion that if you “speak” to consumers in a way that resonates with their attitudes, beliefs, values, or behavior, they will respond favorably to that marketing approach. Key features of the targeted marketing process are a company's critical evaluation and decision making process about the features and products on which they will focus (Grier & Kumanyika, 2010). Activities used to reach targeted populations selectively may involve the following: products or their packaging may be designed to meet the preferences, needs, or social or cultural aspirations of a particular population segment, distributed in setting frequented by the targeted consumers, promoted through channels known to reach the targeted consumers, and priced to be affordable to the targeted consumers in the segment, or a complementary combination of these strategies (Grier & Kumanyika, 2010). Research has demonstrated that targeted consumers respond more favorably to targeted advertisements when there is homophily, where people infer similarity between

themselves and some characteristics of the advertisements (Dunstone et al., 2017). Meeting the challenges posed by these targeted marketing requires understanding how targeting works and how vulnerable or those targeted consumers respond, the nature of the evidence available to establish that targeting causes harm, and considerations of taking corrective actions when warranted. From a public health perspective, vulnerability denotes susceptibility to poor health or illness, manifested through physical, mental, and social health outcomes (Babor et al., 2017).

Purpose

In terms of corporate marketing of unhealthy/harmful products, there have been numerous studies looking into food/beverage targeted marketing towards populations like children (Fleming-Milici & Harris, 2020; Murphy et al., 2020; Potvin Kent et al., 2019; G. Sacks & Looi, 2020; Sadeghirad et al., 2016), however, there is little information on targeted marketing of alcohol brands as a risk factor towards vulnerable populations, especially in Low- and Middle-Income Countries (LMICs). However, to the researcher's knowledge, there has not been a direct comparison of available literature on two economically and culturally different countries to study patterns in targeted advertisement strategies committed by global alcohol corporations. The purpose of this review was to review and summarize a collection of studies on targeted alcohol marketing from the United States and Uganda since 2010 to inform current discussions regarding patterns in targeted marketing strategies, illegal marketing violations and provide information for potential alcohol marketing policies. These studies have examined vulnerable populations' exposure to targeted alcohol marketing in a wide range of traditional and digital media.

METHODS

A literature search was conducted in March of 2021 on the PubMed database for articles published between 2010 and 2021 and whose title, abstract, and keywords matched the following terms: ((alcohol*) AND (target*)) AND (marketing*).

Studies were included if they met the following criteria: (1) primary studies published in peer-reviewed journals; not reviews or commentaries between the years 2010 and 2021; studies that only discussed theoretical models were excluded; (2) be published in the English language; (3) include traditional methods of advertisements; (4) studies that were conducted in the United States; (5) indicators of outcome including alcohol consumption, risky behaviors, or alcohol brand recall. Because of the topic of targeted marketing on vulnerable populations, particularly those of ethnic minority adults, we could not specify studies seen in Uganda even though there is evidence to support that the lack of alcohol regulation and policy in Uganda has seen an increase in alcohol marketing towards young, low-income adults. Additionally, the inclusion criteria of targeted vulnerable populations like women and ethnic minorities also had to be removed because of severe limitations on the overall search results.

Title and abstracts were first screened when reviewing qualifying results. The full-text review then assessed articles in detail based on the exclusion criteria. Data of the included studies were extracted and recorded in a tabulated summary using Excel. Details recorded in the template had the date of publication, study aims, study design, study factors, outcome measures, type of traditional media, and implementations. A dwarfed version of this summary, including publication citation, an overview of the study, advertisement type, participant type,

and objectives, can be seen in Table 1. Overall association between studies was determined and categorized by outcome measures, kind of advertisement, and sample populations.

RESULTS

Database searches identified 69 records, with 67 remaining after duplicates were removed. The screening process excluded 56 records; the remaining 11 full-text, peer-reviewed articles were assessed in detail, and 10 met the inclusion criteria. A total of 7 papers was included in this review after 3 additional studies were removed due to a lack of alcohol use variable. See Figure 2 for a detailed flow chart of article selection.

The seven studies examined in more detail were published between 2010 and 2021 (Table 1). The studies were conducted in the U.S. only. Unfortunately, there was little to no data available on alcohol-targeted marketing in the country of Uganda (see discussion below). Those studies reviewed comprised the following age groups: adolescent youth (male and female) ages 14-17 (Bleakley et al., 2018; King et al., 2017; Ross, Ostroff, et al., 2014; Siegel et al., 2016), adolescent youth ages 12-17 (Gabrielli et al., 2021), young adults, ages 21-29 (King et al., 2017), and adults ages 18 and older (Lillard et al., 2018). Studies that reported on sex/gender ranged from 100% male adolescents (Keller-Hamilton et al., 2018) to 40%-55% female adolescents (Bleakley et al., 2018; Gabrielli et al., 2021; Lillard et al., 2018). Six studies included television in their alcohol exposure medium (Bleakley et al., 2018; Gabrielli et al., 2021; Keller-Hamilton et al., 2018; Lillard et al., 2018; Ross, Ostroff, et al., 2014; Siegel et al., 2016), four studies used magazines, (Gabrielli et al., 2021; King et al., 2017; Lillard et al., 2018; Siegel et al., 2016), and only one study included billboards as an alcohol advertisement exposure (Gabrielli et al., 2021). Three studies observed the alcohol content of television shows

and magazines and the percentages of viewers that can be categorized as vulnerable or at high risk of alcohol-related harm (Bleakley et al., 2018; Keller-Hamilton et al., 2018; King et al., 2017), while the remaining studies analysis the association between alcohol exposure in advertisements in varying media channels to alcohol consumption (Gabrielli et al., 2021; Lillard et al., 2018; Ross, Ostroff, et al., 2014; Siegel et al., 2016).

Overall, adolescents recalled seeing traditional alcohol advertisements (television and magazines) approximately 73% of the time and built advertisements (billboards and in-store advertisements) 43% of the time (Gabrielli et al., 2021). Adolescents showed a significant recall ability towards alcohol advertisements ($M = 1.68$, $SD = 0.82$) ($t = 3.78$, $p < .001$). Furthermore, television shows that displayed popularity with both Black and non-Black audiences (overlap) had significantly more characters involved in alcohol behaviors and combinations of alcohol and violence, and alcohol, sex, and violence [overlap vs. non-Black: $OR=6.816$, $CI 1.66, 28.05$, $p<.01$; overlap vs. Black: $OR= 7.486$, $CI 1.61, 34.92$, $p<.01$] (Bleakley et al., 2018). Further analysis of proportions of characters of popular television shows found one-third engaged in sex and alcohol behaviors, each. When alcohol was involved in the television show presented in the study, most instances involved characters interacting with the alcohol product but not using it (55.7%) (Keller-Hamilton et al., 2018). An analysis of a sample of popular TV shows found a resulting ten alcohol incidents per hour of television viewing. This rate was not significantly different between parental ratings (Keller-Hamilton et al., 2018).

All studies with measurements of alcohol consumption reported significant associations between alcohol advertisement exposure and alcohol consumption in underage drinkers (Gabrielli et al., 2021; Ross, Ostroff, et al., 2014; Siegel et al., 2016). In a logistic regression

model, underage drinking status reported a significant association between general alcohol advertisement recall (adjusted odds ratio [AOR] = 4.08, 95% CI [1.15, 14.46]) (Gabrielli et al., 2021). Specific alcohol brand advertisement was also associated with the corresponding drinking preference in both television and magazine mediums. The mean brand consumption prevalence increased from 0.3% for brands with no advertising exposure to 2.6% for brands with more than zero but less than 50 Gross Rating Points (GRPs), a standard measure of per capita advertising exposure, in television adstock, and to 8.7% for brands with greater than 150 GRPs of television adstock (Siegel et al., 2016). An alcohol ad airing on television reported a five-fold increase in underage youth consumption prevalence (incidence rate ratio [IRR] = 5.39; 95% confidence interval [CI] = 3.95-7.35) (Siegel et al., 2016). Using the GRPs as an indicator of advertisement exposure, Ross and colleagues found similar results of youths exposed to relatively high levels of brand advertising, from 45 to 50 adstock units, the odds of drinking the advertised brand increasing over a 5-GRP unit range (1.01 95% CI: 1.01-1.05) (Ross, Ostroff, et al., 2014). With a 0 to 5 GRP adstock units of exposure, the number of drinks per month of the advertised brand increased by a factor of 1.24 (95% CI: 1.17, 1.32) (Ross, Ostroff, et al., 2014).

The association between alcohol advertisement exposure and consumption persists in older populations (King et al., 2017; Lillard et al., 2018). The incidence of exposure was not significantly different between 12-20 and 21–24-year-olds even though the former group can not legally buy alcohol as the minimum legal drinking age in the United States is age 21. However, the combined age group (18-24) is exposed to twice as many alcohol advertisements in magazines for distilled alcohol than individuals 25 and older. Both groups were equally exposed to wine advertisements in magazines (Lillard et al., 2018). Regardless of the type or

brand of alcohol, heavy drinkers see more advertisements than abstainers in all age groups. Heavy drinkers of all age groups are exposed to approximately 64% more television beer advertisements than abstainers. Positive and significant coefficients for young adult readership revealed that both alcohol brands that targeted underage audiences and other brands are more likely to advertise in magazines with higher young adult readerships and that the increase in probability is more significant for underage focused brands than any other alcohol brand (King et al., 2017). In terms of advertisement expenditures, underage focused brands were more likely to advertise in magazines with higher household income audience members while being less likely to advertise in magazines that targeted female readership (King et al., 2017).

DISCUSSION

After reviewing recent studies and reflecting on the most current knowledge of targeted alcohol marketing, this paper sought to answer three primary questions: what strategies are alcohol companies and marketing firms utilizing to reach new and younger audiences for their brands and increase alcohol consumption, how do these strategies compare in two culturally and economically different countries, and what segments of vulnerable populations are most at risk for targeted alcohol marketing? The included papers provided evidence that alcohol corporations are not abiding by their self-regulated guidelines to protect certain groups, like youth, and focus on their viewership of television and readership of magazines to give positive attributes to drinking.

As previously mentioned, the purpose of this study was to address alcohol-targeted marketing in two different countries, U.S., and Uganda. While there is research on alcohol consumption in underserved populations in Uganda (Swahn et al., 2013), there is a paucity of

research on targeted marketing strategies and their effects on alcohol consumption in vulnerable communities. Like many low- and middle-income countries, Uganda currently have weak and limited policy regulations and federal enforcement to monitor and regulate global alcohol industries to protect their citizens. Consequently, many alcohol ads and campaigns displayed to the public in Uganda would not be allowed in countries like the U.S. Future studies on alcohol-targeted marketing are needed in low- and middle-income countries to provide evidence for the development and enforcement of stricter alcohol policies and the implementation of counter-marketing interventions to reduce alcohol consumption and alcohol-related harm.

In our review of previously conducted research several important findings were noted. Out of the seven, six of the studies included adolescents as young as 12 to 17 years of age (Bleakley et al., 2018; Gabrielli et al., 2021; Keller-Hamilton et al., 2018; King et al., 2017; Ross, Maple, et al., 2014; Siegel et al., 2016). Four of the six studies found significant associations between exposure to alcohol advertisements (be it from television, magazines, or built advertisements) and early age alcohol consumption (Bleakley et al., 2018; Gabrielli et al., 2021; Keller-Hamilton et al., 2018; King et al., 2017). One study exclusively looked at male adolescents, and another survey focused on demographic differences in alcohol exposure in television shows popular with Black and non-Black audiences (Bleakley et al., 2018). However, they did not examine or report how popular shows among racial groups affected risky behavior. None of the studies sampled from adolescents provided insight into specific marketing strategies used to target adolescent females or racial and ethnic minorities' alcohol consumption (even though a couple of studies collected data on female participants). Out of

the two studies that included participants over the drinking age (King et al., 2017; Lillard et al., 2018), only one provided findings on alcohol marketing tactics towards female viewers (King et al., 2017), and the results are contradictory to previous work on alcohol marketing towards female consumers (Hughes, 2011; Iwamoto et al., 2018; Kindy & Keating, 2016; Ruiz et al., 2013).

Alcohol policy and marketing regulations have focused on the specific protection of youth under the legal drinking age. However, the findings documented in previous research indicate that youth are not protected. In fact, alcohol marketing seem to systematically target underage consumers for early brand loyalty and monetary gains. Although these findings have highlighted the more common vulnerable population, youth, these studies lack consideration of other vulnerable communities disproportionately exposed to harmful product advertisement. In terms of the public's physical environment and society, only one study addressed built advertisements like billboards and in-store promotions. Low-income communities are disproportionately littered with alcohol-related built advertisements that are less common and may even be barred in wealthier neighborhoods. These advertisements are often designed to have a cultural, financial, and emotional appeal and have repeated and long-term exposure as individuals move through their communities daily. This exposure should be accounted for and considered in future studies of alcohol advertisement through traditional mediums and while assessing alcohol marketing exposure.

Results from the studies reviewed were consistent in marketing strategies between youth and adult drinkers, at least (Bleakley et al., 2018; Gabrielli et al., 2021; Keller-Hamilton et al., 2018; Lillard et al., 2018; Ross, Maple, et al., 2014; Siegel et al., 2016). Studies that focused

on youth reported alcohol-related incidences in shows popular to that demographic (Bleakley et al., 2018; Keller-Hamilton et al., 2018). Surprisingly, unlike tobacco use, alcohol consumption is not included in the substance use regulation of parental TV ratings, so the rates of alcohol incidents, whether in a show targeting adolescents or adults, are approximately the same (Keller-Hamilton et al., 2018). As such, there is a clear need to address this omission and revise the TV parental ratings to include alcohol to lower the alcohol-related content and make parents and guardians more vigilant of the type of televised content their children are consuming. These popular TV programs provide the opportunity for children to make associations between alcohol consumption and favored role models on popular shows, with these findings suggesting an association between viewing role models consuming harmful products and underage viewers consuming the same products later in life. Moreover, the length of time any individual, whether it be someone under or over the age of legal alcohol consumption, spends watching TV, the more they put themselves at risk of high levels of alcohol-related advertisement exposure.

Magazine readership and alcohol-targeting saw slightly different results, however. Depending on the brand and alcohol type, alcohol advertisement exposure varies across gender, income, and age demographics (King et al., 2017; Lillard et al., 2018; Siegel et al., 2016). While wine advertisements were primarily seen in magazines with older readers, beer and distilled alcohol advertisements with appealing underage focused brands were seen in more youth-focused magazines (King et al., 2017). Likewise, other brands that appealed to older audiences were seen in magazines with readers from high-medium income households, unlike underage focused brands that were more likely to be viewed by lower bracket, medium-income

households (King et al., 2017). According to King and his colleagues, what was more interesting was the lack of attempt to advertise to female readers. This could be because the researchers primarily sampled male readers and magazines with predominantly male readerships. It should be mentioned that cooking magazines would have a mixed demographic of men and women, and evidence from this study reported that more wine advertisements were seen in cooking-related magazines because of the assumption that individuals who like to cook also like to drink wine and the pairing of many recipes with selections of wine to complete the meal.

In conclusion, alcohol companies and marketing firms have favored the television medium of exposure, at least in the U.S., to reach established adult drinkers and abstainers and target youth and underage consumers with alcoholic content in popular TV programs. The type of programs being exposed to vulnerable populations and the length of which they are exposed to these programs substantially impact alcohol consumption that partially goes against self-regulated guidelines established by the alcohol industries themselves. From these findings, the youth are not spared from alcohol exposure and are lured by the appeal of alcohol used by characters in their favorite programs and underage brands appearing in magazines focused on youth. While these studies focused heavily on underage drinking and alcohol exposure, most of the child included in the studies were white and male and, therefore, does not begin to address the issue of disproportionate alcohol exposure on female and racial and ethnic minority youth and adults. Future alcohol policies should touch on television and magazine guidelines and parental guidelines to protect children from alcohol exposure. Future studies are needed to build alcohol advertisements and other demographics outside of white-male and youth samples that cannot apply to all individuals. Secondly, studies are necessary around targeted marketing

on low- and middle-income countries, like Uganda. These findings have indeed brought insight into how marketing firms appeal to traditional media that attract vulnerable populations to consume alcohol.

Table 1. Study details of final literature review selection.

Publication Citation	Overview of Study	Advertisement Type	Participant Type	Objectives
(Bleakley et al., 2018)	This study examines the demographic representation of main characters and health risk behaviors (i.e., sex, alcohol use, violence, bullying, and their combinations) portrayed in television content popular with Black and non-Black adolescents.	Television (primetime TV shows)	14-17 year old adolescent audiences in the United States (N = 377)	What are the demographic traits of characters in television shows popular with Black adolescent audiences compared to programs popular with non-Black adolescent audiences? How often do characters in these shows engage in health risk behaviors and behavioral combinations? Does the portrayal of health risk behaviors vary by show popularity and genre? Does the portrayal of health risk behaviors vary by character demographics?
(Keller-Hamilton et al., 2018)	This study analyzed tobacco and alcohol portrayals on adolescents' favorite television shows and evaluated the rate of portrayals by parental rating.	Television (children's networks)	Adolescent males (N = 1,220) from Ohio	The primary objective of this study was to describe the frequency of tobacco and alcohol portrayals on adolescents' favorite television shows. A secondary objective was to examine whether the rates of tobacco and alcohol portrayals differed by parental rating.
(Gabrielli et al., 2021)	This study explores the measurement of alcohol marketing exposure across channels and whether	Internet, social media, movies, television,	Adolescents ages 12-17, from New	First aim was to describe exposures to alcohol marketing that may occur across a range of channels

	cumulative recalled exposure is independently associated with underage drinking.	billboards, and magazines	England (N = 202)	and exposures that occur in built/print channels. Second, they explored the potential of creating a cumulative measure of adolescent alcohol marketing exposure across channels through latent modeling. Lastly, they tested the associated between this latent construct of cumulative recalled alcohol marketing exposure across channels and adolescent drinking to determine whether the latent model approach offers additional information beyond the assessment of a single form of exposure.
(Siegel et al., 2016)	The examined overall underage youth exposure to brand-specific alcohol advertising for 898 alcohol brands by using industry-supplied data for a complete set of national magazines and television programs, and then related each brand's total exposure level to the survey respondents past 30-day consumption prevalence for these brands.	Television and magazines	Underage youth ages 12-20 (N = 1,031)	To examine the relationship between brand-specific exposure to alcohol advertising among underage youth and the consumption prevalence of each brand in a national sample of underage drinkers.
(Ross, Maple, et al., 2014)	In this paper, they examine for the first time the association between exposure to brand-specific alcohol advertising among underage youth and brand-specific alcohol consumption among those individuals.	Television	Sample of youths (N = 1,031), ages 13-20, who had consumed at least one drink of alcohol in the past 30 days.	To examine the assessment of youth's alcohol use by specific brand and type in addition to identifying 20 television shows popular with youth in the past 30 days. Second, combining this data with brand-specific advertising exposure data to estimate brand-specific

				alcohol advertising based on each respondent's television view habits.
(King et al., 2017)	In this paper, they disaggregate alcohol advertising to the brand level and examine the relationship between the placement of alcohol advertisements in magazines and the underage readership of those magazines separately for alcohol brands popular among underage drinkers and brands that are not.	Magazines	Young adults (ages 21-29) and underage youths (ages 12-20)	Using a random effects probit model on panel data, they analyze whether, controlling for other factors that might affect an alcohol brand's magazine advertising, brands popular among underage drinkers are more likely than other brands to advertise in magazines with a high percentage of underage readers. They also explore the effect of different readership characteristics on the likelihood that an alcohol brand is advertised in a magazine.
(Lillard et al., 2018)	Using unique marketing survey data that link the media individuals consume and advertising appearing in those media, researchers measure advertising exposure with counts of actual advertisements people likely saw.	Television and Magazines	(N = 306,451) adult men and women, ages 18 and older living in the contiguous United States	The purpose of this study was to document exposure to alcohol advertising by sex, age, and the level and type of alcohol people consume.

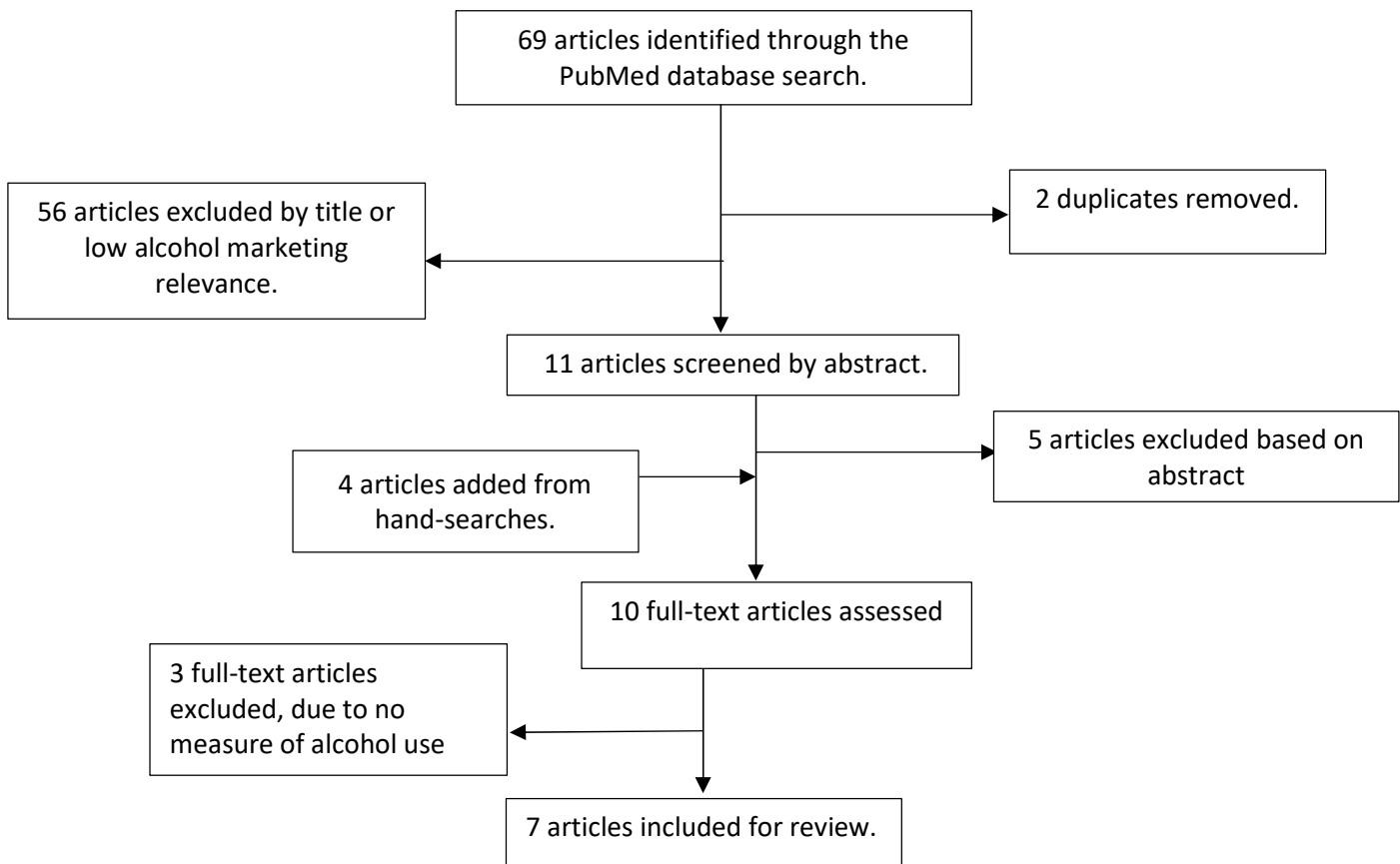


Figure 2. Article selection flow chat.

CHAPTER THREE

Perceptions of Alcohol Advertisements and Marketing Appeal: Empirical Analyses of Young Adults in the U.S. and Uganda

INTRODUCTION

Alcohol use is a global health concern with a tremendous burden and a range of alcohol-related harms across populations and countries (Alaniz, 1998; Bruijn et al., 2014; Casswell et al., 2016; Randolph et al., 1998). New and growing alcohol marketing practices, specifically in low- and middle-income countries, have escalated the concerns for increased alcohol use in settings with weak alcohol policies and control strategies (Casswell et al., 2016; Swahn et al., 2013). Moreover, newer alcohol marketing strategies, typically considered “targeted marketing” represents a key issue for vulnerable populations. Populations most at risk are defined as segments of the population most likely to be disadvantaged by the effects of product consumption (Grier & Kumanyika, 2010). Women, children, adults of ethnic minorities, low-income segments, and the elderly experience disproportionately high amounts of alcohol advertisements. Likewise, they are also most likely to experience a disproportionate burden related to alcohol-related harm. These groups are sensitive to alcohol advertisements for several reasons including the inability to distinguish advertising from entertainment in which it is often embedded (Grier & Kumanyika, 2010). Moreover, media exposure helps influence social norms about alcohol through advertising, product placements, and stories in various sources, including movies, social media, and other forms of entertainment (Sudhinaraset et al., 2016). Through a socio-ecological framework, media exposure is nestled in both the

microsystems (home, work, school environments) of the most vulnerable to alcohol advertisement exposure.

In many settings, the content of alcohol advertisement are not monitored and the alcohol industry is given the privilege of self-regulation and monitoring of its own compliance of alcohol marketing standards (*Esser & Jernigan, 2018; D. Jernigan & Ross, 2020; Mart, 2011; J. K. Noel, Babor, et al., 2018*). While most alcohol advertisements abide by the self-regulated guidelines in countries with strong regulations and policies (*Brennan et al., 2021*), in low resource settings that seems not to be the case. In fact, emerging research indicate that overall compliance is low (*Ross et al., 2014*), and that alcohol marketing may instead promote the benefits of alcohol consumption and minimize information about potential alcohol-related harms (*Dunstone et al., 2017*).

Findings from experimental studies on youth exposure to alcohol marketing and alcohol consumption have been mixed (*Esser & Jernigan, 2018*). However, reviewing the larger literature including prospective studies of alcohol marketing among youth has led alcohol experts to conclude that alcohol marketing causes alcohol use among youth (*Sargent & Babor, 2020*).

As examples, two systematic reviews, including a combined total of 25 studies, found that young people exposed to alcohol marketing were more likely to increase their alcohol use as they age into their mid-twenties. Furthermore, a study of persons aged 15-26 years in the U.S. found that young people consumed 1% more alcohol for each additional advertisement seen per month and 3% more alcohol with each extra dollar spent per capita on alcohol advertising in their media market (*Koordeman et al., 2011*). Previous findings have supported

the association between alcohol brand exposure and alcohol consumption seen in underage drinkers. In a study of young adults aged 13-20 years in the U.S., the amount of exposure to alcohol advertising, on a brand-specific basis, was associated with the quantity of alcohol consumed of those brands. The same survey showed that among underage drinkers who reported drinking, the top 25 alcohol brands out of 898 brands included in the survey accounted for more than 46% of the brands consumers used while binge drinking. Multiple studies reported substantial alcohol advertising near locations with high concentrations of youth and young adults (J. K. Noel et al., 2019). Not only are young adults the group most likely to consume alcohol, but they are also the most frequent and intense binge drinkers (J. K. Noel et al., 2019). Further, they are highly vulnerable to related advertising and marketing correlates with alcohol consumption (Alaniz, 1998; Babor & Robaina, 2013; Berey et al., 2017; Brennan et al., 2021; Caetano et al., 2010).

As a LMIC with a lack of resources to regulate and monitor alcohol advertisements, Uganda is particularly vulnerable to alcohol industry's illegal and unethical marketing tactics that include giving underage youth alcohol drinks consume (Swahn et al., 2013). Additionally, previous studies have identified a high prevalence of youth in Uganda that possess some form of alcohol brand products that provide further evidence of the illegal forms of marketing made available in Uganda (Swahn et al., 2013). While these findings have identified the issue of illegal alcohol marketing in Uganda, there is a gap in knowledge of how global alcohol corporations comply with their self-regulated advertising codes (Babor et al., 2008; Babor, Xuan, & Damon, 2013; J. K. Noel, Babor, et al., 2018). Noel and his colleagues have developed the Alcohol Marketing Assessment Tool (AMART) designed to assess potential violations in global alcohol

advertisements. Their research and use of the AMART reported a violation rate of 78% using 9 of the AMART criteria (J. K. Noel, Babor, et al., 2018)

The research objectives for the current project examine the appeal of four specific alcohol advertisements, publicly available in Uganda, among young adults. Specifically, we wanted to examine whether the sample population, who have no formal training in identifying illegal ad content, would be able to recognize unethical aspects of each ad by using questions taken from the AMART measurement (J. K. Noel, Babor, et al., 2018). The research questions that guided the projects were as follows: 1) What part of the alcohol advertisements are perceived to be appealing among young adults in Uganda and in the U.S.? 2) Is alcohol use or alcohol marketing exposure predictive of correct identification of alcohol advertisement violations? The AMART items provide the outcome measurement by assessing participants' ability to perceive possible unethical aspects of each ad. The findings from this study will add to the sparse alcohol marketing research in sub-Saharan Africa and inform alcohol-counter marketing strategies across settings.

METHODS

PARTICIPANTS

The sample consisted of 603 participants recruited with the assistance of the Qualtrics team, ranging in age from 18 to 25 years old, 300 from Uganda, and 47.9% female participants. The participants were recruited by Qualtrics online. Qualtrics team sent invitations to participate to the survey based on potential participants' age, fluency in the English language and where they

are from. Additionally, Qualtrics provided compensation for their participation in the survey. Additional information on the demographics of the participants can be seen in Table 1.

DESIGN

While participants were assigned to the same survey, questions on the demographics of individuals were adjusted to compensate any potential cultural differences in income and education so that education and income levels were equivalent between groups. The survey design consisted of 8 conditions for a total of 95 questions. The eight categories were: Consent/Demographics, Marketing Influence, Uganda Alcohol Ad Exposure, Alcohol Use Assessment, Gender Roles, Attitudes Towards Physical and Sexual Dating Violence, General Violence Measure, and the Resilience Scale. All survey items in the Consent/Demographics block were adjusted to account for possible cultural differences so that both countries' responses were equivalent. The Uganda Alcohol Ad Exposure block presented advertisements that had previously been in use in and around Kampala, Uganda and used them as four individual clickable images; an example of an item in the ad exposure block can be seen in Figure 3. Each ad was segmented into areas of interest by the researchers, but these area definitions were not visible to participants. Segmented regions were identified and unique to each image; not all images contain all types of appeal, but most images contain illegal appeal defined by alcohol industry guidelines. For example, areas that show alcohol are labeled "alcohol appeal," if cartoons are visible in the ad, then the cartoon character itself is highlighted as "cartoon appeal."

PROCEDURE

Volunteers were compensated via Qualtrics online based on an estimated 25-minute completion time to complete the survey. After filling out basic demographic information, participants are questioned on their perception of alcohol advertising in traditional and digital marketing influence blocks. Questions were taken from the AMART assessment questionnaire (J. K. Noel, Babor, et al., 2018) and the NHANES survey with additional questions concerning alcohol consumption (*NHANES - National Health and Nutrition Examination Survey Homepage*, 2019). The heatmap questions consist of four Ugandan alcohol ads and one validity test at the beginning of the heatmap questions. Questions ask for respondents to select the region of the ad that is most appealing to them by clicking on a specific location on the image. They can only select one spot. That location is classified based on researcher-defined areas of interests. The validity test consisted of five shapes, and participants were asked to select the square. If participants did not specify the square, they were immediately directed to the end of the survey and their data was removed from analyses. Following the validity test, successful participants were then exposed to each ad, followed by a series of questions on the previously viewed ad participants' perceptions. Questions on alcohol use were taken from the Alcohol Use Disorder Identification Tool (AUDIT) (*Scoring the AUDIT*, n.d.) and the NHANES survey. If participants have never consumed alcohol, they are directed to the end of the alcohol consumption questions. If participants have consumed alcohol, they are led to the sample of AUDIT questions.

MEASURES

Marketing Influence

As previously stated, the marketing influence (MI) questions were sampled from the NHANES survey and AMART items (*NHANES - National Health and Nutrition Examination Survey Homepage*, 2019; J. K. Noel, Babor, et al., 2018). Most questions from this block were ordinal response items on the awareness of alcohol advertisement in the physical/digital and traditional advertisement environments. Sample of this block includes, “When you are on social media, how often do you see alcohol-related ads?” with possible responses ranging from “Rarely” to “Often” and “Does Not Apply.”

Advertisement Appeal

To measure advertisement appeal, each ad is divided by its researcher-defined appealing segments. Participants are asked to select what they find appealing about the ad. The heatmap collected the location of each individual click by participants on the different segmented regions of each ad to give a self-reported indicator of what participants found appealing. The defined areas of interest are only visible to the researchers. The participants only see the original advertisement. Following the heatmap of the alcohol ad, binary response questions were asked of participants about the viewed ad and their awareness of whether the ad contained illegal imagery. An example includes, “This ad uses symbols, language, music, gestures, or cartoon characters that are associated with or are intended to appeal primarily to persons below legal purchase age.” With “yes” or “not” available options.

Alcohol Use

Using sample questions from AUDIT (Saunders et al., 1993), 15 questions are used to measure alcohol use. Once again, only participants who answered “yes” to ever consuming alcohol were shown this series of questions. Most questions have categorical items, for

example, “During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?” with available responses being, “Never,” “Less than monthly,” “Monthly,” “Weekly,” or “Daily or almost daily.” Responses from this block of questions are converted to numerical scores, which can be categorized into degrees of alcohol use and disorder. The AUDIT has 10 questions, and the possible responses to each question are scored 0, 1, 2, 3, or 4, except for questions 9 and 10, which have a smaller set of possible responses that correspond to scores of 0, 2, and 4. The range of possible scores is from 0 to 40, where 0 indicates an abstainer who has never had any alcohol problems. A score of 1 to 7 suggests low-risk consumption according to World Health Organization (WHO) guidelines. Scores from 8 to 14 mean hazardous or harmful alcohol consumption, and a score of 15 or more indicates the likelihood of alcohol dependence (moderate-severe alcohol use disorder) (*Scoring the AUDIT*, n.d.). For this study, numerical scores (0-40) were used as individual-level predictors.

STRATEGY FOR ANALYSIS

Descriptive statistics are reported as mean (SD) for continuous variables and count (%) for categorical variables in Table 1. We tested our central hypothesis: the appeal of specific alcohol ads differs for adult populations in the two countries, by analyzing association between country of origin and the selection of researcher-defined areas of interest in the alcohol advertisements, where each ad was analyzed separately. Together, these statistical analyses will attempt to answer the research questions: 1) Among adults who find alcohol advertisements appealing, which features do they highlight as interesting and do these interests vary by country? 2) Do alcohol marketing exposure and risk of alcohol-related

problems predict perception of violations in alcohol advertisements? After viewing each advertisement, participants were asked about their perception of various aspects of the ad. The questions were taken from the Alcohol Marketing Assessment Regulation Tool (AMART) which is traditionally used to identify illegal alcohol advertisements. Advertisement 1 follows global alcohol industry guidelines, according to AMART, while Advertisements 2, 3, and 4 all breach guidelines in one or multiple ways.

RESULTS

DESCRIPTIVE

The survey collected 911 total responses. Participants were removed for incomplete responses, failed validity tests, being outside the considered age range of 18 to 25 years of age, and living outside either the United States or Uganda. This left 603 responses (300 responses from Uganda and 303 from the United States); their characteristics are broken down by country and are shown in Table 1.

Table 1. Characteristics of both populations

	Uganda (N=300)	United States (N=303)	Overall (N=603)
What is your sex (gender)?			
Female	138 (46.0%)	151 (49.8%)	289 (47.9%)
Male	157 (52.3%)	143 (47.2%)	300 (49.8%)
Non-binary / third gender	1 (0.3%)	7 (2.3%)	8 (1.3%)
Prefer not to say	4 (1.3%)	2 (0.7%)	6 (1.0%)
How old are you? - Selected Choice			
18 years	23 (7.7%)	53 (17.5%)	76 (12.6%)
19 years	12 (4.0%)	47 (15.5%)	59 (9.8%)
20 years	28 (9.3%)	53 (17.5%)	81 (13.4%)
21 years	32 (10.7%)	39 (12.9%)	71 (11.8%)
22 years	40 (13.3%)	27 (8.9%)	67 (11.1%)
23 years	54 (18.0%)	25 (8.3%)	79 (13.1%)
24 years	51 (17.0%)	22 (7.3%)	73 (12.1%)
25 years	60 (20.0%)	37 (12.2%)	97 (16.1%)
What is your race?			
American Indian or Alaska Native	1 (0.3%)	8 (2.6%)	9 (1.5%)

Black, African or African American	291 (97.0%)	121 (39.9%)	412 (68.3%)
Native Hawaiian or Pacific Islander	1 (0.3%)	1 (0.3%)	2 (0.3%)
Other	6 (2.0%)	24 (7.9%)	30 (5.0%)
White	1 (0.3%)	126 (41.6%)	127 (21.1%)
Asian	0 (0%)	23 (7.6%)	23 (3.8%)
Are you Hispanic or Latino?			
No	292 (97.3%)	235 (77.6%)	527 (87.4%)
Yes	8 (2.7%)	68 (22.4%)	76 (12.6%)
- Your Income Status (0 lowest and 100 highest)			
Mean (SD)	44.4 (21.8)	51.5 (23.8)	48.0 (23.1)
Median [Min, Max]	46.0 [0, 100]	50.0 [0, 100]	50.0 [0, 100]
Missing	8 (2.7%)	6 (2.0%)	14 (2.3%)
What is your highest level of education? - Selected Choice			
Bachelor's Degree	129 (43.0%)	54 (17.8%)	183 (30.3%)
Master's Degree	1 (0.3%)	23 (7.6%)	24 (4.0%)
Other	3 (1.0%)	8 (2.6%)	11 (1.8%)
UG University Diploma, Certificate / USA: Associate Degree	69 (23.0%)	62 (20.5%)	131 (21.7%)
UG: Primary level / USA: Middle School	4 (1.3%)	18 (5.9%)	22 (3.6%)
UG: Secondary level / USA: High School/GED	94 (31.3%)	138 (45.5%)	232 (38.5%)
What is/was the highest level of education of your mother or maternal caretaker closest to you? - Selected Choice			
Bachelor's Degree	71 (23.7%)	67 (22.1%)	138 (22.9%)
Master's Degree	31 (10.3%)	32 (10.6%)	63 (10.4%)
Other	11 (3.7%)	8 (2.6%)	19 (3.2%)
U.G University Diploma, Certificate / USA: Associate Degree	61 (20.3%)	73 (24.1%)	134 (22.2%)
UG: Primary level / USA: Middle School	60 (20.0%)	11 (3.6%)	71 (11.8%)
UG: Secondary level / USA: High School/GED	66 (22.0%)	112 (37.0%)	178 (29.5%)
Do you use a smart phone to interact on social media?			
No	10 (3.3%)	20 (6.6%)	30 (5.0%)
Yes	290 (96.7%)	279 (92.1%)	569 (94.4%)
Missing	0 (0%)	4 (1.3%)	4 (0.7%)
In general, would you say your health is...			
Excellent	67 (22.3%)	89 (29.4%)	156 (25.9%)
Fair	27 (9.0%)	22 (7.3%)	49 (8.1%)
Good	93 (31.0%)	68 (22.4%)	161 (26.7%)
Poor	1 (0.3%)	4 (1.3%)	5 (0.8%)
Very Good	112 (37.3%)	120 (39.6%)	232 (38.5%)

The participants for both countries who consumed alcohol (N = 350) self-reported consumption through the Alcohol Use Disorder Identification Tool (AUDIT). Distribution of the AUDIT scores by country can be seen in Figure 1, which includes all participants. The 191 Ugandan participants that have consumed alcohol and took the AUDIT assessment (M=6.19, SD=5.76) compared to the 159 US participants (M=10.5, SD=8.48) demonstrated significantly

lower alcohol consumption risks scores, $t(269) = -5.5, p < 0.0001$. For Uganda, out of the total 191 responses, 40.3% of participants reported low-risk consumption compared to 20.8% of participants from the United States. Likewise, 16.8% of the US participants were classified as “Likelihood of alcohol dependence” compared to the 5.3% of Ugandan responses. 13% of Ugandan participants were classified as having “hazardous or harmful alcohol consumption,” as were 12% of participants from the United States. Overall, 30.5% of participants that consume alcohol were classified as “low-risk consumption.” The 300 Ugandan participants who completed the marketing influence assessment ($M=13.8, SD=4.97$) compared to the 301 US group ($M=11.5, SD=5.36$) reported significantly higher scores, $t(595.8) = 5.32, p < 0.0001$ (See Figure 2).

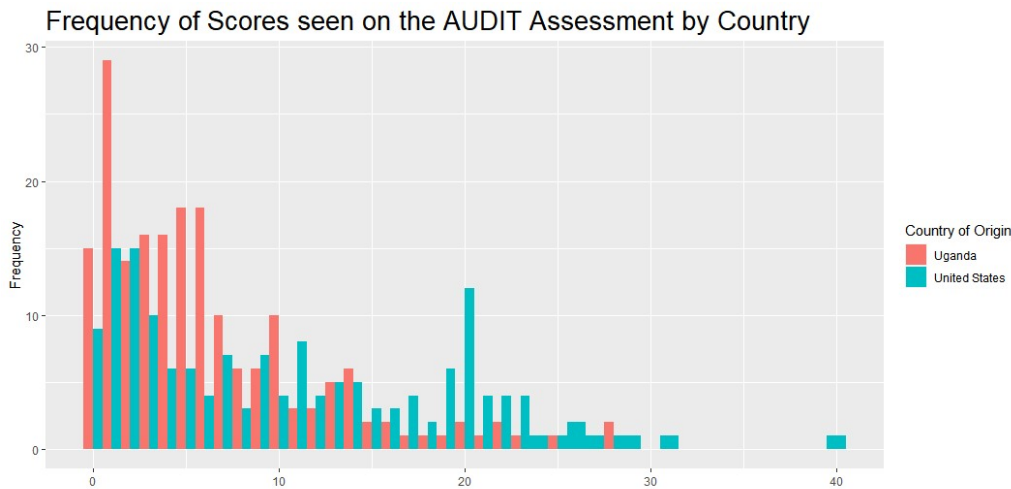


Figure 1 Bar graph of frequencies of AUDIT scores by country.

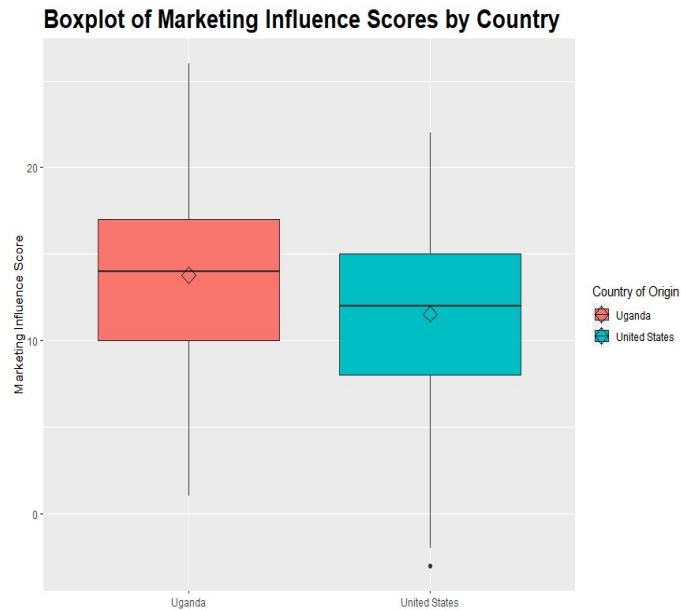


Figure 2: Boxplot of distribution of Marketing Influence scores by country.

The four advertisements with the highlighted regions of interest are shown in Appendix

1. For each ad, we conducted a chi-square test to investigate differences in distribution of regions of interests between the U.S. and Uganda, followed by a regression model for predicting the AMART outcome from the AUDIT and MI scores. Together, these statistical analyses will attempt to answer the research questions: 1) Among adults who find alcohol advertisements appealing, which features do they highlight as interesting and do these interests vary by country? 2) Do alcohol marketing exposure and risk of alcohol-related problems predict perception of violations in alcohol advertisements?

ALCOHOL ADVERTISEMENT 1

Alcohol Advertisement 1 used for the first heatmap question is an outdoor advertisement billboard of a Guinness: Foreign Extra beer with the words “Celebrate with a Taste of Guinness” and a black adult male on the cover appearing to be yelling excitedly on the ad (See Appendix 1). Ad 1 did not contain any illegal imagery and abided by alcohol regulatory

guidelines. This ad was segmented into three distinct parts to observe participants' interests. The celebratory wording was categorized along with the male's face and the alcohol itself. Participants were told to select the part of the ad they found most appealing, and the heatmaps recorded their clicks to report location of individual interest of respondents for each segment. 93 participants from the United States vs. the 119 Ugandan participants found the alcohol region more appealing (See Figure 3). 69 Ugandan participants found the black male most appealing compared to the 76 participants from the United States. Lastly, 37 Ugandan responses indicated that the wording was most attractive compared to the 32 responses from the US. A chi-square test of independence was performed to examine the relation between country and the areas of interest in advertisement 1. Regions of each advertisement that were outside of the heatmaps on the images were classified as "other" and were left out of analyses. The relation between the country and region of interest variables was not significant, X^2 (df=2) = 2.54, $p = 0.28$. The results for the multiple regression analysis used on the first advertisement show a significant effect on the AMART items ($F(2,346)=33.76$), $p<0.0001$) with adjusted $R^2=0.1585$, suggesting that 15.8% of the variance in AMART scores for ad 1 can be accounted for by the AUDIT and MI factors. The predicted AMART score is equal to $7.35 + -0.10$ (AUDIT) + -0.07 (MI). The marketing exposure score was a significant predictor of marketing awareness ($\beta_{MI} = -0.07$, $p=0.003$), as was AUDIT score ($\beta_{AUDIT} = -0.10$, $p<0.0001$).

ALCOHOL ADVERTISEMENT 2

Alcohol advertisement 2 used for the second heatmap question is an ad of an anthropomorphized rooster with a human hand, drinking a glass of alcohol. The alcohol bottle next to the cartoon of the rooster and below the cartoon have the explicit and provocative

wording “Crazy Cock” in bold lettering. The phrase is seen three times on the ad, and the rooster is seen twice. Additional language includes, “I keep saying “No” to whisky. It doesn’t listen” (See Figure 3). For these reasons, the ad was segmented by alcohol, cartoon imagery, suggestive wording, and the health warning seen at the bottom of the ad. 20 US participants found the alcohol region appealing compared to the 47 responses from Uganda. Looking at the rooster cartoon, 136 Ugandans found this segment more appealing than the 139 participants from the United States. 26 Ugandans found the suggestive wording appealing compared to the 14 US responses. Lastly, 3 answers from the United States focused on the health warning versus the 16 responses from Uganda. A chi-square test of independence was performed to examine the relation between country and the areas of interest in advertisement 2. The relation between these variables was significant, $X^2 (df=2) = 11.22, p = 0.003$. The results for the second advertisement show a significant effect on the AMART items ($F(2,346)=8.73$), $p=0.0001$. with adjusted $R^2=0.0425$, suggesting that 4.2% of the variance can be accounted for by the AUDIT and MI factors. The predicted AMART score is equal to $5.31 + -0.03 (AUDIT) + 0.03 (MI)$, per unit increase in each factor. The marketing exposure items were found to be a significant predictor of marketing awareness ($p=0.02$), as were the AUDIT scores ($p=<0.0001$).

ALCOHOL ADVERTISEMENT 3

Alcohol advertisement 3 is a sports center ad promoting the FIFA World Cup in 2018. The wording on the ad states, “Celebrate Great. FIFA World Cup Moments,” with groups of men and women cheering and groups drinking alcohol. Additionally, there is a bottle of Nile Special alcohol with the wording, “Official Beer of the FIFA World Cup.” The health warning is located at the bottom of the ad in a smaller font than the previously stated wordings. This ad was

broken up by alcohol, sports celebration, and health warnings. The alcohol region attracted 174 participants (101 Uganda and 73 U.S.). The sports celebration area attracted 126 participants from the United States and 98 individuals from Uganda. Similar responses were seen for the celebratory writing (8 responses from Uganda and 6 from the United States). Lastly, like other ads, the health warning saw more Ugandans report appeal with 13 responses than the 3 responses from the US group. A chi-square test of independence was performed to examine the relation between country and the areas of interest in advertisement 3. The relation between these variables was significant, $X^2 (df=2) = 14.21, p = 0.002$. The results for the third advertisement show a significant effect on the AMART items ($F(2,346)=7.83$), $p=0.0004$ with adjusted $R^2=0.0378$, suggesting that 3.7% of the variance can be accounted for by the AUDIT and MI factors. The predicted AMART score is equal to $4.78 + -0.02 (AUDIT) + 0.04 (MI)$. The AUDIT items were found to significant predictors of marketing awareness ($p=0.004$), as were the MI scores ($p<0.0001$).

ALCOHOL ADVERTISEMENT 4

Alcohol advertisement 4 is a marketing campaign for an alcohol contest sponsored by the Eagle alcohol brand. This ad includes three large bottles of Eagle alcohol along with the statement, "Buy any Eagle SMS the code under the crown to 8888 and win" The crown in this statement is referring to the bottle cap that includes a number to text for the chance to win the prize. The prize is unknown, but there is the imagery of a row of expensive cars, motorcycles, and livestock. At the top of the ad is an athletic celebrity promoting the alcohol context with the bottom's health warning. This ad was broken up by alcohol, fame, health warning and livestock, and vehicles. The three large liquor bottles attracted 67 US participants compared to

the 34 responses from the Ugandan group. The row of expensive cars' imagery attracted 46 Ugandan responses compared to the 16 responses from the US. However, the cows saw more United States appeal (n=10) compared to the 2 Ugandan responses. Looking at the celebrity, 64 US participants favored the athlete over the 37 responses from the other group. Lastly, both groups responded similarly to the health warning, with 18 responses from Uganda and 20 responses from the US. A chi-square test of independence was performed to examine the relation between country and the areas of interest in advertisement 2. The relation between these variables was significant (χ^2 (df=2) = 33.40, $p < 0.0001$), suggesting that primary area of interest differed between US and Ugandan respondents for this ad. Lastly, the results for the fourth advertisement show a significant effect on the AMART items ($F(2,346)=5.05$), $p=0.006$) with adjusted $R^2=0.0227$, suggesting that 2.2% of the variance can be accounted for by the AUDIT and MI factors. The predicted AMART score is equal to $5.05 + -0.02$ (AUDIT) + 0.03 (MI). Both assessment items were found to be significant predictors of marketing awareness ($p=0.01$ for both variables).



Figure 3 Sample of one of the advertisements used in the heatmap survey questions.

DISCUSSION

The purpose of this thesis was to introduce current research on the public health risk of exposure to alcohol marketing to vulnerable populations and its association between increased alcohol consumption in people like youth and black and Latinx communities. Likewise, this thesis attempted a novel study to establish an association between marketing exposure and perception of alcohol advertisements and elements of ads coded as violations of self-regulated guidelines by the alcohol industry. This chapter includes a discussion of the major findings from

this study and connected studies on exposure of alcohol advertisements and alcohol consumption. This chapter concludes with a discussion of the limitations of the study, areas of future research, and a summary of the thesis. This chapter contains discussion and future research possibilities to help answer the research questions:

(R1): Among adults who find alcohol advertisements appealing, which features do they highlight as interesting, and does it vary by country?

(R2): Do alcohol marketing exposure and risk for alcohol-related problems predict perception of violations in alcohol advertisements?

There appeared to be a significant relationship between the country of the participant and the interest of elements of illegal alcohol advertisements, according to AMART standards. As expected, both groups were near equally attracted to cartoon imagery to attract new alcohol consumers. However, there were unique differences in the alcohol appeal in the 3 illegal advertisements, while there was no relationship seen for the legal ad (advertisement 1). This study echoed previous findings that the AUDIT assessment as a valid predictor for advertisement appeal (J. K. Noel et al., 2019; J. K. Noel, Xuan, et al., 2018). There was an inverse relationship with a decrease in AUDIT scores and an increase in AMART scores to suggest that those that have fewer alcohol-related issues are able to perceive potential violations in alcohol advertisements than those that are more at risk for alcohol-related issues. Unlike previous literature, the addition of the marketing influence (MI) items has uncovered a significant association in the perception of alcohol marketing.

INTERPRETATION OF THE FINDINGS

These findings, while novel, attempted to highlight the association between marketing exposure and alcohol-related problems, the perception and appeal of alcohol advertisements, and the comparison between two culturally different populations. The difference in advertisement appeal is seen in the Ugandan population, the intended audience of the Ugandan ads, but it is also seen in the United States group. These results have a dynamic interpretation of the influence and risk of long-term exposure to marketing tactics and the resulting change in consumer behavior towards future alcohol ads and identifying the more potent areas of alcohol ads designed to attract the individuals sensitive to those marketing imageries regardless of cultural differences. Likewise, this study provides insight into the specific functions of marketing appeal and how they target populations of populations to increase alcohol consumption appeal.

While previous studies have looked at advertisement appeal and marketing effectiveness in young adult populations, this study was novel because it attempted to broach specific elements of alcohol advertisements that draw the most attention instead of relying on the general ad itself. Additionally, the Ugandan advertisements were exposed to a group, the United States participants, not traditionally exposed to the marketing strategies of Ugandan alcohol brands. This was done to identify segments of the advertisements that were culturally targeting Ugandans while also identifying appealing elements in the global context and attracting the interest of both groups.

While the U.S. participants scored higher on the AUDIT scale, both parties reported moderate levels of previous marketing exposure in their physical and digital environments. In-

spite of the economical differences between the two groups, this finding suggests alcohol corporations have global influence and ability to expose a variety of populations to their marketing campaigns. Our findings from the first alcohol advertisement in comparison to the 3 illegal ads exposed an interesting difference in how both types of advertisements are perceived by the sample population. Out of the four Ugandan ads, the first advertisement was free of illegal elements and a regression model was able to explain the highest proportion in variance in the AMART items from the AUDIT and MI assessments. Additionally, it was the only ad that saw an inverse relationship between the predictor variables and the outcome measurement.

This suggests that individuals with low alcohol consumption levels and marketing exposure are more aware or sensitive to the absence of illegal marketing appeal. However, out of the three advertisements that contained some aspect of illegal marketing, the advertisement with the cartoon had the highest variance in AMART explained by the predictor variables, 4.2%. This is a large difference between the previous advertisement that was absent of illegal appeal and suggests the predictor variables used for this study should be reconsidered when investigating illegal advertisements for variability more informative model between predictors and outcome. The assessment to measure marketing exposure was researcher-defined for this specific study, a more established marketing exposure measurement with tested validity could possibility yield a greater match for this multiple regression model. However, this data is preliminary and provides data for further hypotheses on marketing appeal and marketing exposure on targeted populations.

Limitations from the frequency aspect of this study include the self-reporting ability afforded to the participants. Future studies would benefit from using methods like

neuroimaging, a technique used by alcohol and marketing companies to understand consumer behavior without relying on the potential bias from relying on self-reported data. Studies are needed to investigate the neurological underpinning associated with consumer behavior and advertisement effectiveness for alcohol ads in targeted populations. Time restraints limited the extent of analyses conducted on the data collected. Future studies could delve into segmenting alcohol ads further to investigate the differences in appeal between different groups in addition to using the other survey items. Additionally, it would be beneficial to use emotional appeal measurements to explore why groups found aspects of advertisements appealing.

CONCLUSION

In summary, the purpose of this thesis was to address the public health issue of targeted alcohol marketing on vulnerable populations and provide evidence of alcohol marketing tactics that have been proven to increase consumption and alter consumer behavior for youth, young adults, and minority/ethnic communities. This thesis and study are significant because it addresses the relationship between marketing exposure and effected behavior and perception of advertisements. We attempted to address marketing appeal related to increased alcohol consumption in young adults. Addressing the research questions, this study was able to identify specific segments of alcohol advertisements that were appealing to each group individually.

REFERENCES

- Alaniz, M. L. (1998). Alcohol Availability and Targeted Advertising in Racial/Ethnic Minority Communities. *Alcohol Health and Research World*, 22(4), 286–289.
- Alhabash, S., McAlister, A. R., Quilliam, E. T., Richards, J. I., & Lou, C. (2015). Alcohol's Getting a Bit More Social: When Alcohol Marketing Messages on Facebook Increase Young Adults' Intentions to Imbibe. *Mass Communication and Society*, 18(3), 350–375.
<https://doi.org/10.1080/15205436.2014.945651>
- Anderson, P. (2009). Is it time to ban alcohol advertising? *Clinical Medicine*, 9(2), 121–124.
<https://doi.org/10.7861/clinmedicine.9-2-121>
- Babor, T. F., & Robaina, K. (2013). Public health, academic medicine, and the alcohol industry's corporate social responsibility activities. *American Journal of Public Health*, 103(2), 206–214.
<https://doi.org/10.2105/AJPH.2012.300847>
- Babor, T. F., Robaina, K., Noel, J. K., & Ritson, E. B. (2017). Vulnerability to alcohol-related problems: A policy brief with implications for the regulation of alcohol marketing. *Addiction*, 112(S1), 94–101. <https://doi.org/10.1111/add.13626>
- Babor, T. F., Xuan, Z., & Damon, D. (2013). A new method for evaluating compliance with industry self-regulation codes governing the content of alcohol advertising. *Alcoholism, Clinical and Experimental Research*, 37(10), 1787–1793. <https://doi.org/10.1111/acer.12146>
- Babor, T. F., Xuan, Z., Damon, D., & Noel, J. (2013). An Empirical Evaluation of the US Beer Institute's Self-Regulation Code Governing the Content of Beer Advertising. *American Journal of Public Health*, 103(10), e45–e51. <https://doi.org/10.2105/AJPH.2013.301487>
- Babor, T. F., Xuan, Z., & Proctor, D. (2008). Reliability of a Rating Procedure to Monitor Industry Self-Regulation Codes Governing Alcohol Advertising Content. *Journal of Studies on Alcohol and Drugs*, 69(2), 235–242. <https://doi.org/10.15288/jsad.2008.69.235>

- Berey, B. L., Loparco, C., Leeman, R. F., & Grube, J. W. (2017). The Myriad Influences of Alcohol Advertising on Adolescent Drinking. *Current Addiction Reports*, 4(2), 172–183.
<https://doi.org/10.1007/s40429-017-0146-y>
- Binge Drinking | National Institute on Alcohol Abuse and Alcoholism (NIAAA)*. (n.d.). Retrieved April 26, 2021, from <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/binge-drinking>
- Bleakley, A., Ellithorpe, M. E., Prince, L., Hennessy, M., Khurana, A., Jamieson, P. E., & Weitz, I. (2018). Do you see what I see? A character analysis of health risk behaviors in television shows popular with Black adolescents in the US. *Journal of Children and Media*, 12(4), 478–495.
<https://doi.org/10.1080/17482798.2018.1487310>
- Brennan, E., Schoenaker, D. A. J. M., Dunstone, K., Slater, M. D., Durkin, S. J., Dixon, H. G., Pettigrew, S., & Wakefield, M. A. (2021). Understanding the effectiveness of advertisements about the long-term harms of alcohol and low-risk drinking guidelines: A mediation analysis. *Social Science & Medicine*, 270, 113596. <https://doi.org/10.1016/j.socscimed.2020.113596>
- Bruijn, A., Ferreira-Borges, C., Engels, R., & Bhavsar, M. (2014). Monitoring outdoor alcohol advertising in developing countries: Findings of a pilot study in five African countries. *African Journal of Drug and Alcohol Studies*, 13, 13–29.
- Caetano, R., Baruah, J., Ramisetty-Mikler, S., & Ebama, M. S. (2010). Sociodemographic Predictors of Pattern and Volume of Alcohol Consumption across Hispanics, Blacks, and Whites: 10-year trend (1992–2002). *Alcoholism, Clinical and Experimental Research*, 34(10), 1782–1792.
<https://doi.org/10.1111/j.1530-0277.2010.01265.x>
- Caetano, R., & Laranjeira, R. (2006). A “perfect storm” in developing countries: Economic growth and the alcohol industry. *Addiction (Abingdon, England)*, 101(2), 149–152.
<https://doi.org/10.1111/j.1360-0443.2006.01334.x>

- Casswell, S. (2013). Vested interests in addiction research and policy. Why do we not see the corporate interests of the alcohol industry as clearly as we see those of the tobacco industry? *Addiction*, *108*(4), 680–685. <https://doi.org/10.1111/add.12011>
- Casswell, S., Callinan, S., Chaiyasong, S., Cuong, P. V., Kazantseva, E., Bayandorj, T., Huckle, T., Parker, K., Railton, R., & Wall, M. (2016). How the alcohol industry relies on harmful use of alcohol and works to protect its profits. *Drug and Alcohol Review*, *35*(6), 661–664. <https://doi.org/10.1111/dar.12460>
- de Lacy-Vawdon, C., & Livingstone, C. (2020). Defining the commercial determinants of health: A systematic review. *BMC Public Health*, *20*. <https://doi.org/10.1186/s12889-020-09126-1>
- Dunstone, K., Brennan, E., Slater, M. D., Dixon, H. G., Durkin, S. J., Pettigrew, S., & Wakefield, M. A. (2017). Alcohol harm reduction advertisements: A content analysis of topic, objective, emotional tone, execution and target audience. *BMC Public Health*, *17*. <https://doi.org/10.1186/s12889-017-4218-7>
- Esser, M. B., & Jernigan, D. H. (2018). Policy Approaches for Regulating Alcohol Marketing in a Global Context: A Public Health Perspective. *Annual Review of Public Health*, *39*(1), 385–401. <https://doi.org/10.1146/annurev-publhealth-040617-014711>
- Ferreira-Borges, C., Dias, S., Babor, T., Esser, M. B., & Parry, C. D. H. (2015). Alcohol and public health in Africa: Can we prevent alcohol-related harm from increasing? *Addiction (Abingdon, England)*, *110*(9), 1373–1379. <https://doi.org/10.1111/add.12916>
- Fleming-Milici, F., & Harris, J. L. (2020). Adolescents' engagement with unhealthy food and beverage brands on social media. *Appetite*, *146*, 104501. <https://doi.org/10.1016/j.appet.2019.104501>
- Gabrielli, J., Corcoran, E., Genis, S., McClure, A. C., & Tanski, S. E. (2021). Exposure to Television Alcohol Brand Appearances as Predictor of Adolescent Brand Affiliation and Drinking Behaviors. *Journal of Youth and Adolescence*. <https://doi.org/10.1007/s10964-021-01397-0>

- García-Álvarez, L., Fuente-Tomás, L. D. la, Sáiz, P. A., García-Portilla, M. P., & Bobes, J. (2020). Will changes in alcohol and tobacco use be seen during the COVID-19 lockdown? *Adicciones*, *32*(2), 85–89. <https://doi.org/10.20882/adicciones.1546>
- Grier, S. A., & Kumanyika, S. (2010). Targeted Marketing and Public Health. *Annual Review of Public Health*, *31*(1), 349–369. <https://doi.org/10.1146/annurev.publhealth.012809.103607>
- Gupta, H., Lam, T., Pettigrew, S., & Tait, R. J. (2018). Alcohol marketing on YouTube: Exploratory analysis of content adaptation to enhance user engagement in different national contexts. *BMC Public Health*, *18*. <https://doi.org/10.1186/s12889-018-5035-3>
- Hughes, T. (2011). Alcohol-Related Problems among Sexual Minority Women. *Alcoholism Treatment Quarterly*, *29*(4), 403–435. <https://doi.org/10.1080/07347324.2011.608336>
- Iwamoto, D. K., Corbin, W., Brady, J., Grivel, M., Clinton, L., Kaya, A., & Lejuez, C. (2018). Heavy Episodic Drinking Trajectories Among Underage Young Adult Women: The Role of Feminine Norms. *Alcoholism: Clinical and Experimental Research*, *42*(3), 551–560. <https://doi.org/10.1111/acer.13582>
- Jernigan, D. H. (2009). The global alcohol industry: An overview. *Addiction*, *104*(s1), 6–12. <https://doi.org/10.1111/j.1360-0443.2008.02430.x>
- Jernigan, D. H. (2010). The extent of global alcohol marketing and its impact on youth. *Contemporary Drug Problems*, *37*(1), 57–89. <https://doi.org/10.1177/009145091003700104>
- Jernigan, D., & Ross, C. S. (2020). The Alcohol Marketing Landscape: Alcohol Industry Size, Structure, Strategies, and Public Health Responses. *Journal of Studies on Alcohol and Drugs. Supplement, Sup 19*, 13–25.
- Keller-Hamilton, B., Muff, J., Blue, T., Lu, B., Slater, M. D., Roberts, M. E., & Ferketich, A. K. (2018). Tobacco and Alcohol on Television: A Content Analysis of Male Adolescents' Favorite Shows. *Preventing Chronic Disease*, *15*. <https://doi.org/10.5888/pcd15.180062>

- Kickbusch, I., Allen, L., & Franz, C. (2016). The commercial determinants of health. *The Lancet Global Health*, 4(12), e895–e896. [https://doi.org/10.1016/S2214-109X\(16\)30217-0](https://doi.org/10.1016/S2214-109X(16)30217-0)
- Kindy, K., & Keating, D. (2016, December 23). For women, heavy drinking has been normalized. That's dangerous. *Washington Post*. https://www.washingtonpost.com/national/for-women-heavy-drinking-has-been-normalized-thats-dangerous/2016/12/23/0e701120-c381-11e6-9578-0054287507db_story.html
- King, C., Siegel, M., Ross, C. S., & Jernigan, D. H. (2017). Alcohol Advertising in Magazines and Underage Readership: Are Underage Youth Disproportionately Exposed? *Alcoholism, Clinical and Experimental Research*, 41(10), 1775–1782. <https://doi.org/10.1111/acer.13477>
- KNAI, C., PETTICREW, M., MAYS, N., CAPEWELL, S., CASSIDY, R., CUMMINS, S., EASTMURE, E., FAFARD, P., HAWKINS, B., JENSEN, J. D., KATIKIREDDI, S. V., MWATSAMA, M., ORFORD, J., & WEISHAAR, H. (2018). Systems Thinking as a Framework for Analyzing Commercial Determinants of Health. *The Milbank Quarterly*, 96(3), 472–498. <https://doi.org/10.1111/1468-0009.12339>
- Koordeman, R., Anschutz, D. J., & Engels, R. C. M. E. (2011). Exposure to Alcohol Commercials in Movie Theaters Affects Actual Alcohol Consumption in Young Adult High Weekly Drinkers: An Experimental Study. *The American Journal on Addictions*, 20(3), 285–291. <https://doi.org/10.1111/j.1521-0391.2011.00134.x>
- Lacy-Nichols, J., & Marten, R. (2021). Power and the commercial determinants of health: Ideas for a research agenda. *BMJ Global Health*, 6(2), e003850. <https://doi.org/10.1136/bmjgh-2020-003850>
- Lillard, D. R., Molloy, E., & Zan, H. (2018). Television and Magazine Alcohol Advertising: Exposure and Trends by Sex and Age. *Journal of Studies on Alcohol and Drugs*, 79(6), 881–892. <https://doi.org/10.15288/jsad.2018.79.881>

- M, T., Y, T., J, Y., C, L., & U, C. (2009). The economic impact of alcohol consumption: A systematic review. *Substance Abuse Treatment, Prevention, and Policy*, 4, 20–20. <https://doi.org/10.1186/1747-597x-4-20>
- Maani, N., Collin, J., Friel, S., Gilmore, A. B., McCambridge, J., Robertson, L., & Petticrew, M. P. (2020). Bringing the commercial determinants of health out of the shadows: A review of how the commercial determinants are represented in conceptual frameworks. *The European Journal of Public Health*, 30(4), 660–664. <https://doi.org/10.1093/eurpub/ckz197>
- Mart, S. M. (2011). Alcohol Marketing in the 21st Century: New Methods, Old Problems. *Substance Use & Misuse*, 46(7), 889–892. <https://doi.org/10.3109/10826084.2011.570622>
- Martino, F. P., Miller, P. G., Coomber, K., Hancock, L., & Kypri, K. (2017). Analysis of Alcohol Industry Submissions against Marketing Regulation. *PloS One*, 12(1), e0170366. <https://doi.org/10.1371/journal.pone.0170366>
- McKee, M., & Stuckler, D. (2018). Revisiting the Corporate and Commercial Determinants of Health. *American Journal of Public Health*, 108(9), 1167–1170. <https://doi.org/10.2105/AJPH.2018.304510>
- Murphy, G., Corcoran, C., Tatlow-Golden, M., Boyland, E., & Rooney, B. (2020). See, Like, Share, Remember: Adolescents' Responses to Unhealthy-, Healthy- and Non-Food Advertising in Social Media. *International Journal of Environmental Research and Public Health*, 17(7). <https://doi.org/10.3390/ijerph17072181>
- NHANES - National Health and Nutrition Examination Survey Homepage. (2019, November 25). <https://www.cdc.gov/nchs/nhanes/index.htm>
- Noel, J. K., Babor, T. F., & Robaina, K. (2017). Industry self-regulation of alcohol marketing: A systematic review of content and exposure research. *Addiction*, 112, 28–50. <https://doi.org/10.1111/add.13410>

- Noel, J. K., Babor, T. F., & Robaina, K. (2018). Reliability and validity of the Alcohol Marketing Assessment Rating Tool (AMART). *Nordisk Alkohol- & Narkotikatidskrift : NAT*, 35(2), 108–117.
<https://doi.org/10.1177/1455072518758518>
- Noel, J. K., Xuan, Z., & Babor, T. F. (2018). Perceptions of Alcohol Advertising among High Risk Drinkers. *Substance Use & Misuse*, 53(9), 1403–1410. <https://doi.org/10.1080/10826084.2017.1409765>
- Noel, J. K., Xuan, Z., & Babor, T. F. (2019). Perceptions of Alcohol Advertising Vary Based on Psychological Characteristics. *Substance Use & Misuse*, 54(6), 986–997.
<https://doi.org/10.1080/10826084.2018.1555258>
- Noel, J., Lazzarini, Z., Robaina, K., & Vendrame, A. (2017). Alcohol industry self-regulation: Who is it really protecting? *Addiction*, 112, 57–63.
- Obot, I. (2013). Alcohol marketing in Africa: Not an ordinary business. *African Journal of Drug and Alcohol Studies*, 12, 63–73.
- Parry, C., Rehm, J., Poznyak, V., & Room, R. (2009). Alcohol and infectious diseases: An overlooked causal linkage? *Addiction (Abingdon, England)*, 104(3), 331–332. <https://doi.org/10.1111/j.1360-0443.2008.02500.x>
- Pettigrew, S., Hafekost, C., Jongenelis, M., Pierce, H., Chikritzhs, T., & Stafford, J. (2018). Behind Closed Doors: The Priorities of the Alcohol Industry as Communicated in a Trade Magazine. *Frontiers in Public Health*, 6. <https://doi.org/10.3389/fpubh.2018.00217>
- Potvin Kent, M., Pauzé, E., Roy, E., de Billy, N., & Czoli, C. (2019). Children and adolescents' exposure to food and beverage marketing in social media apps. *Pediatric Obesity*, 14(6).
<https://doi.org/10.1111/ijpo.12508>
- Randolph, W. M., Stroup-Benham, C., Black, S. A., & Markides, K. S. (1998). Alcohol Use Among Cuban-Americans, Mexican-Americans, and Puerto Ricans. *Alcohol Health and Research World*, 22(4), 265–269.

- Ross, C. S., Maple, E., Siegel, M., DeJong, W., Naimi, T. S., Ostroff, J., Padon, A. A., Borzekowski, D. L. G., & Jernigan, D. H. (2014). The Relationship between Brand-Specific Alcohol Advertising on Television and Brand-Specific Consumption among Underage Youth. *Alcoholism, Clinical and Experimental Research, 38*(8), 2234–2242. <https://doi.org/10.1111/acer.12488>
- Ross, C. S., Ostroff, J., & Jernigan, D. H. (2014). Evidence of underage targeting of alcohol advertising on television in the United States: Lessons from the Lockyer v. Reynolds decisions. *Journal of Public Health Policy, 35*(1), 105–118. <https://doi.org/10.1057/jphp.2013.52>
- Ruiz, S. M., Oscar-Berman, M., Sawyer, K. S., Valmas, M. M., Urban, T., & Harris, G. J. (2013). Drinking history associations with regional white matter volumes in alcoholic men and women. *Alcoholism, Clinical and Experimental Research, 37*(1), 110–122. <https://doi.org/10.1111/j.1530-0277.2012.01862.x>
- Sacks, G., & Looi, E. S. Y. (2020). The Advertising Policies of Major Social Media Platforms Overlook the Imperative to Restrict the Exposure of Children and Adolescents to the Promotion of Unhealthy Foods and Beverages. *International Journal of Environmental Research and Public Health, 17*(11). <https://doi.org/10.3390/ijerph17114172>
- Sacks, J. J., Gonzales, K. R., Bouchery, E. E., Tomedi, L. E., & Brewer, R. D. (2015). 2010 National and State Costs of Excessive Alcohol Consumption. *American Journal of Preventive Medicine, 49*(5), e73–e79. <https://doi.org/10.1016/j.amepre.2015.05.031>
- Sadeghirad, B., Duhaney, T., Motaghipisheh, S., Campbell, N. R. C., & Johnston, B. C. (2016). Influence of unhealthy food and beverage marketing on children’s dietary intake and preference: A systematic review and meta-analysis of randomized trials. *Obesity Reviews, 17*(10), 945–959. <https://doi.org/10.1111/obr.12445>

- Sargent, J. D., & Babor, T. F. (2020). The Relationship Between Exposure to Alcohol Marketing and Underage Drinking Is Causal. *Journal of Studies on Alcohol and Drugs, Supplement, s19*, 113–124. <https://doi.org/10.15288/jsads.2020.s19.113>
- Saunders, J. B., Aasland, O. G., Babor, T. F., Fuente, J. R. D. L., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-II. *Addiction, 88*(6), 791–804. <https://doi.org/10.1111/j.1360-0443.1993.tb02093.x>
- Scoring the AUDIT.* (n.d.). Retrieved February 23, 2021, from <https://auditscreen.org/about/scoring-audit/>
- Scott, S., Shucksmith, J., Baker, R., & Kaner, E. (2017). “Hidden Habitus”: A Qualitative Study of Socio-Ecological Influences on Drinking Practices and Social Identity in Mid-Adolescence. *International Journal of Environmental Research and Public Health, 14*(6). <https://doi.org/10.3390/ijerph14060611>
- Siegel, M., Ross, C. S., Albers, A. B., DeJong, W., King, C., Naimi, T. S., & Jernigan, D. H. (2016). The Relationship between Exposure to Brand-Specific Alcohol Advertising and Brand-Specific Consumption among Underage Drinkers—United States, 2011-2012. *The American Journal of Drug and Alcohol Abuse, 42*(1), 4–14. <https://doi.org/10.3109/00952990.2015.1085542>
- Smith, R. C., & Geller, E. S. (2009). Marketing and alcohol-related traffic fatalities: Impact of alcohol advertising targeting minors. *Journal of Safety Research, 40*(5), 359–364. <https://doi.org/10.1016/j.jsr.2009.08.001>
- Stautz, K., Brown, K. G., King, S. E., Shemilt, I., & Marteau, T. M. (2016). Immediate effects of alcohol marketing communications and media portrayals on consumption and cognition: A systematic review and meta-analysis of experimental studies. *BMC Public Health, 16*(1), 1–18. <https://doi.org/10.1186/s12889-016-3116-8>

Sudhinaraset, M., Wigglesworth, C., & Takeuchi, D. T. (2016). Social and Cultural Contexts of Alcohol Use. *Alcohol Research : Current Reviews*, 38(1), 35–45.

Swahn, M. H., Palmier, J. B., & Kasiry, R. (2013). Alcohol Exposures, Alcohol Marketing, and Their Associations with Problem Drinking and Drunkenness among Youth Living in the Slums of Kampala, Uganda. *ISRN Public Health*, 2013, e948675. <https://doi.org/10.1155/2013/948675>

The Ecology of Human Development—Urie Bronfenbrenner. (n.d.). Retrieved April 26, 2021, from <https://www.hup.harvard.edu/catalog.php?isbn=9780674224575>

WHO | Commercial determinants of health: Advertising of alcohol and unhealthy foods during sporting events. (n.d.). WHO; World Health Organization. <https://doi.org/10.2471/BLT.18.220087>

WHO | Global Status Report on Alcohol and Health 2014. (n.d.). WHO; World Health Organization. Retrieved April 26, 2021, from http://www.who.int/substance_abuse/publications/alcohol_2014/en/

APPENDIX 1



Figure 1. Ugandan Alcohol Advertisement 1 with ROIs



Figure 2. Ugandan Alcohol Advertisement 2 with ROIs



Figure 3. Ugandan Alcohol Advertisement 3 with ROIs



Figure 4. Ugandan Alcohol Advertisement 4 with ROIs