SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

COMMERCIAL FOOD ADVERTISING AT THE UNIVERSITY OF GHANA, LEGON CAMPUS

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTER OF PUBLIC HEALTH DEGRE

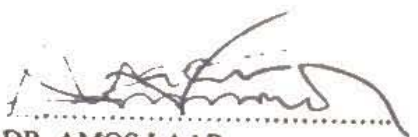
JULY, 2019

DECLARATION

I hereby declare that this thesis is the product of my original independent research conducted under the supervision of Dr. Amos Laar. I affirm that this work has neither been published in whole or in part to any institution for any academic award. All references made to other researchers' work have been duly acknowledged.

GIDEON SENYO AMEVINYA
(STUDENT)

7/10/19
DATE



DR. AMOS LAAR
(SUPERVISOR)

7/10/19
DATE

DEDICATION

This dissertation is dedicated to you, Mom, as your unwavering and unconditional support has contributed to my successes in countless ways. Your confidence and pride in me are inspirational and invaluable, and I love you!

ACKNOWLEDGEMENT

First and foremost I am grateful to the Almighty God without whom I could never have completed this work.

I wish to also thank my fantastic supervisor, Dr Amos Laar for giving me the opportunity to work on such an interesting and innovative study, and for his infectious optimism. His invaluable mentorship, useful critiques, and in-depth discussions have always served to sharpen my thinking and improve my work. His knowledge and technical skill was invaluable to me over the course of this work.

To Mrs Akua Tandoh and Miss. Wilhemina Quarpong, thank you for providing valuable advice and feedback on my writing and ideas over the course of this thesis.

Finally, special thanks goes to my lovely family members, especially my late sister Ivy who supported me financially, emotionally and spiritually and to all my colleagues and friends who also encouraged me through thick and thin.

ABSTRACT

Background: Most foods promoted within the school environment have been reported to be unhealthy. Exposure to unhealthy food advertisements can influence preference, purchasing and consumption of such foods. Consumption of unhealthy food, for instance Energy Dense Nutrient Poor Food (EDNP) is implicated in the onset of obesity and diet-related non-communicable diseases (NCDs).

Objective: The study examined the nature and extent of commercial food advertising at the University of Ghana, Legon campus.

Methods: The study was observational, using descriptive cross-sectional design. A coding tool, programmed onto a data collecting application (Open Data Kit) was used to concurrently capture digital photographs and attributes of all sighted advertisements as well as their geo-location within the University. Global Positioning System (GPS) coordinates of food outlets were also taken. Food advertisements were further categorised as healthy or unhealthy, based on a classification system used in previous research on outdoor advertising. Descriptive analysis was performed using IBM SPSS version 21 to generate frequencies of advertisement attributes. Bivariate and binary logistic regression analyses were used to determine relationship and strength of associations between advertisement attribute and the category of food product advertised (healthy vs. unhealthy). ArcGIS was used to examine the distribution of unhealthy food advertisement around food outlets using hot spot analysis.

Results: The study recorded a total of 503 advertisements within the University of Ghana, Legon campus, 47.3% of which were food advertising. The proportion of food advertisements was higher around food outlets (75.2%). Small sized food advertisements were the most common (58.0%). Categories of food products advertised were healthy (38.7%), unhealthy (57.6%), and miscellaneous (3.8%). Sugar sweetened beverages

(37.0%) were the most advertised food product. Top four most advertised brands were Coca-Cola (13.9%), Fan Milk (10.5%), Pepsi (8.0%), and Indomie (3.8%). Promotion techniques such as the use of promotional characters, premium offers and claims were included on food adverts. Free-standing food advertisements were 19 times more likely to be healthy food advertisements (aOR=19.177; 1.837 – 200.207)

Conclusion: This study demonstrates that outdoor advertisement of unhealthy food products particularly sugar-sweetened beverages is prevalent at the University of Ghana, Legon campus and mostly situated at food outlets.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

EDNP	Energy Dense Nutrient Poor
FDA	Food and Drugs Authority
FAO	Food and Agriculture Organisation
GIS	Geographic Information System
GPS	Global Positioning System
INFORMAS	International Network for Food and Obesity/non-communicable diseases Research, Monitoring and Action Support
NCDs	Non-communicable diseases
NR-NCDs	Nutrition-Related Non-communicable diseases
ODK	Open Data Kit
PDMSD	Physical Development Municipal Services Department
WHA	World Health Assembly
WHO	World Health Organisation

DEFINITIONS

Healthy foods: Foods recommended in national food-based dietary guidelines, dietary guidelines or food-based standards

Unhealthy foods: Processed foods or non-alcoholic beverages high in saturated fats, trans fats, added sugars and/or salt. Examples sugar-sweetened beverages, desserts and salty snacks

Food environments: The collective physical, economic, policy and sociocultural surroundings, opportunities and conditions that influence people's food and beverage choices and nutritional status.

Healthy food environments: Environments in which the foods, beverages and meals that contribute to a population diet, meeting national dietary guidelines, are widely available, affordably priced and widely promoted.

Nutrition-related non-communicable diseases: Type 2 diabetes, cardiovascular diseases and nutrition-related cancers, excluding: undernutrition, osteoporosis, mental health and gastrointestinal diseases.

Food outlets: Outlets primarily offering food for sale.

Outdoor advertisements: Signs with branded information, pictures or logos. This include billboards, posters, free standing signs, electronic boards, bus shelter signs and painted buildings.

Brand: Any name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Good nutrition at any stage of life is important for survival and essential for adequate physical and mental development, general health and well-being. Currently, most countries including several in Africa are experiencing nutrition transition which is characterised by changes in dietary intake. This is attributed to the rapid economic development, technology advancement and globalisation (Adeboye, Bermano, & Rolland, 2012). A notable trend is a shift from staple grains, legumes, fruits and vegetables intake to processed foods like refined carbohydrates and sugar-sweetened beverages (Monteiro, Moubarac, Cannon, Ng, & Popkin, 2013). Although individuals ultimately decide which foods and beverages to consume, several environmental factors have been found to influence these choices (Hawkes et al., 2015; Larson & Story, 2009).

Currently, fast food outlets, restaurants and supermarkets are available within the convenience of their clients. They are widespread and easily accessible hence consumers have a high preference towards these outlets when making choices for meal purchase and consumption (Athens, Duncan, & Elbel, 2016). Substantial evidence also indicates an increase in the reliance on food prepared outside home and also an intense growth of the fast food industry (Harris, Schwartz, & Brownell, 2010). A consequence of this phenomenon is the increase in consumption of food prepared outside home. Most of the foods sold at these avenues (including fast food outlets) have limited healthy food options and are characterised by high content of calories, saturated fat, and low micronutrient content (An, 2016). Individuals resort to the consumption of these Energy Dense but Nutrient Poor Foods (EDNP) since they are readily accessible in the food environment, upon demand, and also have a competitive market price (Cutler, Glaeser, & Shapiro, 2003).

The overconsumption of EDNP foods and beverages is implicated in the incidence of most nutrition-related non-communicable diseases (NR-NCDs) (Kant, 2000).

In most countries, unhealthy food environments are now of significant concern due to its documented contribution to the consumption of unhealthy diet (Mackenbach et al., 2014; Popkin & Slining, 2013). Studies concur that, an important factor influencing preference for unhealthy food products is the persuasive marketing techniques deployed by manufacturers of EDNP foods within the food industry (Boyland et al., 2016; Larson & Story, 2009). Various promotional channels which include outdoor advertisements and television advertisements have been widely shown to drive children's food and beverage preferences, purchases, consumption patterns and their nutritional knowledge (Cairns, Angus, Hastings, & Caraher, 2013; Sadeghirad, Duhaney, Motaghipisheh, Campbell, & Johnston, 2016). Moreover, advertisement of nutrient-deficient foods and large numbers of calorie-dense foods have been shown to outweighs the advertisement of healthy foods (Cairns et al., 2013). Children and the youth are the most targeted by food promoting companies/retailers since they act as potential customers with higher purchasing and spending power (Potvin, Dubois, & Wanless, 2012).

Currently, the food environment is flooded with numerous food promotion mechanisms. Some of these advertisements are through the print media and others through digital platforms (Cairns et al., 2013). These promotion mechanisms seek to build an early taste preference in children and also influence choices whilst securing brand loyalty early-on in life in order to ensure preference lasts into adulthood (Lobstein et al., 2015). Popular places where food and beverage companies/retailers market their products include child-serving institutions like schools and recreational centres. For schools, the infiltration mostly happens in and around food outlets within the school environment (Kelly, Cretikos, Rogers, & King, 2008). This could be due of the amount of time students spend in this environment

each day. Usually children and adolescents spend not less than 6 hours of each weekday at the school, therefore marketers will prefer to expose their product to them in this environment (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008).

Recent obesity and overweight studies in Ghana reported a prevalence rate between 16% and 18% among school children (Adom, De Villiers, Puoane, & Kengne, 2019; Alangea, 2014; Aryeetey et al., 2017). Given the documented relationship between food environments, food marketing and overweight/obesity, the 63rd World Health Assembly (WHA) in 2010 endorsed recommendations (WHA63.14) to restrict food marketing to children, as part of a wider strategy to combat growing rates of obesity (WHO, 2004). Contributing to the global effort towards safer food environments to control and prevent NR-NCDs and their related inequalities is a global network named the International Network for Food and Obesity/non-communicable Diseases (NCDs) Research, Monitoring and Action Support (INFORMAS). The core objective of the INFORMAS network is to monitor, benchmark and support public and private sector actions to create healthy food environments (Swinburn et al., 2013). Currently, anecdotal evidence shows that policies to promote healthy food as well as limit the extent of unhealthy diets advertisement within the school environment is not available in Ghana and in most sub-Saharan countries. There is therefore the need for research to provide evidence on the current prevailing food advertising environment at schools to influence policy formulation towards ensuring a healthy school food environment. This study therefore examined the nature and extent of commercial food advertising at the University of Ghana, Legon campus.

1.2 Problem statement

Non-communicable diseases are currently the leading cause of mortality globally. This form of disease, even though preventable accounts for almost 70% of all deaths worldwide, with most deaths recorded in low- and middle-income countries (WHO, 2016). Nutrition risk factors have been shown to contribute significantly to the surging worldwide burden of NCDs, especially obesity and other NR-NCDs (Forouzanfar et al., 2016). These factors are inculcated into daily life as a result of various exposures within the immediate food environment (Glanz, 2009). Multiple factors have been established to inform unhealthy food choices and eating behaviours. A potent factor is the ubiquitous advertisement of unhealthy food within the food environment (Story, Neumark-Sztainer, & French, 2002).

In order to influence preference for products, food manufacturers deploy various food advertising techniques through different media to target their audience. Furthermore, because children and young adults have high purchasing power as a result of their disposable income (Nestle, 2013), marketers heavily expose their products to them as early as possible in order to influence the choices they make about food products (Valkenburg & Cantor, 2001). Most of the advertised products are EDNP foods which are characterised by a high content of calories and saturated fat.

Although published studies and evidence are present in other countries regarding implementation of World Health Organisation (WHO) recommendations in regulating unhealthy food promotion to children and the youth, in Ghana, evidence indicates a dominance of misleading marketing of such foods in urban settings (Green et al., 2018). Preliminary findings from a pilot study assessing the healthiness of foods and beverages advertised on four Ghanaian Television Networks also identified indiscriminate promotion of various ENDP, and targeted promotion of sugar-sweetened beverages on children-

specific programmes (Kumi & Laar, 2018). School environment has been reported elsewhere to be an attractive venue for stakeholders interested in shaping youths' dietary choices, where food companies vie for the attention of this captive audience (Hawkes & Organization, 2004; Matthews, 2007). Research consistently showed that advertised foods in school setting contradict that of national set nutrition guidelines (Velazquez, Black, & Potvin Kent, 2017). Yet in Ghana, there is relatively scant information on the state of commercial food advertisement within the school setting. Unavailability of such information hinders formulations of locally relevant and feasible policy actions to guide future public health nutrition interventions and efforts in addressing obesogenic food environment within and outside of school environments.

1.3 Study Justification

In recent years, the contribution of unhealthy food environments to the surging rate of obesity and other non-communicable diseases have been extensively researched (Mackenbach et al., 2014; B. Popkin & Slining, 2013). Different scholars have highlighted exposure to unhealthy food advertisement influences preference towards consumption of unhealthy food products especially in children and adolescents (Boyland & Whalen, 2015; Hastings et al., 2003). Monitoring these advertisements is necessary to generate evidence to understand the nature and extent of food advertising to inform appropriate and effective policy responses. This study therefore provides findings pertaining to food advertisement within the school environment; particularly on the nature and extent of food advertisement ongoing at Ghana's premier and largest University, the University of Ghana, Legon campus.

Also, this research is in line with WHO recommendation encouraging member countries to institute a system to monitor food and non-alcoholic beverage marketing through the

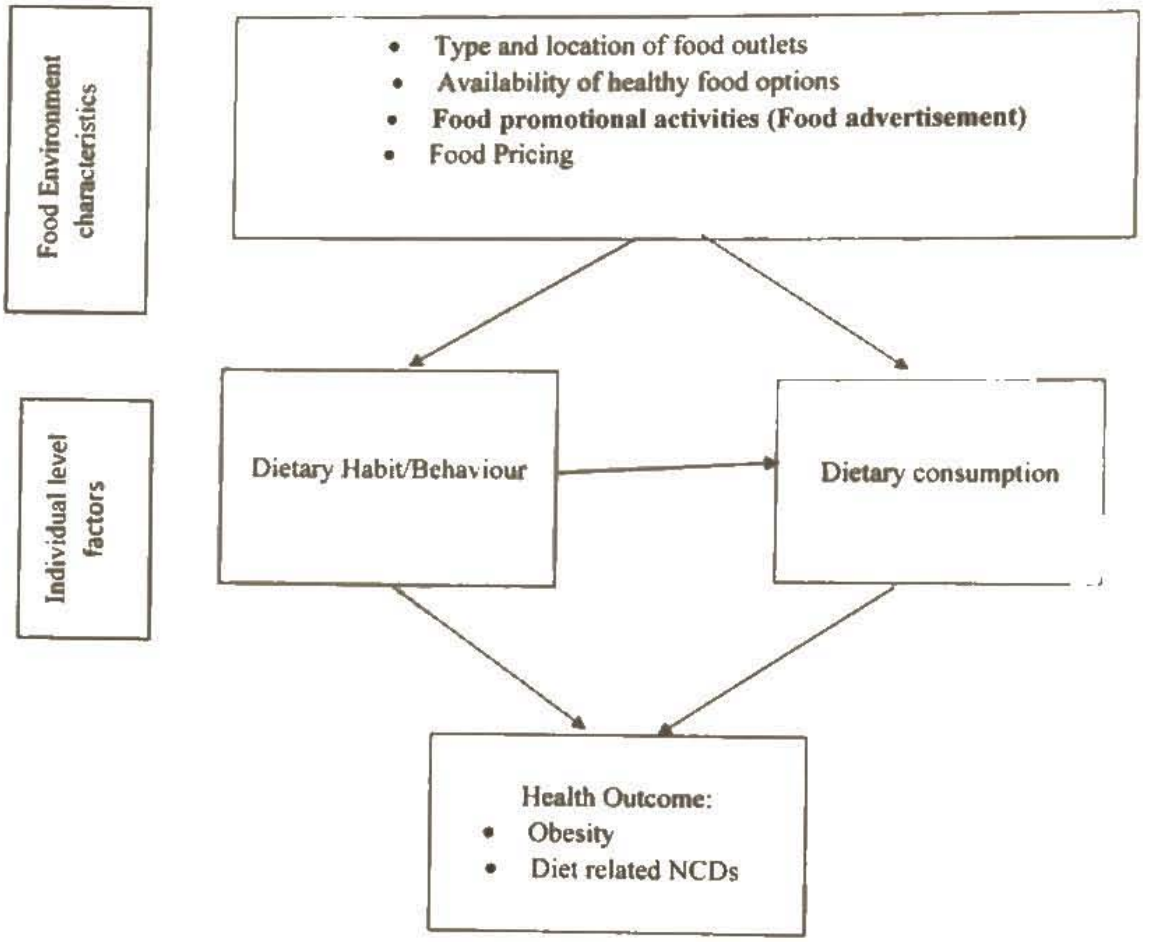
conduct of local research on the extent and nature of food marketing promoted at children and the youth (WHO Western Pacific Region, 2012).

The study also provides data and research evidence that identifies the extent and nature of food advertisements targeted at students and the University community to inform policy decisions to regulate the food environment in and around the University, specifically unhealthy food advertisements.

1.4 Conceptual Framework

The framework below illustrates the contribution of the food environment to diet related health outcomes. Even though the food environment is seen to be multidimensional and complex, the immediate food environment of the consumer which reflects among others, what the consumers encounters within his or her environment before or whiles making purchasing decisions has been shown to significantly influence choice of product. Figure 1 identifies some food environmental factors – types and location of food outlet, food pricing, availability of healthy food options and food promotional activities such as food advertisement that can influence consumer's dietary habit or behaviour and dietary consumption which in turns affects nutrition-related health outcomes.

Figure 1.0: Conceptual framework



Source: Author's conception based on literature, 2019

1.5 Study Objective

1.5.1 General Objective

To examine the extent and nature of commercial food advertisement at the University of Ghana, Legon campus.

1.5.2 Specific Objectives

1. To identify the types of outdoor advertisements used in promoting foods at the University of Ghana.
2. To describe marketing strategies used on food advertisements at the University of Ghana.
3. To categorise the types of commercial foods advertised at the University of Ghana.
4. To determine food advertisement attributes associated with food healthiness.

1.6 Research Questions

1. What types of outdoor advertisements are used in promoting foods at the University of Ghana?
2. What marketing strategies are being used to promote foods at the University of Ghana?
3. What are the categories of commercial foods advertised at the University of Ghana?

CHAPTER TWO

LITERATURE REVIEW

2.1 Food environment and dietary habit

An important aspect of the physical environment is the food environment. This component of the physical environment is seen as complex due to multiple interplay of different influences it is subjected to. Broadly, the food environment consists of any determinant or opportunity that aids in obtaining food (Townshend & Lake, 2009). This takes into account the physical, sociocultural, economic and policy factors at both micro- and macro-levels. In 2005, Glanz, Sallis, Saelens, & Frank (2005) proposed a framework to depict what they term as the nutrient environment or food environment. The framework categorises the food environment into four domains namely; (1) community nutrition environment, which comprises the availability (i.e. number, type, location) and accessibility of retail food outlets; (2) consumer nutrition environment, which reflects what consumers encounter within retail food outlets (i.e. the range and quality of food options, price, promotion, and nutritional information); (3) the organizational nutrition environment, which refers to other food sources available to defined groups (e.g. within the home, school or workplaces); and (4) the information environment (e.g. media and food advertising), which represents an independent dimension that can operate at multiple levels (e.g. within food outlets, neighbourhoods, or nationally and internationally). More recently, Swinburn et al. (2013) has defined the food environment as "the collective physical, economic, policy, and socio-cultural surroundings, opportunities, and conditions that influence people's food consumption patterns". Also, these opportunities are situated in different dimensions: food availability, accessibility, acceptability and affordability (Caspi, Sorensen, Subramanian,

& Kawachi, 2012). The food environment therefore provides an interface where people interact with the wider food system when acquiring food for consumption.

The nature of the food environment influences food-related decisions and food consumption behaviour which ultimately affects the overall diet intake and health outcomes (Caspi et al., 2012). It has been shown that inaccessibility to healthy foods in certain areas is a possible justification for inequalities in nutrition and health (Marmot, Allen, & Goldblatt, 2013). Currently, neighbourhoods are flooded with different food outlets which are constantly being established. This has led to a shifts towards food purchasing and habits of eating out of home in both developing and developed nations (French, Story, & Jeffery, 2001). Of interest is also the upsurge in the demand for pre-packaged meals that requires minimal or no preparation and also a decline in the consumption of nutritious foods such as fruit and vegetable (Smith, Ng, & Popkin, 2013). Many ready-to-eat meals or pre-packaged foods often offer little nutritional value and are mostly high in either sodium, sugar or fat. High intake of these processed foods are associated with ill health including obesity, cardiovascular diseases, hypertension, type 2 diabetes, and some cancers (Popkin, 2002). In the United States, observation from a research conducted shows that the quality of foods prepared outside of the home is poor compared to meals prepared at home (Nickelson, 2017). Furthermore, consumption of out of home foods which are mostly processed foods is extended by the increased availability of ready-to-eat food destinations like fast-food joints. Eating from these places has become an adopted lifestyle in recent times as at least half of daily meal intakes have been shown to be eaten outside the home (Larson, Story, & Nelson, 2009).

Presently, the attention of researchers and policy makers has been drawn to the food environment at various levels (i.e. national and international) as an important population-level determinant of dietary habits and its associated health outcomes. It has also been

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attributed to the surging rise in the prevalence of obesity and nutrition-related NCDs (Ng et al., 2014). Despite the mounting attention given to these issues, research on the health impact of food environments is still at its early stages of development. Therefore, more evidence is needed to inform the design of policies and interventions for creating healthier food environments (Black, Moon, & Baird, 2014).

2.2 School food environment

The school environment is a place where adolescents and young adults transitioning into adulthood spend most of their waking hours. This environment is recognised to have multilevel influences on various aspects of a student's life. Within this environment, lifestyle habit formations begin or are acquired. Some of these habits include dietary habits and behaviours. These behaviours are eventually carried along and influence food choices made during adulthood. The school food environment forms an important part of the school environment. It presents students with a range of food choices. This environment also provides students the autonomy to make their own dietary decisions. The Food and Agriculture Organisation (FAO) of the United Nations defines the school food environment as "all the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed".

Researchers have identified the school food environment as one of the strong factors influencing eating habits of school going children and adolescents. Findings from research show that, adolescents and young adults consume a substantial portion of their daily meals at school since they have prolonged contact hours within the school environment (Glanz, 2009; Story et al., 2008). As a result, the school food environment tends to be an important setting for the development of dietary habits and behaviours (Rovner, Nansel, Wang, & Iannotti, 2011). Studies have reported higher energy intakes from food and beverages

consumed outside homes. Among those susceptible, Lachat et al. (2012) in their systematic review found school children to have higher daily energy intake of 83% of all those who take out of home food. Meanwhile, schools have also been identified as places where a large portion of children's energy and fat intake occurs (Tugault-Lafleur, Black, & Barr, 2017). Policies introduced to regulate the school environment can therefore shape students eating habits to healthy food options. A systematic review conducted on the effectiveness of school interventions in preventing obesity among children and adolescents, reported that school interventions are likely to improve dietary intake of adolescents in middle and low income countries (Verstraeten et al., 2012).

Within today's school food environment, students are offered a variety of eating options and opportunities. These opportunities range from government school feeding programs to private vendors operating food outlets that serve various types of foods (Harper, Wood, & Mitchell, 2008). These outlets include canteens, snack shops, convenience stores, fast food joints, and restaurants among others. Researchers have reported an increase in food serving outlets at schools and its environment, especially within the vicinity of high schools and elementary schools (Simon, Kwan, Angelescu, Shih, & Fielding, 2008). In the United States, clustering of fast food outlets around schools have increased significantly (Kwate & Loh, 2010). Also, most convenience stores within school were reported to have minimal healthy items (Austin et al., 2005). This correlates to reported findings of 62% of all US public school students' having assess to energy dense, nutrient poor meals at school with majority of these foods obtained within the school food environment (Briefel, Crepinsek, Cabili, Wilson, & Gleason, 2009).

In Africa, most school food environment studies have been conducted in South Africa. One of such studies highlighted a consumption of unhealthy meals among students who

purchase food from vendors situated within the school environment (Faber, Laurie, Maduna, Magudulela, & Muehlhoff, 2014). These findings are not different from a study conducted in Ghana investigating the food environment and dietary behaviour among children's and adolescents (Fernandes, Folson, Aurino, & Gelli, 2017). The study found out 50% of independent vendors located within the sampled schools offered for sale sugar sweetened beverages. Also in exploring the frequency and type of food purchase by pupils when in school, ENDP foods (pastries, biscuits, fried foods and sugar-sweetened beverages) was found to form 46.6% of all food purchases made inside and outside school compound (Alangea, 2014). This obesogenic atmosphere around schools have been reported to contribute to the high prevalence of overweight and obesity among school children and young adults (Davis & Carpenter, 2009). An obvious contributor to this obesogenic atmosphere alluded to, by most researchers is the ubiquitous marketing of unhealthy food options.

2.3 Food Marketing

The term marketing is defined as "the means by which firms attempt to inform, persuade, incite, and remind consumers - directly or indirectly- about the brands they sell" (Keller, 2001). Modern day marketing is said to originate from United States and many countries of the world have been influenced by its marketing practices (Chang et al., 2014). Advertising, promotion, packaging, and branding are all identified marketing tools. Advertising, as one of the marketing tools, is a vital contributor in the sale of food and food products to consumers. It is used to give a picture of a way of life that consumers hope to accomplish (Wong et al., 2004). Story and French (2004) indicated that food marketing has become intense and competitive in targeting specific groups of consumers. People form their eating habits as early as during childhood therefore food marketers have ceased this

opportunity to spend a lot of resources targeting mostly children so they can build product awareness in children (Lobstein et al., 2015). High awareness rate about a product could translate into increased consumption of that product (Schlosser, 2012). Furthermore, (Kraak, Gootman, & McGinnis, 2006) added that, knowledge of products informs the purchasing decisions of consumers during purchasing.

Through marketing, food product growth has led to a wide range of food choices for prospective consumers. A review by Segokgo (2001) reported a growth of different food products within the United States of America (U.S.A) as a result of intense marketing. Food products are also the second largest marketed commodity in the American economy. Marketers have been shown to use mainly television, newspaper, magazine, billboard, and radio advertisements to build brand awareness and loyalty among consumers (Andersen, Baker, & Sørensen, 2012). Also, the food sector was reported to have spent $4.2 billion on food marketing as a way of drawing more customers (Harris et al., 2010). The bulk of the marketing were aimed at the youth. Wiesenfeld et al. (2007) mentioned food marketing targeted at children has been a tactical plan used by food industries since the dawn of televisions. They reiterated that, children are the ideal and captive audience for food marketing companies since they are easily swayed, open to marketing messages, and overall, have a long life ahead serving as potential future consumers. This was evident in a research conducted by Nowak, et al. (2006) which found that food marketers have diverted their marketing focus to children who are becoming adults with spending and purchasing tendencies. Another research finding shows continuous marketing on television shows, movies, videos and magazines are used by marketers to target different consumer demographics (Keller et al., 2012). Due to competition, food marketers now use a variety of media to reach out and communicate information about food products.

2.4 Food promotion

Food promotion has been classified as a marketing strategy used in enticing consumers to foster brand awareness and promote sales. More often than not, food marketers aim at children and the youth during their promotions. Children, especially the younger ones, are more susceptible to the effects of food promotions than adults. Existing research has shown that children below the age of 8 are unable to understand the intent of advertisements and therefore accept advertising claims as factual (Hawkes, 2010). Unhealthy foods such as sugary beverages, savory snacks, and confectionary are the products most frequently promoted to children (Hastings, McDermott, Angus, Stead, & Thomson, 2006). The intense promotion of high fat, high sugar foods to young children can be viewed as exploiting because they do not understand commercials are designed to sell products and also do not have the ability to comprehend or evaluate advertising. Food messages reach this target group through a variety of media, such as television, magazines, radio, sports and increasingly the internet (Vandevijvere, Sagar, Kelly, & Swinburn, 2017). It was reported in Australia that, food companies draw the attention of children and also extend their exposure time on the internet using time engaging means like interesting games, website-featured competitions, promotional and free downloadable items (Kelly, Bochynska, Kornman, & Chapman, 2008). According to Wilson (2006), food marketers are now using persuasive techniques to promote their products to children by giving toys, discounts, coupons or tickets to shows and celebrity endorsement (N. Wilson, Signal, Nicholls, & Thomson, 2006).

2.5 Food promotional channels

A review by Angus et al. (2013), found that television was the most popular promotional channel used to promote various products. In 2008 and 2009, most researchers have also

intensely reported on television advertising (Cairns et al., 2013). A recent review revealed the dominance of television as the preferred channel in promoting food products has diminished owing to the emergence of other food promoting channels (Cairns et al., 2013). Some researchers have highlighted that these new channels are meant to complement one another to achieve the same goal since marketers have recognized the cumulative effect of multiple media in reinforcing messages to a target audience (K L Keller, 2001). In the wake of these new media, television continues to be the main channel used by food marketers to reach children (Boyland & Whalen, 2015; Cairns et al., 2013). Studies on television advertising revealed that adverts targeted at children were featured during children's programs, mostly on weekends and on week days after school and his trend was consistent across both developed and developing countries (Jenkin, Madhvani, Signal, & Bowers, 2014). Other studies documented the extent of food advertisement targeted at children during popular children's television programming (Cairns et al., 2013; Hastings et al., 2003; Kelly et al., 2010; N. Wilson et al., 2006). One of such studies reported children were exposed to an average of three unhealthy food advertisement per channel each hour in a study examining television advertisement in 11 countries (Kelly et al., 2010). However, some researchers recognized that children still viewed television programs not specifically targeted to them (Gantz, Schwartz, & Angelini, 2007).

Furthermore, since the introduction of internet and smartphone, online food and non-alcoholic beverages advertisement targeted at children is also evident in some studies (Bellman, Kemp, Haddad, & Varan, 2014; Cairns et al., 2013). This occurs through multiple online channels such as social media, food company-owned websites or branded games since children have been seen to be mostly engaged on the internet (Montgomery & Chester, 2009). Just like television food advertisement, online food advertisement have been reported to influence purchase of particular food brands with even more greater

influence than traditional marketing media (Bellman et al., 2014; Vandevijvere et al., 2017). A contributing factor to this greater influence may be due to the ability of online users to directly interact with food and beverage brands companies when online (Vandevijvere et al., 2017). An investigation carried on 44 US companies involved in food and drink production revealed two-thirds of their website space were specifically dedicated to young people or an independent website was engaged to promote their products targeted at young people (Bellman et al., 2014).

Non-broadcast media or the print media is also a prominent promotional channel used by food marketers. This promotion channel use advertisement in the form of paintings on walls, posters, billboards, promotions on magazines, free-standing signs, banners, flyers, or stickers (Pasch & Poulos, 2013). This channel of promotion is mostly displayed as outdoor advertisement. This means of advertising hasn't received much reportage as compared to other promotion media like the broadcast media for instance television (Chacon, Letona, Villamor, & Barnoya, 2015). This was also the evidence in the systematic review which included only three studies conducted within the outdoor setting (Hastings et al., 2006). Presently the usage of non-broadcast media as a means of promoting food has been reported to be heavily placed in close proximity to places like schools, bus stations, roadside and other places where they can be repeatedly seen by large numbers of people (Isgor, Powell, Rimkus, & Chaloupka, 2016; Settle, Cameron, & Thornton, 2014). This medium of advertisement is seen to be particularly impactful since it is embedded into the physical environment and one cannot avoid being exposed to it easily as compared to that of advertisement on the broadcast media platform like the internet, television or radio (Wilson & Till, 2011). Research data also suggest that most outdoor advertising are tailored to promote more of unhealthy food and beverage products (Pasch & Poulos, 2013).

2.6 Food items promoted

Literature investigating the nature of food promotion is heavily centered on that of food promoted to children. This is because food promotion targeted at children is proportionately greater than that directed at adults (Hastings et al., 2006). Also, most literature on the types of food advertised to children have been studies evaluating advertisement on television. For example a study conducted by Chestnutt & Ashraf (2002) recorded 62.5% food advertising featured during child programing than prime-time (18.5%) over a 250 hour period monitoring of a United Kingdom television channel. Another study in Australia (Neville, Thomas, & Bauman, 2005) found that confectionary and fast food adverts were between two to three times more featured during children viewing times compared to adult television viewing times. However, contradicting these findings is another study conducted within the same country which reported similar proportions (25% against 26.9%) of food advertisement during children and adult program period on three free-to-air channel television channels (Kelly, Smith, King, Flood, & Bauman, 2007). Worldwide, foods with high sugar, fat and salt marketing targeted at children is estimated to make up approximately 90% of food promotion, even though this does not conform to international nutrition guidelines (Cairns et al., 2013; Hastings et al., 2003). Further, most food products promoted are not healthy foods. Sugar-sweetened breakfast cereals, soft-drinks, confectionary and savory snacks are the four most frequently advertised food categories reported in a systematic review (Cairns et al., 2013). Studies also conducted in New Zealand and Australia on outdoor advertising within the school environment reported 70% to 80% of food advertisement was not in line with national nutritional guidelines (Kelly, Cretikos, et al., 2008; Maher, Wilson, & Signal, 2005). Furthermore, promotion of unprocessed foods, such as fruit and vegetables, wholegrain and milk is found to be limited (WHO, 2016).

2.7 Food promotion strategies

Promotional techniques such as the use of animations or cartoons and fictional characters are the most frequently used in food advertisements than non-food advertisements targeted at children (Cairns et al., 2013). The use of these techniques especially animation in television food advertisements has been found to be particularly linked with children's food adverts compared to non-food adverts aimed at children (Hastings et al., 2006). For instance, a report by Atkin (2005), showed over 60% of food adverts customized to children used some kind of animation, compared with only 1% of toy adverts. Conversely, another television study conducted in the USA, evaluating all programming during a set time period found food adverts targeting children or teens featured movie characters (Gantz et al., 2007). Furthermore, fascinating themes depicting sensory characteristics, humor, adventure, fantasy and fun, and information on nutritional benefits are mostly included on food advertisement. A study by Gantz (2007) reported that 34% of TV food advertising targeting children used taste appeals, 18% used fun appeals and only 2% used nutrition or health appeals. Similarly, a study on advertising in the Netherlands found that nearly 90% of children's food adverts used taste as an appeal and around 85% used humor (Buijzen & Valkenburg, 2002). In the Islamic Republic of Iran, one study found that 56% of food adverts to children used 'taste' appeals (Maryam et al., 2005). Broadly, adverts on children breakfast cereals alone has been found to regularly use nutritional appeals, regardless of whether or not the appeals were deemed to be misleading (Lobstein, Macmullan, McGrath, & Witt, 2008). The basic creative strategies used to promote food to children are beginning to change. The increasing use of new media is giving rise to a host of new potential creative strategies though social networking, viral marketing, instant messaging, and virtual worlds (Chester & Montgomery, 2008). According to a food marketing study conducted by Moore,

children got access to purchase video games online only after keying in a code from a bought food package (Moore & Rideout, 2007).

2.8 Effect of food promotion

The majority of evidence for the effects of advertising are from studies investigating television advertising and children's consumption patterns. Specifically focussed on children, a narrative review assessing the effect of food promotion on children suggests a hypothetical framework demonstrating that promotion of unhealthy food effect spans from awareness of food promotion, consumption effect, purchasing intent and behaviour as well as attitude and preference (Kelly et al., 2015). Although other scholars explain that exposure to food promotion can be a precursor to obesity, this framework questions the notion of a direct link between exposure to advertisement and obesity because it may be difficult to use experimental methods to prove this. Other studies have attempted proving this effect through the use of large samples with the assumption that children don't easily shed off the excess energy consumed after they are influenced by an advertisement which overall makes diets more energy dense (McClure et al., 2013).

The impact of television food promotion on food consumption have wildly been studied, starting from the 1980s (Gorn & Goldberg, 1980). Recently, because of the upsurge in obesity and its associated potential determinants resulting from obesogenic environments such as unhealthy food promotion, there has been a renewed interest among researchers. Results from a recent meta-analysis using data from studies that exposed participants to unhealthy food advertisement content through different media showed a significant increase in the intake of food relative to exposure to non-food advertisement content in children but not in adults (Boyland et al., 2016).

Another research in the US (McClure et al., 2013) also demonstrated that exposing children to food advertisement resulted in a 45% increase in consuming snack foods compared to control adverts. This occurrence has been explained by another study which found that exposure to food advertisement increases the motivation to eat and other food related cognition (Kemps, Tiggemann, & Hollitt, 2014). Pertaining to consumption-related behaviour, research has shown that foods that are unfamiliar to children were rejected. These results support the observation that advertisement influences food preference. Children not only choose advertised food products but also perceive them to have a better taste than those they are not familiar with (Fallon, Rozin, & Pliner, 1984; Robinson, Borzekowski, Matheson, & Kraemer, 2007).

For adults, empirical research investigating the effect of food advertising is limited with mixed conclusions. A systematic review exploring the effects of television food advertising in developed countries on adult-related food behaviour, attitude and belief found a varied effect and inconsistencies within the different groups studied (i.e. with weight, gender and food preference) (Mills, Tanner, & Adams, 2013). From the relatively limited evidence base on the effect of food promotion in adult populations, concluding that food advertising does not affect eating behaviour in adults will be inappropriate especially given the large amount of money budgeted by companies in promoting EDNP food to populations of all ages. Further research in this area is certainly warranted.

CHAPTER THREE

METHOD

3.1 Introduction

This chapter describes the method used in this study, and provides details on the following: study design, study location, study population, sample size, sampling, and data collection technique. Also, details on the statistical methods used during data analysis are presented.

3.2 Study Design

This study was an observational study. A descriptive cross-sectional study design was used to examine the extent and nature of commercial food advertising within the study location. Most health science researches use cross-sectional study design to measure occurrence at a particular time period for a particular population.

3.3 Study Location

The study was conducted at the University of Ghana, Legon Campus. The University is the Premier University and also the largest University in the country with a student population of over 38,000. The University runs a collegiate system comprising five colleges with each college made up of schools, departments, research institutions and centres. The Legon campus is the main University campus among other satellite campuses. The campus layout can be stratified into three zones: academic zone; residential zone and administrative zone. Presently, a total of thirteen student residential facilities are available for accommodating students. These residential facilities have food outlets, shops and other social amenities meant to meet different needs of the students. Lecturers and other non-teaching staff at the University also have residential facilities serving as accommodation facilities for their families. Commercial centres such as restaurants, supermarkets and banking halls exist

within the premises of the Legon campus. The Campus currently has a total of 40[1] operational food outlets. These food outlets serve as venues where food and drinks can be purchased. Clients of these food outlets include mainly students, lecturers, administrative staff and visitors to the University. These outlets can be found at the various residential halls and other locations within the University's environment.

Geographically, Legon campus is located within the capital city of Ghana, Accra, precisely the Ayawaso sub-metro area. This district is predominantly an urban setting with numerous economic activities and various housing units. Various forms of product marketing can be sighted along major roads within this sub-metropolitan area and also at strategic locations within the district.

3.4 Study Units

The study observed all outdoor advertisements within the study site. These advertisements were either signage or advertisement disseminating information about branded products or services. Different formats of advertisement examined in the study included billboards, posters, banners, free standing sign, painted building/walls, digital signs and store merchandising like branded refrigerators, chairs and umbrellas.

3.4.1 Inclusion Criteria

The inclusion criteria were as follows:

1. Advertisements with branded[2] information in the form of pictures or logos for food products/companies and also non-food products/companies.
2. Store signage portraying a product logo. This can be a signage used not only as a means of identifying stores but also serving as a promotional material for a product.

[1] Obtained from an environmental audit performed by two independent research assistant since an official number wasn't available in the university

[2] Any name, design or any other feature that identifies a good or service as distinct from those of others

3. Advertisement of brands not necessarily depicting a specific product.

3.4.2 Exclusion Criteria

The exclusion criteria used to classify signage and adverts as in-eligible in this study were:

1. Identifiers in the form of symbols or words being used as a means of identifying particular facilities.
2. Pictures showing unbranded food serve at food outlets used as a form of advertisement.

3.5 Sample size

An environmental audit was conducted and all visible outdoor advertisements within the Legon campus were surveyed.

3.6 Data Collection Technique

This study adapted a standardized protocol developed by INFORMAS to monitor outdoor advertisement and establish levels and nature of food advertisement as a means of benchmarking the food environment. Components of the INFORMAS data collection protocol include the objective, methods, sampling design, data collection, data coding, data analysis and other necessary supporting materials (INFORMAS, 2017). Data were collected through direct observation and concurrent coding of all sighted advertisements at the locations where adverts were spotted.

3.7 Study Instruments

For the purpose of data gathering, an electronic method of data collection was chosen for this study. A coding tool (see Appendix 3) designed for abstracting information from advertisement was programmed onto the data collecting applications (Open Data Kit-

ODK). ODK was selected because of its ability to concurrently record images and their geo-coordinates. This application was used on a mobile phone having both camera and GPS functions. This approach was important for the field work as it helped solve the problem of manually linking photos to their geo-coordinates if they had been collected with separate devices.

3.8 Training and Pretesting

Prior to data collection, a two-day intensive training session was organized for two Research Assistants (RAs) by the Principal Investigator (PI). All RAs had a minimum qualification of a bachelor's degree in their field of study. The training session centred on introducing the objective of the study, key concepts and study methods, the use of data collection tool and procedures in identifying and capturing advertisements. A pretest of the data collection tool was conducted on the second day of the training at a location identical to the main study site. During pretesting, each research assistant together with the study PI independently identified and coded all sighted advertisements within the pretesting location on the same day. After the pretest, data collected was cleaned. As part of quality assessment checks, information obtained from each advertisement captured by the principal investigator were compared to that of the research assistants. A reliability analysis was performed using inter-rater reliability checks with the principal investigator's coding serving as the standard reference. This was done by comparing rates of matched and unmatched coded information collected by the two RAs to that of the PI. A repeated training on coding advertisement was provided for both RAs to maximize the reliability of data collection after the pretesting before the start of the main data collection.

3.9 Actual Data collection

Data collection was conducted for two months, spanning between April and May 2019. This period was chosen to ensure the survey was conducted while academic session was

active in order to have access to all forms of advertisements including those in stores and restaurants operating only during term time. Before the main data collection, data collectors initially conducted on-site visits. They navigated the study site by walking through and scanning through the streets within the boundary of the study site, to familiarise themselves with the University's food environment. The data collection was conducted in two stages as discussed in sections 3.91-3.92.

3.9.1 Mapping of Food outlets

The first stage of data collection was an inventory of all operational food outlets and their geo-locations within the University campus. This was necessary since official data on the location and number of food outlets at the University was not readily available for reference. Places like residential halls, lecture halls and other facilities mostly frequented on campus were scanned to record all food outlets at the time of the study.

3.9.2 Mapping and Coding of Advertisement

The second stage of data collection involved direct observation and documentation of all advertisement sighted within the perimeter of the University campus as well as their GPS coordinates. The format deployed during this phase allowed for coding of specific attributes and information of all identified advertisement to produce quantitative data for analysis. These attributes include size of advertisement; number of food product type in the advertisement; setting of advertisement; type of advertisement; brand name; product name; promotional character; premium offered and claim made on advertisement. In the instance where the same advert appeared multiple times at the same location, a coordinate was taken for only one of such advert and the number of times the advert was repeated documented. A location was defined as a ten meters square ($10m^2$) radial buffer. For each location within the study site, data collection was conducted on a single occasion. Checks on data collected

were performed on the same day to prevent any duplication of captured advertisement which could affect the reliability and the estimate of data collected. Advertised foods products were further classified as healthy, unhealthy and miscellaneous food using a food-based approach developed by INFORMAS (INFORMAS, 2017). This classification was also used in previous research on outdoor advertising (Kelly, Cretikos, et al., 2008).

3.10 Variables

For each advertisement sighted, the following attributes were recorded: Advertisement ID; Number of products/subject in the advertisement; Size of advertisement; Setting of advertisement; Type of advertisement; Band name; Product name; Food category ; Promotion character; Premium Offers; Claims made and Healthiness of food product advertised.

3.11 Data Management and Analysis

3.11.1 Data management

After each day's activities, data collected were transferred to a central server which served as a repository for all data collected. Submitted data was downloaded each day in SPSS format and initial validation checks conducted to assess data quality. The central server was accessible only to the study PI and it was password protected. Also, the laptop on which the data collected was stored was password protected with only the PI having access to it. To ensure data reliability, checks were conducted on the same day so that any possible change in an advertisement would not affect the reliability estimate.

3.11.2 Analysis

Two data sets were generated: one related to the GPS location of all food outlets observed and the other for outdoor advertisements (both advertisement attributes and advertisement

geo-coordinate). The latter was generated from content analysis performed by coding specific attributes of all recorded advertisements. ArcGIS desktop software was used to manage GPS coordinates and generate maps from geo-referenced data collected on advertisements and food outlets. Univariate analyses were conducted using IBM SPSS Statistics for Windows version 21 to generate descriptive statistics and determine the frequency of food advertisements by size of advert, setting of advert, type of advert, product type advertised, adverts with premium offer, promotional character and claims. Various categories of products advertised were compared by using percentages.

Bivariate analyses were carried out to examine the associations between outcome variable and selected characteristics. The key outcome variable (food category advertised) was independently assessed with selected characteristics as listed in section 4.6. Pearson chi-square statistics was used to determine the statistical significance of explanatory variables. P-value < 0.05 was used to denote statistical significance.

Simple and multiple logistic regression modelling produced unadjusted and adjusted associations between the key outcome variable and selected characteristics. In the simple regression model, each selected characteristic was assessed independently with the outcome variable. Odds ratios with accompanying 95% CI were used to assess the strength of the relationships. A multiple logistic regression model was developed for selected characteristics that were significant at $p < 0.25$. Variables found to be associated during the bivariate analysis were entered and a full model generated in a single step.

3.12 Ethical Considerations

The study procedures and tools were subjected to ethical review by the Ghana Health Service Ethical Review Committee (ERC). Ethical clearance (see Appendix 4) was obtained before the start of the study. Permission was granted from the Physical

Development Municipal Services Department (PDMSD) within the University before the start of data collection. An information sheet developed in accordance with guidelines by the Ghana Health Service Ethics Review Committee was used during the informed consent process to obtain consent from managers of the various food outlets before visiting their premises for data collection. All study procedures were conducted in accordance to standard research ethics procedures. There were no risks and direct benefits associated with the study. No compensation was provided for anyone who participated in the study.

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CHAPTER FOUR

RESULTS

This chapter presents findings from analyses of the study data. The results are presented in the following sub-headings:

- Attributes of the University of Ghana advertising environment and food outlets
- Types of advertisement used in promoting foods.
- Categories of commercial foods advertised.
- Marketing strategies used in food advertisements.
- Associations between food category advertised and selected advert characteristics

4.1 Attributes of the University of Ghana advertising environment and food outlets.

Table 4.1 presents background attributes of the advertising environment and food outlets. A total of 40 operating food outlets were recorded of which 36 (90%) were located within the residential zone of the University. The academic zone had three (8%) food outlets while the administrative zone recorded one. Fig. 1 shows the locations of food outlets within the University. Four types of food outlets were identified; hall canteens (65%), restaurants (25%), bush canteens night markets (5%) and food court (5%).

All advertisements were documented and categorised as either food or non-food adverts (Table 4.1). Of the 503 advertisements documented, 238 (47.3%) were food adverts. Most of the advertisements were situated in and around food shops (54.3%) and by the roadside (33.6%). Advertisements were also sighted on buildings, bus shelters and mobile stalls/vending machines. Most locations had advert density not exceeding one per 10 square meters (80.3%).

Regarding regulations, two policy regulation advertisements were identified. These were; (i) Guideline for the Advertisement of Food Products by the Food and Drugs Authority (FDA) and (ii) University of Ghana Policy Regulating the Placement of Advertisement

Table 4.1: University food outlets and advertising environment background (N = 503, unless otherwise indicated)

Attribute	Frequency	Percentage
Number of food outlets (n=40)		
Food outlet location		
Residential zone	36	90.0
Academic zone	3	7.5
Administration zone	1	2.5
Food outlet type		
Hall canteen	26	65.0
Restaurant	10	25.0
Bush canteen/Night market[3]	2	5.0
Food court[4]	2	5.0
Number of adverts (n=503)		
Category of advertised product		
Food product	238	47.3
Non-food product	265	52.7
Density of Same advert within location		
One	404	80.3
Two – Five	89	17.7
More than Five	10	2.0
Setting of advert		
Food outlet	273	54.3
Road	169	33.6
Building	43	8.5
Bus shelter	10	2.0
Mobile stall/vending machine	8	1.6
Existence of advertising regulations		
Governmental (National)	1	50.0
Institutional (self-regulation)	1	50.0
Total	2	100.0

[3] An open area with temporal space for vendors that run shift in turns to occupy space
[4] An enclosed area with permanent counters designate to each food vendor

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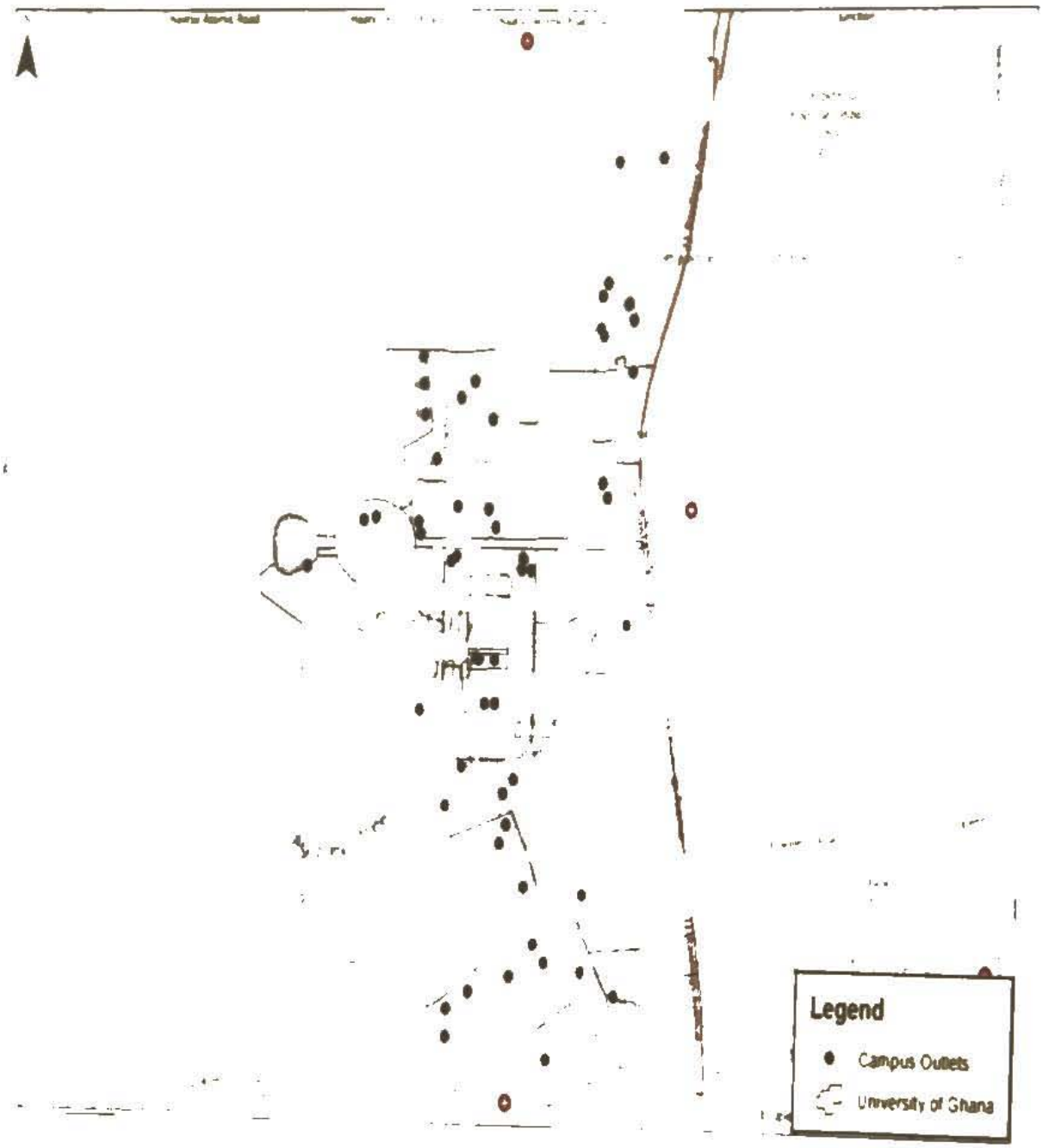
Total	2	100.0

[3] An open area with temporal space for vendors that run shift in turns to occupy space
[4] An enclosed area with permanent counters designate to each food vendor

Figure 4.1: Distribution of campus food outlets within the University of Ghana Legon Campus



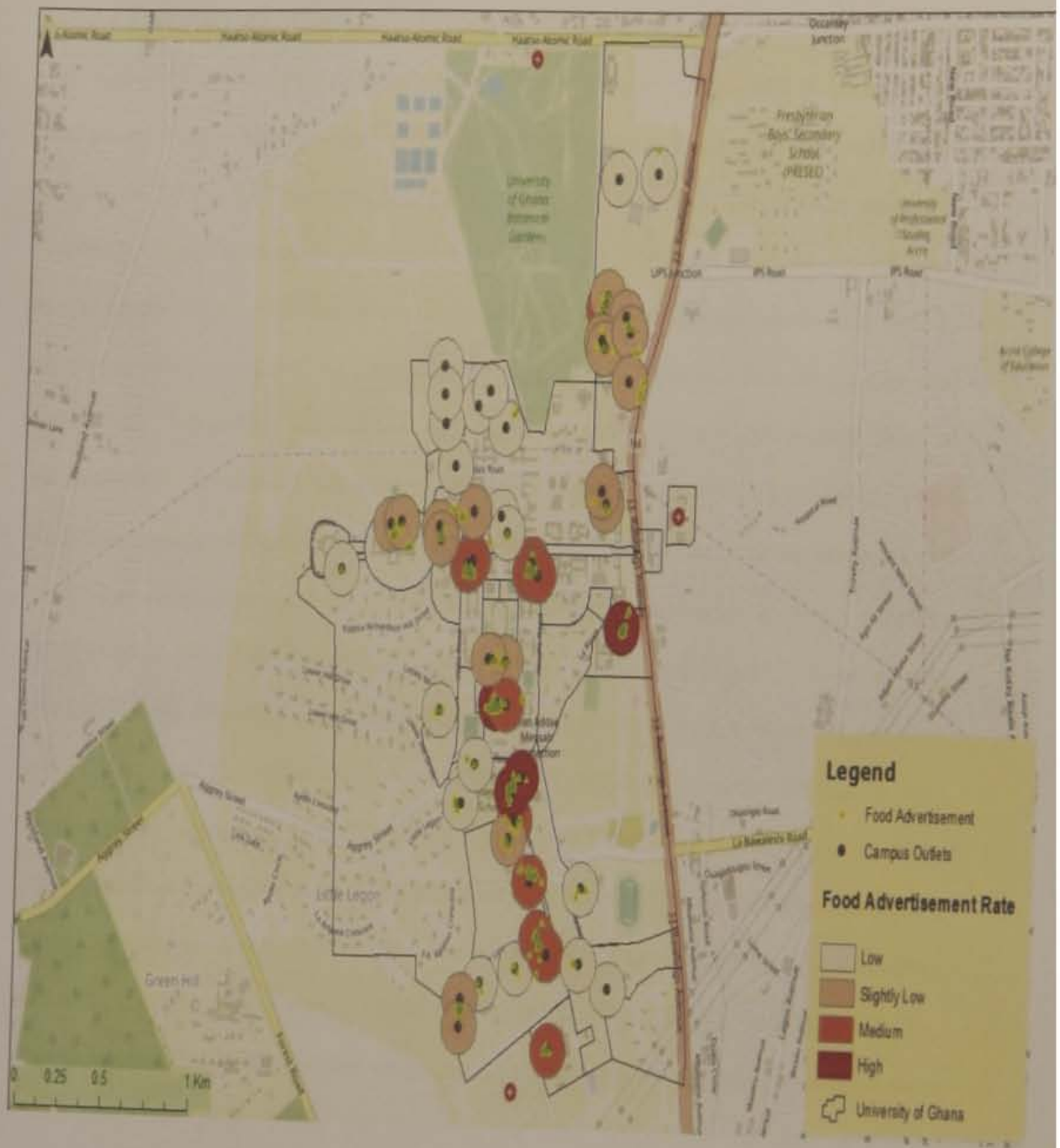
4.2 Types of advertisements use in promoting foods

As detailed in Table 4.2, 58% of the 238 identified food adverts were classified as small-sized advertisements (>A4 but <1.3m x 1.9m), 35.3% as medium-sized advertisements (>1.3m x 1.9m but <2.0m x 2.5m) and 6.7% as large (> 2m x 2.5m) advertisements. Food advertisements were displayed in different formats/media with posters/banners (47.5%) being the most used medium. Food advertisements in the form of store merchandising (for example branded refrigerators, bins, chairs and umbrellas), represented 36.1% of the total food advertisements displayed. Other advertisements were in the form of billboards, free standing adverts and digital signs. Advertisements depicting food products were highly dense at food establishments, representing 75% of all food advertisement settings whiles the remaining 25% were either by the roadside or on bus shelters. A plot of food advert geo-coordinates to determine density of food advertisement around food outlets within a 100meters radial buffer showed more food advertisement were concentrated at food establishment outlet settings (Fig. 2). Billboards were mostly sited by road networks along the boundary of the University. Most (58.8%) food advertisements featured a single food product, although 38.2 % of advertisements promoted no specific product type (only brand name) and few advertisements (2.9 %) were found to promote two food products.

Table 4.2: Distribution of food adverts by size, medium, setting and product density (N = 238, unless otherwise indicated).

Attribute	Frequency	Percentage
Size of advertisement		
Small	138.0	58.0
Medium	84	35.3
Large	16	6.7
Medium of advertisement		
Billboard	9	3.8
Poster/banner	113	47.5
Free-standing sign	23	9.7
Painted building / wall	4	1.7
Digital Signs	3	1.3
Store merchandising	86	36.1
Setting of advertisement		
Food outlet	179	75.2
Road	36	15.1
Building	12	5.0
Bus shelter	5	2.1
Mobile stall / vending machine	6	2.5
Product density in advert		
No specific product (Only brand mentioned)	91	38.2
Single product type	140	58.8
Two product types	7	2.9

Figure 4.2: Distribution of food advertisement around food outlets within the University of Ghana



4.3 Categories of commercial foods advertised at the University of Ghana.

Table 4.3 presents the categories of advertised food products. Advertised food products were categorised as healthy, unhealthy and miscellaneous. Overall, 38.7 % of advertised food products were healthy. Healthy food in this study was defined as foods recommended in national food-based dietary guidelines, dietary guidelines or food-based standards. Unhealthy food advertised amounted to 57.6% and 3.8% of food advertised were miscellaneous food. Miscellaneous foods in this study comprised foods that are not consumed alone but added to flavour meals (eg. Recipe additions like soup cubes and seasonings). Unhealthy advertised food products were further categorised into 10 subcategories , including ice cream and iced confections, milks and yoghurts (> 3g fat/100g), fruit juice/drink (<98% fruit), chocolate and instant noodles. Sugar-sweetened drinks, sub categorised under the unhealthy food category recorded the highest percentage (37.0%) of all advertised food products. For products categorised as healthy food, six sub-categories were identified and these included cereals (without added sugar, fat or salts), bottled water, and fruit products without added sugar. Majority of advertised healthy food were milk and yoghurts (<3g fat/100g), representing 14.3% of all advertised food products. Advertisements of various brands of products were recorded. The top five most advertised brands contributed 40.4 % share of all advertised brands. These were Coca-Cola (13.9%), Fan Milk (10.5%), Pepsi (8.0%), Frytol (4.2%) and Indomie (3.8%). Four out of the top five most advertised food products were within the unhealthy food category and these were Coca-Cola, Fan Milk, Pepsi and Indomie. A map distribution of unhealthy food advertisement revealed most of these advertisement were located at food outlets. This was done by surveying a 100 meters radius buffer around each food outlet. Figure 3 shows the distribution of unhealthy foods adverts around food outlets on the University campus.

Table 4.3: Distribution of advertised food products by categories (N = 238, unless otherwise indicated)

Food Category	Frequency	Percentage
Healthy Food[5]	92	38.7
Unhealthy Food[6]	137	57.6
Miscellaneous[7]	9	3.8
Healthy food category		
Cereals: without added fat, sugar or salt	16	6.7
Low sugar and high fibre breakfast cereals	5	2.1
Fruits and fruit products without added sugars or salt	14	5.9
Milks and yoghurts and their alternatives(<3g fat/100g)	34	14.3
Oils high in mono- or polyunsaturated fats	12	5.0
Water (including bottled and non-bottled)	11	4.6
Unhealthy food category		
Flavoured/fried instant rice and noodle products	12	5.0
Sweet breads, cakes, muffins, sweet buns	1	0.4
Meat and meat alternatives (processed/preserved in salt)	1	0.4
Savoury snack foods (added salt or fat)	3	1.3
Fruit juice/drinks (<98% fruit)	8	3.4
Milks and yoghurts and their alternatives (>3g fat/100g)	9	3.8
Ice cream and iced confection	10	4.2
Chocolate and candy	1	0.4
Fast food (not only healthier options advertised)	4	1.7
Sugar sweetened drinks: soft drinks and energy drinks	88	37.0
Miscellaneous		
Recipe additions (including soup cubes and seasonings)	8	3.4
Tea and coffee (excluding sweetened powder-based teas or coffees)	1	0.4
Top five most advertised food Brands		
Coca-Cola	33	13.9
Fan milk	25	10.5
Pepsi	19	8.0
Frytol	10	4.2
Indomie	9	3.8
Other Brands[8]	142	59.6

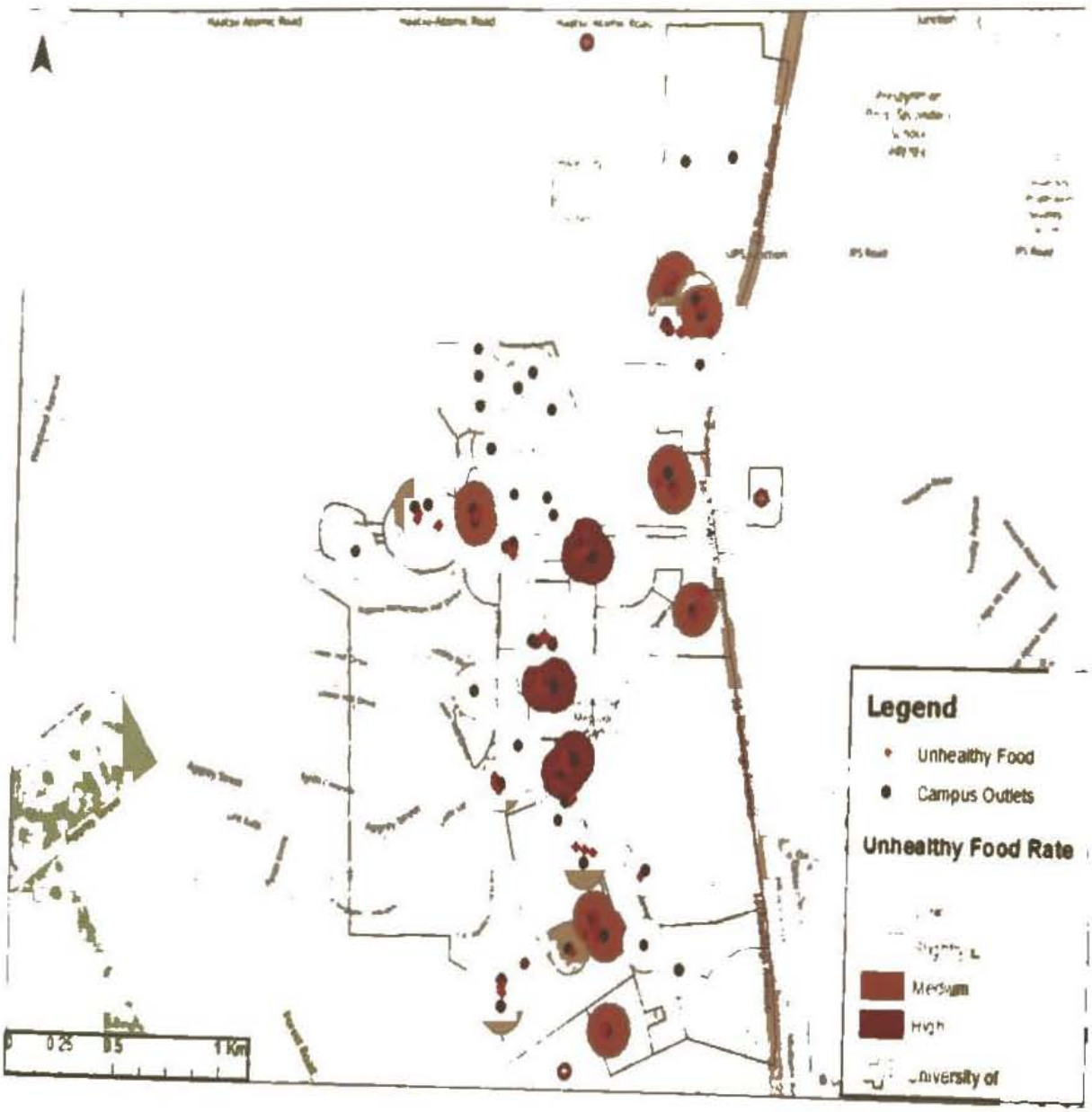
[5] Foods recommended in national food-based dietary guidelines, dietary guidelines or food-based standards.

[6] Processed foods or non-alcoholic beverages high in saturated fats, trans fats, added sugars and/or salt. Examples sugar-sweetened beverages, desserts and salty snacks

[7] Foods are not usually consumed alone but added to flavour meals. Eg cooking oil

[8] Other food brands include Fortune rice, Voltic, Blue skies, Frosty bite ice-cream, Sandra ice-cream, Tasty Tom and Yomi yoghurt

Figure 4.3: Distribution of unhealthy food outlets within 100m radius buffer around food outlets



4.4 Strategies used in food advertisements

The study recorded different techniques used by food marketers to entice potential customers (Fig. 4). Promotional techniques identified were inclusion of promotional characters, premium offers and claims as part of the information displayed on food advertisement. The use of claims were the most featured technique. This was noted on 47% of all food advertisements. Claims were categorised into seven different categories (Table 4.5). Of all advertisements with claims, 33.0% of the claims made were sensory based claims (eg. taste, aroma and texture) and 26.8% health-related claims. Other claims made were claims of "made of natural product" as well as "happiness and pleasure" claims. Aside claims, 40 (16.8%) food advertisements featured a promotional character as part of the advertisement content. These promotional characters were either cartoons, celebrities (non-sports), licensed characters, famous and amateur sportsmen as well as non-celebrities. Of these, non-sports celebrities (52.5%) were the most featured promotional characters within food adverts with a promotional character. Premium offers (1.7%) were the least among the various techniques used in promoting food products. Examples of premium offers were price discount, social charity and price discount. Figure 4 presents the proportion of persuasive techniques recorded.

Figure 4.4: Persuasive techniques of food advertisement

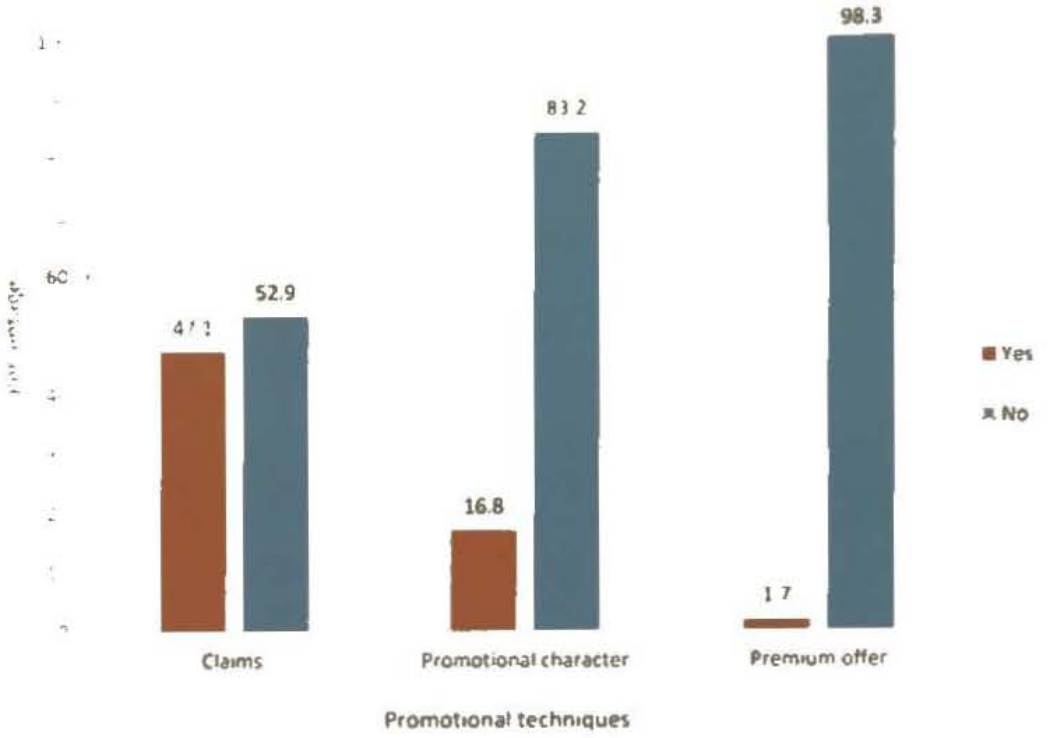


Table 4.5: Persuasive claims made on food advertisement

Types of claim	Frequency (N=112)	Percentage
Health Claims[9]	30	26.8
Sensory based claims	37	33.0
New brand development	3	2.7
Had Suggested use	1	0.9
Indicated convenient use	4	3.6
Had a price tag	8	7.1
Happiness, fun and pleasure	14	12.5
Made with Natural Product(s)	15	13.4
Other	13	11.6

[9] Health claims made were general health claims, nutrient content claims and health related ingredients ...

4.5 Associations between food category advertised and selected advert characteristics

A bivariate chi square analysis was used to explore the relationship between food categories advertised and selected advert characteristics. Results from the analysis (Table 4.6) shows that type of advertisement ($p<0.001$), product density within advertisement ($p= 0.007$) and adverts with claims ($p= 0.030$) were statistically associated with food category advertised. On the other hand, size of advertisement, advert with promotional character and adverts with premium offers were not associated with the category of food advertised.

Table 4.6: Associations between food category advertised and selected advert characteristics

Characteristic	Healthy Food	Unhealthy Food	P-value
Size of advert			
Small	51 (37.5)	85 (62.5)	0.389
Medium	36 (46.2)	42 (53.8)	
Large	5 (33.3)	10 (66.7)	
Type of advert			
Billboard	1 (12.5)	7 (87.5)	<0.001
Poster/banner	48 (45.7)	57 (54.3)	
Free-standing sign	17 (73.9)	6 (26.1)	
Painted building / wall	1 (25.0)	3 (75.0)	
Digital Signs	1 (33.3)	2 (66.7)	
Store merchandising	24 (27.9)	62 (72.1)	
Advert setting			
Food outlet	67 (39.2%)	104 (60.8%)	0.643
Non-food outlet	25 (43.1%)	33 (56.9%)	
Product density in advert			
No specific product (only brand mentioned)	24 (27.6)	63 (72.4)	0.007
Single food product type	65 (48.1)	70 (51.9)	
Two food product types	3 (42.9)	4 (57.1)	
Advert with promotional character			
No	77 (40.1)	115 (59.9)	1.000
Yes	15 (40.5)	22 (59.5)	
Advert with premium offer			
No	91 (40.4)	134 (59.6)	0.651
Yes	1 (25.0)	3 (75.0)	
Adverts with claims			
No	41 (33.3)	82 (66.7)	0.030
Yes	51 (48.1)	55 (51.9)	

The strength of the association between advertisement attributes and category of food advertised was determined using odds ratio. Results from simple logistic regression analysis indicate that free-standing signs (OR 19.8; 95% CI 2.00 - 196.38) as compared to billboards were more likely to be healthy food advertisement. Advertisements with a single product type displayed compared to advertisements without any product display were 2.5 times more likely to be healthy food advertisement (OR 2.45; CI 1.37 - 4.35). The odds of

food adverts being healthy food adverts were higher among adverts with claims compared to adverts without claims (OR 1.86; 1.09 - 3.17)

In the multiple logistic regression model, adjusted odds ratios (aOR) were calculated for confounders. Variables with p<0.25, at the simple logistic regression analysis were selected into the multiple regression models. After controlling for a number of covariates, free-standing adverts type was independently associated with healthy food adverts.

Table 4.8: Logistic regression analysis showing advert attributes and how they influence the category of advertised food product

Attribute	Category of food product	
	Unadjusted OR (95% CI)	**Adjusted OR (95% CI)**
Type of advert		
Billboard	Reference	
Poster/banner	5.895 (0.700 – 49.612)	5.963 (0.673 -52.864)
Free-standing sign	**19.833 (2.003-196.381)**	**19.177 (1.837 – 200.207)**
Painted building / wall	2.333 (0.107 -50.982)	3.790 (0.156 – 92.149)
Digital Signs	3.500 (0.145 – 84.694)	4.695 (0.129 – 171.229)
Store merchandising	2.710 (0.316 – 23.207	3.887 (0.393 – 38.398)
Product density in advert		
No specific product	Reference	
Single food product type	**2.437 (1.366 – 4.348)**	1.734 (0.819 – 3.672)
Two food product types	1.969 (0.410 – 9.454)	1.501 (0.265 – 8.499)
Adverts with claims		
No	Reference	
Yes	**1.855 (1.087- 3.165)**	1.138 (0.577 – 2.245)

CHAPTER FIVE

DISCUSSION

The main findings of this study are discussed in this chapter in the context of existing literature on food advertising and in relation to the research questions. Thus:

- Food outlets and types of advertisement used in promoting foods at the University of Ghana
- Categories of commercial foods advertised at the University of Ghana
- Marketing strategies used in food advertisement at the University of Ghana

5.1 Food outlets and types of advertisement used in promoting foods

An area receiving attention as a place to promote healthy dietary practices to prevent non-communicable diseases and overweight and obesity among school going individuals is the school setting. This setting has been suggested to be a place where dietary habits of students can be formed since students spend a significant part of their day at school (Story, Nanney, & Schwartz, 2009).

Just like any other academic institution, food outlets were sighted at the University of Ghana Legon Campus. This study recorded 40 operating food outlets within the University. This number reflects the magnitude of contribution these food outlets make as sources where students and staff in the University can obtain their meals. As reported by some authors, food outlets in and around schools are usually the first place that students resort to when buying food either on their way to school, back from school or during break sessions (Fernandes et al., 2017; Simon et al., 2008). In a study conducted in the US, it was estimated that food shops within the school environment contributed to 35% of students' daily energy intake (Briefel et al., 2009). The kinds of foods provided at these food outlets and other

environmental attributes associated with these food outlets at schools are therefore essential to current efforts in curtailing obesogenic environments in schools in the fight against diet-related non-communicable diseases. Although the nature of foods sold at these food outlets were not investigated in this current study, an examination of the food options available at these food outlets will provide evidence on the state of these food outlets regarding the quality of food they serve to the University population.

Advertising inside and around schools is a common practice by promoters aiming to reach their potential customers (Velazquez et al., 2017). The almost equal distribution of food and non-food advertisements (47.3% versus 52.7%) found in this study reflects a larger trend of intensified corporate efforts to reach the populace within the University. Elsewhere, Kelly and colleagues have reported 25% of food advertisements out of the total number of advertisements identified in an area surrounding Australian primary schools (Kelly, Cretikos, et al., 2008). The high percentage of food advertisements recorded in this current study is an indication of the intense product awareness creation agenda by manufacturers and retailers of food products to the University community. Youth and children are reported to have high purchasing power and more disposable income (Boyland & Halford, 2013). Therefore, the more they are exposed to food products through advertisement, the more they develop preferences towards them. In other words, their food choices may be influenced by the extent of exposure to advertised food products. Hence, food advertising within schools, if not properly regulated can possibly contribute to high consumption of unhealthy foods, and subsequently, NR-NCDs.

In this study, outdoor advertisement was prevalent with poster being the dominating format (47.5%). In a study of food advertisements around an elementary school in Mexico for example, nearly all (97.1%) food advertisements were presented as outdoor advertisement

i.e. poster format (Barquera, Hernández-Barrera, Rothenberg, & Cifuentes, 2018). This disparity in the number of outdoor advertisements (posters) could be due to available guidelines regulating the placement of advertisement within the University of Ghana. The current guideline prohibits the placement of any sort of advertisement at particular places within the University (University of Ghana, 2011). Outdoor advertisement is reported to be less expensive compared to other formats of advertisement (Pasch & Poulos, 2013).

Exposure to food advertisement in this study primarily occurs at food shops (75.2%). The high occurrence of advertisements at food shops speaks to the importance of these food shops in not just serving as a place for acquiring food but also as an open channel contributing to and influencing the exposure to food advertisement within the University. Other studies in the United States (US) share similar findings. In the US, Isgor and colleagues found 73% of food shops having advertisements in an around food outlets (Isgor et al., 2016). A possible implication of this high rate of food advertisement at food shops within the University food outlets could be to influence consumers to buy specific products at the time and place of purchase. Also, results from the bivariate analyses raise the question of why unhealthy food advertisements were densely populated around food outlets compared to healthy food advertisements. Whether intentionally or inadvertently, a more likely explanation could be that unhealthy food advertisements situated at food shops give consumers an immediate opportunity to act upon the advertisement message and indulge in the consumption of the unhealthy product being advertised. This makes exposed consumers potentially more vulnerable to unhealthy food product intake. This observation is of public health significance because students will often be exposed to these unhealthy food advertisements since they frequently visit these premises and this can influence their preferences, purpose and consumption of unhealthy food products. A noted phenomenon during the data collection process was that food products depicted in advertisements at food

shops were the same products sold in the food shops. These findings therefore suggest that food shops within the University are potential places to consider when implementing food environment policies aimed at ensuring a healthy food environment at the University.

5.2 Categories of commercial foods advertised at the University of Ghana

This study defined unhealthy foods as foods that have a negative effect on preventing nutrition-related NCDs. Evidence from this study shows that 57% of food advertisements were unhealthy.

This finding mirrors the general trend of unhealthy advertisement reported to be predominant within the school environment. Elsewhere, other studies have also corroborated this finding (Kelly, Cretikos, et al., 2008; Kelly, King, et al., 2015; Maher et al., 2005). For example, an observational study conducted in New Zealand reported 70% of food advertisement within a 1km radius of secondary schools as unhealthy food advertisements (Maher et al., 2005). Similarly, in Australia, within the surrounding of primary schools, 80% of food advertisement were classified as promoting unhealthy foods (Kelly, Cretikos, et al., 2008). These earlier studies documented food advertisement around primary schools whiles this current study did so within the University and this may explain the differences in the proportions of unhealthy food advertisements captured in the studies. Another potential explanation for the differences in the findings from these studies compared to the current study is that, Ghana, New Zealand and Australia are at different stages of economic development and nutrition transition. It is also worth noting that although healthy food (38.7%) advertising was observed in this study, its significance in offsetting the health implications from the high level of unhealthy food advertisements documented is unclear. The prevalence of unhealthy food advertisements is therefore of concern since advertisement of such foods can influence preference and consumption of

energy-dense, nutrient-poor foods among the University's population. It has been unequivocally shown that food choices, brand preferences, and dietary behaviour of children and youth are influenced by exposure to food advertisement -(Boyland et al., 2016). The dominance of unhealthy food advertisements recorded in this study is therefore a possible antecedent of unhealthy dietary behaviour among the students and staff of the University. Nevertheless, further research is needed to ascertain the influence of advertisement exposure on dietary intake among the University population. Recently, a study examining the determinants of dietary behaviour in urban Africa (Ghana inclusive) found food advertising to be one of the factors that influenced unhealthy dietary behaviour among the study participants (Holdsworth et al., 2019). Therefore, the University's advertising environment needs to be regulated to -limit unhealthy food advertisements which can compromise students' healthy dietary behaviour and may - result in overweight or other diet-related NCDs.

The study also recorded sugar-sweetened beverages, particularly soft drinks and energy drinks as the most advertised food product (37.0 %). This occurrence is similar to what was reported by (Green et al., 2018). Their study which aimed at assessing outdoor advertisement within two Ghanaian cities also identified sugar-sweetened beverages and alcohol as the most common marketed food product in Ghana. This state of unhealthy food advertising does not align with global nutrition recommendations on food advertisement. Sugar-sweetened soft drinks have been identified by the WHO as a probable causal factor in weight gain and obesity. In 2010, member states of the World Health Organisation (Ghana inclusive) endorsed a set of global action plans to reduce the impact of marketing of unhealthy foods (WHO, 2010). One recommendation was to restrict marketing of foods and beverages high in saturated fats, trans-fatty acids, free sugar or salt in settings where children gather, such as schools. In addition, this does not align with global nutrition

guidelines which state that consumption of free sugars and fats should be less than 10% and 30% of total energy intake respectively (WHO, 2015). The prevalence of unhealthy food advertisement, especially sugar-sweetened beverages recorded as a finding of this study therefore is an indication of inadequate action on the part of the University authorities and also on the part of government in enforcing the recommendation.

5.3 Marketing strategies used in food advertisement at the University of Ghana

As part of the study objective, this study sought to identify the marketing techniques used in on food advertisement. Marketers are trying to appeal to consumers to choose their product to increase their profit margins at the detriment of whether the product is healthy or unhealthy. The use of different techniques in promoting products through advertisement was evident in this study. Lobstein (2013) reported advertisers employ a mix of different strategies in advertising food products to their target audience. Of note in this study was the use of sensory based claims on food advertisement. Research has shown that exposure to food advertisement describing the sensory attributes leads to craving for such food by initiating thoughts and desire about food even if one has no need for foods (Harris, Bargh, & Brownell, 2009). With the high number of unhealthy food advertisements recorded in this study, these claims can entice consumers to choose unhealthy foods for consumption. Claims on product advertisements have been demonstrated to be influential among children (Jenkin et al., 2014; Kotler et al., 2012) and have also been reported to have a negative outcome on their nutrition knowledge of food products (Wiman & Newman, 1989).

In Ghana, the Food and Drug Authority, being aware of the implications of the effect of claims especially when used in promoting unhealthy food products have put up guidelines to ensure advertisement of foods will be conducted in a manner which is responsible and does not mislead or deceive the consumer. Among advertisements with claims, those with

health claims totalled 26.8%. Some of these advertisements adhere to the health claim regulatory guidelines in that they mentioned the actual component (vitamin or mineral) that brings about the health benefit. Some of the health claims were exaggerated. Moreover, more than half of the advertisements that had health claims promised improvement of well-being. This is misleading as well-being is a broad area that involves a balance of mental, social and physical well-being.

This study also identified the use of promotional characters as a promotional technique on some food adverts. This method of food product promotion has been shown by Kotler et al 2012 to have an influence on the choice of product purchasers make, especially with children, when deciding what product to buy.

5.4 Limitations

Although this study is the first to examine food advertising in a tertiary institution in Ghana, it is only representative of the University of Ghana Legon campus. Its generalization is therefore limited. Further investigation is needed to understand the extent and nature of this phenomenon in other institutions, particularly child serving institutions given that the results of this study is pointing to high unhealthy products advertisements.

Furthermore, information on the nutritional content of food products advertised was not used in classifying advertisements as healthy and unhealthy due to unavailable food based dietary guidelines for Ghana and other resource constraints. Instead, categorisation was done using a food-based approach used in other studies with assistance from an expert in nutrition who have knowledge of the commercial products available in the country.

Also, this study was a cross sectional study and therefore limited by its design since data collection was conducted at just one point in time. Subsequently, changes are likely to occur

during different time periods especially when activities like hall week celebrations are organised. Food advertisements are a prominent feature at such events. To minimize the effects of this limitation, data collection was conducted at the period when school was in full session so that a true representation of the usual commercial advertisement atmosphere in the school was captured.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

This study has demonstrated that outdoor food advertising is prevalent at the University of Ghana, Legon campus. Most food advertisements were densely populated at the premises of food outlets. Food advertising was predominantly promoting unhealthy foods (57.6%) with sugar-sweetened beverages being the most advertised product. Strategies used in advertising commercial foods were claims made on adverts, promotional characters and providing premium offers.

6.2 Recommendations

- Findings from this study provide evidence for the University authorities to institute and enforce regulations to limit unhealthy food advertisement within the University.

- The proliferation of unhealthy food advertisement at food outlets is an indication that food outlets are potential targets where interventions to curtail unhealthy food advertisements can be implemented.

- Monitoring systems should be put in place to check the advertising environment in and around schools to provide data which will serve as a guide to inform guidelines on food advertisement within the school environment.
- Existing policies and recommendations on restricting marketing of unhealthy food products should be enforced to minimize the exposure to unhealthy foods especially to children.

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APPENDICES

APPENDIX 1: PARTICIPANT INFORMATION SHEET

General Information

Good morning. I am [Name of Research Assistant] and also part of a team of research assistants assisting Gideon Senyo Amevinya, a Master of Public Health student at the School of Public Health, University of Ghana. We are inviting you to take part in a research titled: Commercial food advertising at the University of Ghana, Legon campus. We will be collecting data on food advertisements within the University of Ghana, Legon Campus. Data collection will be conducted by one of the members of our research team and will involve taking pictures of all sighted advertisements within the University environment and also at your facility. The research assistant may be accompanied by another member of the research team, who will be observing and taking detailed notes during the data collection process. We will however, want to get your consent so what you are about to hear is part of the process of informed consent.

Study Background

Substantial evidence have shown that the food environment is likely contribute to the increasing endemic of obesity and other diet related Non Communicable diseases (NCDs) among Children and Adults. An important aspect of our food environment that has been linked with this class of disease is the heavy marketing of unhealthy foods. Food marketing has been shown to influence food preferences, purchase requests and food consumption and health status. Currently this environmental factor is not considered by current obesity prevention efforts within most African countries which may be as a result of little research findings in this area of study.

Purpose of this research

This research project is designed to provide evidence to better understand the various food products being promoted within the university community as well as to gain an understanding of the nature and extent of advertisement within the University food environment.

What should I expect during my participation?

A research assistant who is part of the research team will observe all advertisements and record the various advertisement through photography. Also detailed notes and other information from the advertisement will be collected during the process.

Privacy and the confidentiality?

The confidentiality of data collected at your facility and its environment will be maintained by keeping identities and research records anonymous, storing data securely and making it accessible to the principal investigator only.

What are the possible discomforts and risks of participation?

Although there are no known discomforts, we classify this study as one with less than minimal risk and the research team has taken reasonable safeguards to minimise potential but unknown risks.

How long will my data be kept by the researchers?

In accordance with Local Research Data Management Policy, the research data will be retained for 5 years in case the original data set needs to be referred to in the future.

Compensation for Participation?

There will no compensation for your participation. We appreciate your time to help us examine the extent of commercial food adverts in our food environment that drive consumption of foods and drinks

Possible benefits?

There are no direct benefits to you for participating in this research. The knowledge gained from this research will provide independent data that to inform regulations and interventions to promote healthy food consumption.

Contacts for Additional Information on the study

If you have a complaint or you wish to seek further clarification, please contact:

Principal Investigator: Mr Gideon Senyo Amevinya, Department of Population, Family, and Reproductive Health, School of Public Health, Box LG 13 University of Ghana Email: scygid@gmail.com Telephone: +233 (0) 248450626

Administrator at the Ghana Health Service Ethical Review Committee Office: Madam Hannah Frimpong, between the hours of 8am-5pm via telephone 0507041223 or email address: Hannah.Frimpong@ghsmail.org

APPENDIX 2: CONSENT FORM

Declaration by participant:

The above document describing the benefits, risks and procedures for the research title "Commercial food advertising at the University of Ghana, Legon campus", has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date _____ Name and signature or mark of volunteer _____

Declaration by Witness:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Date _____ Name and signature of witness _____

Researcher statement:

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date _____ Name Signature of Person Who Obtained Consent _____

APPENDIX 2: CONSENT FORM

Declaration by participant:

The above document describing the benefits, risks and procedures for the research title "Commercial food advertising at the University of Ghana, Legon campus", has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date Name and signature or mark of volunteer

Declaration by Witness:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

Date Name and signature of witness

Researcher statement:

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

Date Name Signature of Person Who Obtained Consent

APPENDIX 3: DATA COLLECTION TOOL

	Variables	Choices
001	Institution name	.....
002	Date of visit	.....
003	Advertisement ID	.....
004	Code of the advertisement	.....
005	Picture of the Advert	
006	Size of advertisement	1 = Small (>A4 but <1.3m x 1.9m) 2 = Medium (>1.3m x 1.9m but <2.0m x 2.5m) 3 = Large (≥ 2m x 2.5m)
007	Setting of advertisement	1 = Food shop 2 = Road 3 = Building 4 = Bus shelter 5 = Mobile cart/stall 6 = Other Specify
008	Type of advertisement	1 = Billboard 2 = Poster or banner 3 = Free-standing sign(e.g. A-frame board) 4 = Painted building / wall 5 = Digital Signs / LED 6 = Store merchandising
009	Number of products in the ad	0 = only company/brand mentioned 1 = Single food product type 2 = Two food product types 3 = Three food product types etc 4 = Other Specify
FOR EACH FOOD PRODUCT TYPE IN THE ADVERTISEMENT		
010	Foods/drink brand name1	.....
011	Foods/drink product name1	.....
012	Product description1	

013	Promotional characters1	0 = No character present 1= Cartoon/Company owned character e.g. M&Ms 2= Licensed character e.g. Dora the explorer 3= Amateur sportsperson e.g. Person playing a sport 4= Celebrity (non-sports) e.g. Shatta Wale 5= Movie tie-in e.g. Shrek 6= Famous sportsperson/team e.g. Asamoah Gyan 7= Non-sports/historical events/festivals e.g. Christmas 8= 'For youth' e.g. image of a youth, 'great for school lunches', 9= Awards e.g. Best Food Award 2014, 'award winning', 'number one best-selling'
014	Premium offers1	1 = Game and app downloads 2 = Contests 3 = Pay 2 take 3 or other 4 = 20% extra or other 5 = Limited edition 6 = Social charity 7 = Gift or collectable 8 = Price discount 9 = Loyalty programs
014a	Brand name2	
	Product name2	
	Product description2	
	Promotional characters2	
	Premium offers2	
014b	Brand name3	
	Product name3	
	Product description3	
	Promotional characters2	
	Premium offers2	
015	Collect GPS coordinate of	

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this letter should be quoted

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel. +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com

My Ref. GHS/RDD/ERC/Admin/App/19 [illegible]
Your Ref. No.

7th February, 2019

Gideon Senyo Amevinya
School of Public Health
University of Ghana
Box LG 13. Legon

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	GHS-ERC019/01/19
Project Title	Commercial Food Advertising in, and Around Eateries of the University of Ghana, Legon Campus
Approval Date	7th February, 2019
Expiry Date	6th February, 2020
GHS-ERC Decision	Approved

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.
- Please note that any modification of the study without ERC approval of the amendment is invalid

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra