

**SCHOOL OF PUBLIC HEALTH  
COLLEGE OF HEALTH SCIENCES  
UNIVERSITY OF GHANA**



**FOOD RETAIL ENVIRONMENT AND NUTRITION STANDARDS IN SELECTED  
BASIC SCHOOLS WITHIN LA NKWANTANANG-MADINA MUNICIPALITY OF  
GHANA**

**BY**

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## DECLARATION

I, Zuwera Zankawah, hereby declare that apart from references to other people's works which have been duly acknowledged, this dissertation is as a result of my own independent work and has not been submitted for the award of any degree in any institution.



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## ABSTRACT

**Background:** Unhealthy dietary behaviour is known to be a cause of overweight and obesity in children. Obesity, itself a non-communicable disease (NCD), predisposes children to a higher risk of other NCDs. The school food retail environment is recognized as having a great influence on children's/students' eating behaviours. To promote and protect children's health, there is the need for comprehensive and robust approaches including regulating environmental food exposures. In certain jurisdictions especially in the developed countries, nutrition standards and guidelines are used to help regulate the food retail environment in and around schools as a means of contributing to the creation of a more healthy food environment. Such interventions are absent in most developing countries, including Ghana

**Objective:** The study assessed the school food retail environment and existence of nutrition standards in selected basic schools within the La Nkwantanang-Madina Municipality of the Greater Accra Region of Ghana.

**Methods:** The study design adopted was descriptive cross-sectional. It involved 15 basic schools and all food retailers within the selected schools. Multistage sampling method was used to select the schools. In-depth interview was used to collect data from key informants in selected schools. Ethical clearance was obtained from the Ghana Health Service, Ethical Review Committee. Permission was obtained from the Municipal Education Office and authorities of selected schools whereas consent was obtained from respondents prior to the study. Factors such as the number and type of food retail outlets within 250m along road network around schools as well as nutrition standards were examined. Data analysis was carried out using SPSS version 20 and Microsoft Excel 2013. The results were presented in the form of tables and charts.

**Results:** This study mapped 468 food outlets around selected schools (n =15) in the studied district. 40% of outlets were convenience/provision shops, and 53.6% of the outlets sold Sugar Sweetened Beverages, none of the schools had nutrition standards although all the School Heads thought that nutrition standards were necessary.

**Conclusion:** Majority of the foods and beverages sold were sugar sweetened beverages (SSBs) and other sugary foods. Nutrition standards for the regulation of food retailing within the proximity of schools was non-existent in all the schools. Nonetheless, all the schools had a way of regulating food retailing within the school premises. Guidelines for regulating food retailing were not written and application of these guidelines was discretionary. There is a strong expressed need for the formulation of nutrition standards to regulate food retailing within and around schools.

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## LIST OF ABBREVIATIONS

CAADP	Comprehensive African Agricultural Development Programme
DFC	Drivers of Food Choice
EMIS	Education Management Information System
FAO	Food and Agriculture Organization
FE	Food Environment
GES	Ghana Education Service
GHS-ERC	Ghana Health Service Ethics Review Committee
GIS	Geographic Information System
GPS	Geographic Positioning System
GSFP	Ghana School Feeding Programme
JHS	Junior High School
LaNMMA	La Nkwantanang-Madina Municipal Assembly.
MEALS	Measurement Evaluation, Accountability and Leadership Support
MEALS4NCDs	Providing Measurement Evaluation, Accountability and Leadership Support for Non-Communicable Diseases (NCDs)
MMDAs	Metropolitan Municipal District Assemblies
NCDs	Non-Communicable Diseases
NEMS	Nutrition Environment Measures Survey
NNP	National Nutrition Policy
PI	Principal Investigator
PSUs	Primary Sampling Units
RDAs	Recommended daily allowances
RFEI	Retail Food Environment Index
SSBs	Sugar Sweetened Beverages

- SHEP School Health Education Programme
- TACLED Dietary Transitions in African Cities: Leveraging Evidence for Interventions and Policy to Prevent Diet-related Non-communicable Diseases
- UNICEF United Nations Children’s Fund
- WHO World Health Organisation

**Food Retail Environment:** This refers to food environments where processed and packaged foods and a variety of soft drinks and beverages are sold, purchased and consumed.

**Healthy Food Retail Environment:** This refers to a food retail environment which provides access to healthy foods, drinks, and beverages and thereby promotes healthy food choices, practices, and dietary practices.

**License:** Food vending permit obtained from the Local (District/Municipal/Metropolitan) Assembly allowing or certifying vendors to sell food after the vendors have successfully undergone health screening.

**Unhealthy Food Retail Environment:** This refers to a food retail environment which provides easy access to unhealthy foods, drinks, and beverages and thereby promotes unhealthy food choices, practices, and dietary practices.

**Non-Communicable Diseases (NCDs):** Diseases also known as chronic diseases are diseases which have a long duration and result of genetic, physiological, environmental, and behavioral factors.

**Nutrition Transition:** A process through which the nutritional goals regarding nutrients and other dietary components and the overall diet status of the population shift for the promotion of healthy and well-being of individuals and groups of individuals.

## DEFINITION OF TERMS

**Food Environment:** A food environment is the collective physical, economic, policy and social cultural surroundings, opportunities that influence people's food and beverage choices and nutritional status.

**Healthy Food Environment:** This refers to a food environment that promotes the health and well-being of an individual.

**Unhealthy Food Environment:** Unhealthy food environment is the environment which promotes poor nutritional status, poor health, and well-being of an individual

**Food Retail Environment:** This refers to food environment where processed and prepared foods and a variety of soft drinks and beverages are sold, purchased and/or consumed.

**Healthy Food Retail Environment:** This refers to a food retail environment which provide access to healthy foods, drinks, and beverages and there by promotes healthy food choices, preferences, and dietary practices.

**Licence:** Food vending permit obtained from the Local (District/Municipal/Metropolitan) Assembly allowing or certifying vendors to sell food after the vendors have successfully undergo health screening.

**Unhealthy Food Retail Environment:** This refers to a food retail environment which provide easier access to unhealthy foods, drinks, and beverages and there by promotes unhealthy food choices, preferences, and dietary practices.

**Non-Communicable Diseases:** Non-communicable Diseases also known as chronic diseases are diseases which have a long duration as result of genetic, physiologic, environmental, and behavioural factors.

**Nutrition Standards:** A collective term for the nutrition goals including nutrients and other dietary components that are required as well as those that are recommended for the promotion of health and well-being of an individual or group of individuals.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background

Unhealthy dietary behaviour is a recognised overweight and obesity determinant in adolescents which exposes the adolescent to the risk of other chronic diseases (Story et al., 2009; Buxton 2014).

An overweight or obese child is likely to remain overweight even as an adult and has an increased risk of developing chronic conditions such as cardiovascular disease or type 2 diabetes (Williams et al 2014). The food retail environment on the other hand is one contextual factor that influences the dietary behaviour (Seliske 2009).

The food retail environment refers to food environment where processed and prepared foods and a variety of soft drinks and beverages are sold, purchased and/or consumed. It encompasses all activities and processes by which food material is obtained and used by a person, society, and culture (Unger and Wooten, 2006). It describes the quantity and type of food retailers available to a person. Thus, the school food retail environment refers to food retail environment in and around the school. In developed countries, the particular concern is the availability of food retail outlets such as convenience stores, fast food restaurants, and cafes as these retailers sell foods that are affordable to many youth, calorically dense, and of poor nutritional quality (He'roux, 2012). This food retail environment is described as 'obesogenic environment' (Williams et al., 2014). Whilst such food retail outlets may not be present around schools in developing countries such as Ghana, there may exist other forms, type and nature of food retail outlets around schools that are selling foods of equal calorie dense and poor nutritional quality to student adolescents.

Research has shown that the availability, convenience, and affordability of foods contribute to changes in eating behaviours (He'roux 2012). Thus, where unhealthy foods are available and affordable, it will influence such behaviours as purchasing and eating choices, increased intake of

high sugar, processed foods and obesity. The reverse will be the case where healthy foods are available, affordable and can be conveniently obtained. Adolescents spend a large proportion of their daily awake time at school thus the school is well positioned to promote healthy behaviours such as healthy eating through policy intervention (Fitzpatrick et al., 2017). Such an intervention includes the regulation of the school food environment in a manner that would ensure that healthy foods are available and affordable and can conveniently be accessed by the students.

It is prudent to target the adolescent because they are known to be vulnerable and form a significant proportion of the world's population. For instance, nearly one-sixth of the world's population (WHO, 2019) and almost a quarter of Ghana's population (UNICEF Ghana, 2018) is adolescent. Also, once an adolescent cultivates a healthy dietary behaviour, such behaviour is likely to be carried into adulthood with the propensity of ensuring a healthy adolescent and future adult population (Williams et al, 2014). Regulating the food retail environment through policy at the national, sector and sub-sector levels is being pursued in most developed countries (Reeve et al., 2018) with nutrition standards aimed at ensuring a healthy food retail environment especially around schools (Gortmaker et al., 2011). There is limited research and knowledge on school food retail environment and nutrition standards in Ghana. This study was therefore aimed at assessing the school food retail environment and nutrition standards in selected basic schools in the La Nkwantanang-Madina Municipality. The study was a descriptive cross-sectional in design and involved food retail outlets along 250 meters of road networks around 15 randomly selected basic schools in the La Nkwantanang-Madina Municipality.

## **1.2 Problem Statement**

Up to a third of young people's food and drink intake is consumed during the school day (Wills et al., 2016). Several studies including Buxton (2014) revealed that, adolescent school pupils do not have healthy eating patterns and habits. Also, Kubik et al., (2011) identified the school food environment as having a powerful influence on students' eating behaviours. This has led to calls

especially in some developed countries for nutrition standards by way of policy to regulate, control or ban the sale of food and drinks high in fat, sugar or salt in and around the school setting (Crawley, 2005), as an effort at improving the nutritional quality of food and drinks purchased by young people whilst at school. Studies including Gortmaker et al., (2011) and Carter et al., (2009) have concluded that interventions at the school level that ensure the consumption of healthy food and non-alcoholic beverages are cost-effective diet-related approaches to NCD prevention.

Thus, in countries such as Scotland, the United States, United Kingdom, Canada and Australia there are efforts to set Nutrient Standards for Schools especially public schools (Héroux et al., 2012; William et al., 2014; Smith et al., 2013). There are also attempts at policy to regulate the food retailing environment in and around school neighbourhoods (Williams et al., 2014) through licensing to guide caterers and retailers to provide healthier options; and to develop marketing initiatives for healthier choices within and beyond the school gate.

An unregulated food retail environment in the vicinity of schools is often viewed as problematic. This is so because the types of food and drink available to young people contribute to their overall diet (Estrade et al., 2014; Public Health England, 2014).

There is a wealth of literature and knowledge on food environment in developed countries where food policy and nutrition standards are being implemented (FAO, 2018; FAO, 2016; French et al, 2002; Fitzpatrick, 2017; Kubik et al, 2011; Kubik et al, 2010; L'Abbé et al, 2013; Public Health England, 2014). However, these, experience, knowledge and interventions may not be applicable in developing countries such as Ghana. According to the WHO (2006), a single school food and nutrition policy cannot be formulated due to wide cross-country variation among schooling systems. It is therefore essential for each country, authority or school to decide which school food policy and nutrition standards are most appropriate and applicable to their circumstances. Developing countries and in this context, Ghana needs a country specific school food policy with the appropriate nutrition standard to regulate and control the school food retail

environment. Any such policy must be formulated on or informed by empirical data, information, and knowledge through research. It has been established that there is a gap in literature, information, and knowledge on food environment in developing countries. In Ghana research in this area is fast emerging, for instance, studies such as Ogum-Alangea et al (2020); Ofori-Asenso et al (2016); Laar et al (2019); Laar et al (2018); Amfo-Ayeh et al (2011) and Aryeetey et al, (2017) are all Ghanaian studies that focus on various aspect of school food retail environment. However, a lot more studies need to be done in order to have a deeper understanding of the subject. For instance, the extent of the healthiness of school food retail environment; the type, nature and quality of food and beverages provided and sold to the Ghanaian school pupil is not fully understood. Similarly, the extent of the availability and implementation of school food policy and nutrition standard in Ghana is not known.

Given that unhealthy school food environment could impact on the dietary practices of school going adolescent with dire public health consequences, it is apposite for developing countries such as Ghana that has a huge school going adolescent population to begin to formulate policy regarding school food environment and dietary practices of adolescents. This, however, requires information and data which are scarce. The current study is aimed at contributing to the data base, information and knowledge on school food retail environment and nutrition standards in Ghana. The information would be useful to both the academia and policy makers.

### **1.3 Research Questions**

- What are the attributes of food retail outlets around the selected basic schools in LaNMMA like?
- Are there nutrition standards to regulate food retailing around basic schools in LaNMMA?

## **1.4 General Objective**

To assess the school food retail environment and availability of nutrition standards in selected basics schools within La Nkwantanang-Madina Municipality.

### **1.4.1 Specific Objectives**

- To conduct a census of food retail outlets within 250 meters along road networks of selected basic schools within LaNMMA.
- To assess the attributes of food retail outlets around selected basic schools within LaNMMA.
- To determine the availability of nutrition standards for regulating food retailing around selected basic schools within LaNMMA.

## **1.5 Justification of the Study**

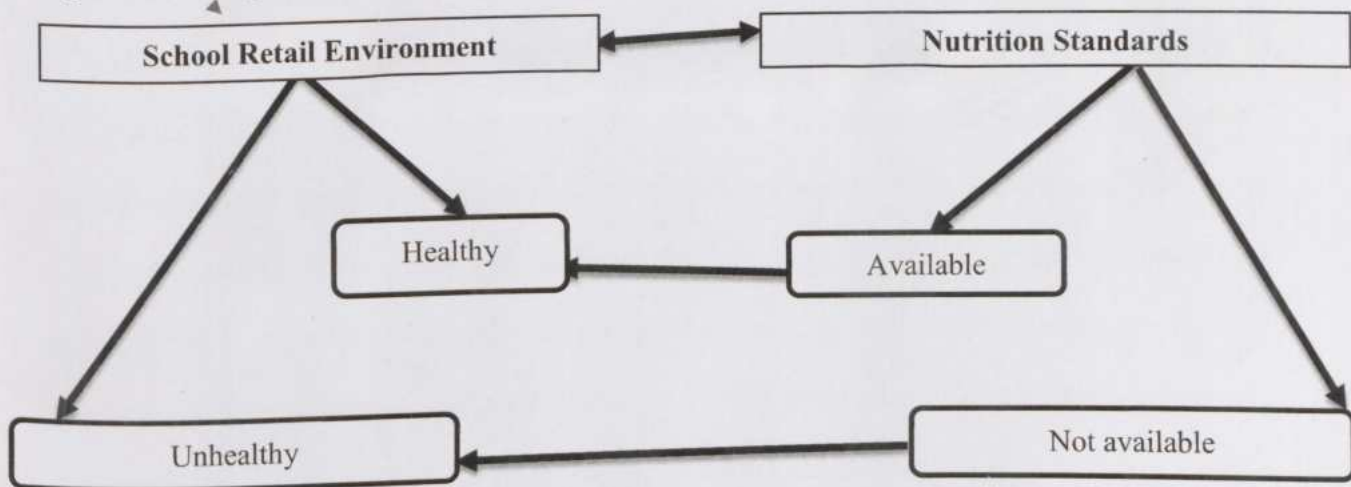
A healthy school food environment is of important public health interest because of its influence on the dietary behaviours of school children which in turn has further health implications (Park Street Consulting 2017). Ghana is currently experiencing an increase in obesity and nutrition-related non-communicable diseases which accounts for about 43% of all deaths, annually (Ofori-Asenso et al., 2016). Studies suggest that personal food choices are influenced by their availability within one's environment (Egger and Swinburn, 1997). Thus, targeting obesogenic features of children's environment that is amenable to change represents a promising strategy for health promotion. Regulating the school food environment is particularly important because food environmental exposure beyond the home environment intensify during adolescence. This period has been associated with increases in unhealthy dietary behaviours. Setting and implementing appropriate nutrition standards to regulate the school food retail environment is necessary. The Government of Ghana with the support of donor partners have continuously explored various

nutrition policies albeit piecemeal with various degree of success (NNP, 2013; NNP, 2016). The Ghana government consolidated the various nutrition policies into single policy document that is the National Nutrition Policy (NNP). However, the NNP is a broad document which has to be reduced into implementable nutrition standards. To formulate and implement a viable nutrition standard for schools require an understanding of the school food environment. The current study is a contribution towards a deeper understanding of the school food environment and efforts at designing nutrition standards for Ghanaian schools.

### 1.6 Conceptual Framework

The conceptual framework of the study which depicts the linkages of the various aspects of the study is outlined in the diagram below:

**Figure 1: Conceptual Framework**



**Source: Authors construct based on literature**

The above framework conceptualizes the food retail environment and nutrition standards. The framework illustrates how nutrition standards can regulate the nature and quality of foods available

to students at school canteens and food retail outlets within schools. In situations where there exist nutrition standards to regulate the food retail environments, there is the likelihood of a healthy food retail environment. This will in turn improve dietary intake and practices leading to an overall impact of improved health outcomes such as reduced obesity risk, reduced risk of cardiovascular diseases and diet-related NCDs. Conversely absence of nutrition standards will likely produce unhealthy food retail environment with its associated health risks.

### 2.1 Food Environment

The food environment is an emerging public health concept that is increasingly relevant to the field of nutrition. It captures all external aspects that determine or influence what an individual eat, what and how. Different authors have provided various and similar definitions in food environments. For instance, Swinburn et al. (2011) is that which "includes physical, economic, policy and sociocultural surroundings – opportunities and conditions that influence people's food and beverage choices and consumption patterns". Thomas Tabor et al. (2010) defines the concept to include location, the number of people's food acquisition and consumption within the wider food system. It includes a) access to resources such as the availability, prices, variety and product, packaging, promotion, information, cultural and personal determinants which are necessary, affordable, convenient and desirable of food sources and products". The Food and Agriculture Organization (FAO) also provided a critical contribution by stating the food environment as the "interface" or "link" between food systems and diet. The Food and Agriculture Organization's definition seems to have simplified the various definitions of food environments that are...

Knowledge about the state of food environments has increased due to an increase in the prevalence of obesity (NCD Risk Factor Collaboration 2017) and other non-communicable diseases (Stary et al. 2009; Thomas, 2014). Greater food environments plays an important role in shaping individual

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter reviewed and discussed existing literature on school food retail environment and nutrition standards. The chapter is divided into five sections; an introduction, review of the literature covering food environment, school food retail environment, attributes of retail outlet and nutrition standards in schools.

#### 2.2 Food Environment

The food environment is an emerging complex concept that is becoming common in the field of nutrition, it explains all external aspects that determine or influence what an individual eat, when and how. Different authors have ascribed various but similar definitions to food environment. For instance, Swinburn et al., (2013) in their study defined the food environment as the “collective physical, economic, policy and sociocultural surroundings, opportunities and conditions that influence people’s food and beverage choices and nutritional status”. Whereas Turner et al., (2018) defined the concept to mean the interface that mediates people’s food acquisition and consumption within the wider food system. It encompasses external dimensions such as the availability, prices, vendor and product properties, and promotional information; and personal dimensions such as the accessibility, affordability, convenience and desirability of food sources and products”. The Food and Agriculture Organisation (2016) also provided a critical contribution by framing the food environments as the ‘interface’ or ‘link’ between food systems and diets. The Food and Agriculture Organization’s definition seems to have simplified the various definitions of food environment thus far.

Research interest in the area of food environment has increased due to the rise in the prevalence of obesity (NCD Risk Factor Collaboration 2017) and nutrition related chronic diseases (Story et al., 2009; Buxton 2014). Because food environment plays an important role in shaping nutrition

and health outcomes, there has been a greater focus on the food environment (FE) as a key determinant of health in recent times (MEALS4NCDs Project 2019).

### **2.2.1 Food Environment Assessment Methods**

There are various methods used in food environment assessment (Minaker et al., 2011). One of such methods is the Nutrition Environment Measures Survey (NEMS) which utilizes observational tools including checklists as well as questionnaires (Cerin et al., 2011; Glanz, et al., 2007). Other assessment methods include shelf-space measures of specific “healthy” vs. “unhealthy” foods (Farley et al., 2009) and Geographic Information System (GIS) (Minaker et al., 2011). The choice of any methods may depend on ease of use, detail, resources required, and psychometric testing (Ohri-Vachaspati & Leviton 2010).

The Nutrition Environment Measures Survey (NEMs) assesses constructs associated with the availability of healthy options, price, and quality (Glanz et al., 2007), the availability of more healthy foods, facilitators and barriers to healthy eating and promotion of healthy and unhealthy foods (Saelens et al., 2007). The NEMS usually relies on a checklist of foods that meet certain pre-determined criteria categorized as healthy or unhealthy food (Minaker et al., 2011). Presence of the foods in the list indicate definite food environment. The method is used in assessment of food quality and affordability in terms of cost and availability (Mckinnon, et al., 2009).

The shelf-space measure assesses food availability by measuring the linear shelf space of specific healthy and unhealthy foods in food stores within a given distance of a person’s home and then summing the measurements to provide “cumulative shelf space” of the specific foods (Farley et al., 2009; Rose et al., 2009). This method provides a measure of an area level food availability that can be linked to residents’ homes. Cumulative shelf-space availability of certain unhealthy foods, specifically energy-dense snack foods, has been positively associated with weight status (Rose et al., 2009).

Geographic Information System (GIS) method that relies on Geographical Positioning System (GPS) and other GIS tools to help evaluate the accessibility and availability of foods in a geographical area by linking with other data sources that document the existence and types of food outlets (food stores, super markets, fast food outlets and restaurants) in that area (Charreire et al., 2010). It also measures food accessibility within the surrounding area in terms of distance, store density and diversity (Caspi et al., 2012).

## 2.2.2 Food Environment Characteristics

Generally, four characteristics of food environments have been identified as contributing to diet and/or health outcomes: food access, food availability, food affordability, and food quality (Ohri-Vachaspati and Leviton, 2010).

### 2.2.2.1 Food Access

Food access often reflects a geographical perspective of the food environment and includes measures such as proximity, for instance distance to the nearest specified type of food outlet, density (e.g., proportion or concentration or ratio of food outlets per area or buffer zone, or population; (Inagami, et al., 2009). It also reflects variety that is number of food stores or food service places within a specified buffer zone (Morland and Evenson, 2009). Literature reviews examining the relationship between food access and diet and/or health outcomes have shown generally positive association, with some finding stronger relationships than others (Walker, et al., 2010). Food access has been the most commonly studied food environment characteristic, and has most often been geographically operationalized, with certain food outlet types being considered “healthy” (e.g., grocery stores) or “unhealthy (e.g., fast food restaurants and convenience stores) (Minaker et al., 2011).

#### **2.2.2.2 Food availability**

Food availability refers to the actual foods available in an area. Specific healthy food items of interest may include fruits and vegetables, whole-grain breads, lower fat milk and meat products, and low sugar cereals (Glanz et al., 2007). Availability precedes accessibility, in that a food cannot be accessible to an individual if it is not available (Swinburn et al., 2013)

#### **2.2.2.3 Food Affordability**

Food Affordability refers to the pricing of foods and the purchasing power of consumers. Generally, diets high in refined grains and added fats and sugars are more affordable than the much healthier diets based on whole grains, fresh vegetables and fruits, and lean meats and dairy (Minaker et al., 2011). Among children, relatively higher food prices of fruits and vegetables have been associated with lower frequency of fruit and vegetable intake (Sturm and Datar, 2011), lower fibre intake, and higher weight (Beydoun et al., 2011). In addition, relatively higher prices of fast food have been associated with better diet quality among young children (Beydoun et al., 2011).

#### **2.2.2.4 Food Quality**

Food quality is a characteristic of the food environment that has been found to vary by the type of food retail outlet. Some outlets are generally thought to be selling foods of higher quality than others. Food quality is related to food availability in that it is the quality of available food for instance, fruits and vegetables as well as meats and packaged foods that influences purchasing decisions (Minaker et al., 2011).

### **2.3 School food environment**

The school food environment has been defined to mean the services and policies regarding nutrition and the availability of food in the school and surrounding neighbourhood (Fitzpatrick et al., 2017). It includes all the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed (for example tuck shops,

kiosks, canteens, food vendors, vending machines). The environment also includes promotion and the pricing of foods and food products (Swinburn et al., 2013; FAO, 2019; Saelens et al., 2007).

Food environment shape how accessible, affordable, desirable, and convenient specific foods are. The availability of enjoyable, safe, and nutritious food, supported by a healthy food environment is fundamental to foster better diets in schools (FAO, 2018). A healthy school food environment allows and encourages the school community (children, families, school staff, etc.) to make food choices that are consistent with better diets and improved wellbeing (Mâsse et al., 2014)

The school food environment is of research and public health interest because of the impact of diet on the health outcomes of school going adolescents. Retail food outlets within schools' proximity are an important source of food for most students. Adolescent students spend most of their active time in school (Fitzpatrick et al., 2017) and up to a third of young people's food and dietary intake is consumed during the school day with most students having at least one meal at or near the school they attend (Fitzpatrick et al., 2017; Mâsse et al., 2014; Briefel et al., 2009). Mâsse et al., (2014) further showed that students are exposed to a wide variety of less healthy food and beverages and are consuming high amounts of these less healthful food while at school. Also, studies have found that the availability of particular food or beverages at school is associated with consumption of those same items (Park et al., 2010).

Further, Mâsse et al., (2014) found that availability of less healthful foods was associated with higher consumption. The TACLED study (2019) found that unhealthier foods were consumed in Ghanaian schools. These findings suggest that improvements to the school food environment may enable students to make healthier food choices and lower their body mass index (Williams et al 2015). The school system provides a platform for delivering simple health and nutrition interventions to school children. School settings offer many opportunities to promote health, diet, and physical activity habits for children. Schools act as access points for engaging parents and community members in the prevention of diseases associated with poor nutrition (WHO, Nutrition

Friendly School Initiative, 2006). Several studies have reported that school policies and practices restrict the availability of less healthy food and beverages at school (Mâsse et al., 2014; Kubik et al., 2011; Kubik et al., 2010) and improve student dietary intake e.g., increased fruit consumption and decreased intake of low-nutrient energy dense food (Mâsse et al., 2014; Taber 2012). Thus, creating school environments that are more conducive to healthy eating and implementing a comprehensive approach that includes all the environments in which adolescents spend their time will likely provide the greatest benefit in supporting healthy food choices and healthy weights (Mâsse et al., 2014).

However, the existence of national or school level nutritional and dietary policy is a challenge globally. Although the developed countries have made significant progress in formulating and implementing policies, programmes and guidelines aimed at improving nutritional status of school pupil (Mâsse et al., 2014), same cannot be said about developing countries. In Ghana, policy on nutrition of school children is lacking. For instance, a Food and Agriculture Organization (FAO) report that assessed the status of countries with nutrition guidelines and standards for school meals from 33 low and middle-income countries indicated that Ghana was still in the process of developing a nutrition guidelines and standards for school meals (FAO 2018). Ghana implemented the Ghana School Feeding Programme (GSFP) in 2005 with a multifaceted aim of effectively addressing child nutrition, educational enrolment and retention and hygiene issues. GSFP was initiated as a social protection intervention in the context of the Comprehensive African Agricultural Development Programme (CAADP) Pillar III and in response to the first and second Millennium Development Goals (Government of Ghana Draft National School Feeding Policy 2015).

The premise of the school feeding intervention was that the provision of nutritionally adequate meals will contribute to optimal nourishment of school children. Better-nourished children will have better cognitive development, pay more attention in class, and have the good health needed

to facilitate learning (Wang and Fawzi 2020). Also, in-school meals will prevent the need for children to leave the school to find food and also act as an incentive to increase school attendance (Laar 2018). However, GSFP covers only selected public schools, besides, the programme is measured and perceived more of its political and socio-economic impact such as increase in school enrolment, provision of employment to caterers and improvement in local agricultural economy and livelihoods of farming families rather than its impact on the nutritional status and health outcome of beneficiary students.

A variety of eating options and opportunities are available to students whilst at schools including government-regulated child nutrition programs, purchase of food items from snack and school canteen and purchase of foods from food retail outlets within the vicinity of the school (Kubik et al., 2003). Because government-regulated child nutrition policy at schools or school meal programme are almost non-existent in developing countries such as Ghana, school children depend largely on food retail outlets and vendors within school neighbourhood for their dietary needs during schooling hours (Fitzpatrick et al., 2017).

#### **2.4. School Food Retail Environment**

The food retail environment according to He'roux et al., (2012) refers to the quantity and type of food retailers available to a person and for adolescents, this may include food retailers in proximity to their home and school. It encompasses all activities and processes by which food material is obtained and used by a person, society, and culture (Unger and Wooten, 2006). Food retail environment in developing countries generally vary in many respects from developed countries. In developed countries retail outlets are more structured with supermarkets, convenient shops, tuck shops, corner stores and food vending machines dominating. In developing countries however, the main food retail outlets are markets, which are open air public markets with many retailers specializing in selling a small quantity of one food item or a few items (Weatherspoon and Reardon, 2003). Street food outlets are yet another common feature in developing countries. Street

food is a supplemental food source especially in urban areas where families are too busy to prepare home food. These outlets provide a wide variety of foods and beverages that are usually ready-to-eat or sometimes prepared and sold in public spaces. The foods usually include snacks, porridge and prepared meals consisting of a staple food, a soup or sauce and a piece of fish, egg, or meat (Maxwell, et al., 2000).

The school food retail environment is an important source of food for most students (Fitzpatrick et al., 2017). Although some studies that examined the relationship between food retailing near schools and children's food purchases, consumption, and body weight, found little evidence of an effect of retailing on purchases and consumption (Williams et al., 2014), an overwhelming body of literature increasingly suggests that the food retail environment is associated with dietary behaviours and health outcomes. Smith et al., (2013) provided some evidence indicating that the local food environment around schools may influence adolescent diet and the food retail outlets around schools may act as a potential risk factor for adolescent diet. Also, Hanning et al., (2019) demonstrated that students often choose to purchase food in school neighbourhoods, of which there are many food retail choices. Some other studies showed that unhealthy food environment drives unhealthy diets which in turn drives poor health outcomes compared to healthier food environments (Babey et al., 2011; MEALS4NCDs Project 2019) and eating patterns among school-age children continue to be highly reliant on frequent consumption of foods items that are perceived to have low or poor nutritional value (Dresler-Hawke et al., 2009). Further, Rovner et al., (2011) found that, students in the United States for instance are exposed to and are consuming high amounts of a wide variety of affordable less healthful food and beverages while at school (Rovner et al., 2011). The food retail environment is of interest because the quality of these food outlets is not fully ascertained.

## 2.5 Attributes of food retail outlets

The attributes of food retail outlet are various. This includes classification of food retailer type within the environment or setting, business ownership, registration/licensing, operating times among others. Classification is done through the identification and location of retail outlets within a particular setting as well as types of foods sold by those outlets. In developed countries where data on food retailers is readily available, the information on retailers can be obtained using street addresses of the participating subjects in this case schools obtainable through an internet-based food retailer database (Seliske et al., 2009). Reviewed literature also indicates that in some jurisdictions such as the United Kingdom food retailers are legally required to register their business with local councils thus providing a reliable source of food outlet location information (William et al., 2014). Developing countries such as Ghana however are bereft of such reliable sources of information thus, location of retail outlets may have to be done manually.

The definition and classification of food retail outlets varies among researchers and are usually contextual and depended on the settings. In instances where they were explicitly defined, often depended on the definitions provided by the original data source (Smith et al., 2013; Stok et al., 2018). Generally, however, most researchers in developed settings have variously classified retail outlets into the following: full-service restaurants, fast-foods restaurants, sub/sandwich retailers doughnut/coffee shops, convenience stores, grocery stores; grocery stores, corner shops, supermarkets, cafe (Seliske et al., 2009; Hanning et al., 2019). This may be so because in those settings the food and hospitality industry is formal and well structured. Also, the various food outlets are classified into either 'healthy' or 'unhealthy' for instance, Glanz et al., (2009) assumed fast food restaurants and convenience stores contribute to a toxic food environment and therefore classified as 'unhealthy' whereas grocery shops, supermarkets and specialty stores are perceived to be less toxic thus classified as 'healthy' outlet.

A Ghanaian study, "Dietary Transitions in Ghanaian Cities" Project (2019) classified the food outlets as informal vendors and shops. The informal shops or vendors included kiosks, local sellers, and tabletops. Another Ghanaian study, Aryeetey et al., (2017) grouped the most frequently consumed foods in Ghana into sugar-sweetened beverages, milk and dairy products, cereal products (including breads and biscuits), fried foods, animal-source foods, spreads and toppings, fruits, vegetables, soups, sweets and high calorie foods, and other staple foods. In terms of healthiness of foods, "Dietary Transitions in Ghanaian Cities" project (2019) categorized energy dense foods, energy dense nutrient rich foods, fried foods, energy dense nutrient poor foods, nutrient poor foods, sweet foods, and sweetened beverages as unhealthy foods whereas grains/staples, fruits, vegetables, and eggs were classified as healthy foods.

## **2.6 Nutrition standards and policies in Ghana**

Ghana developed a National Nutrition Policy (NNP) in 2016. Prior to this Policy was the National Nutrition Policy 2013 which was a four-year policy covering 2014-2017. The NNP is an overarching multi-sectoral framework for achieving optimal nutrition and reducing malnutrition among people living in Ghana. These Policies represent a commitment of Government of Ghana and stakeholders regarding plans and actions to ensure adequate nutrition and well-being of Ghanaians (NNP, 2013; NNP, 2016). Prior to the NNP, there existed policies and strategy documents in various sectors that affected nutrition. However, implementation of those policies has not been adequately coordinated and integrated, and these separate efforts have not yielded the expected results for nutrition. The NNPs seek to coordinate and harmonize existing resources, capacity, and programmes across all relevant sectors both public and private to improve the nutrition status of Ghana's citizens (NNP, 2016). A review of the 2016 NNP showed the following policy measures; promotion of nutrition for optimal growth and development of all school-age children and adolescents, raising adolescents' knowledge skills in nutrition; ensuring that optimal nutritional composition of all school meals that fall under government-sponsored school feeding

programmes, promotion of optimal nutrition and healthy lifestyle among all age groups, especially the aged, support the development of guidelines and enhance capacity to provide dietary and lifestyle counselling services, support efforts to prevent NCDs and childhood obesity through behaviour change communication on consumption of healthy foods and promote physical activity, facilitate the integration of nutrition into school curricula, ensuring that proper hygiene and sanitation practices in all schools and ensuring that school meals follow optimal dietary requirements for targeted age groups. In addition, the Ministry of Education was to mainstream nutrition into its policies, plans, programmes, and projects and in its monitoring and Evaluation (M&E) systems. The ministry was to integrate holistic nutrition education into the School Health Education Programme (SHEP).

These broad policies notwithstanding, there is no evidence of specific and measurable nutrition standards in Ghana aimed at actualizing the said policies. Studies, including Laar et al., (2019) and Abdul-Rahaman and Agble, (2012) found no evidence of national nutrition standards in schools or workplace.

A literature review to assess Ghana's policies for creating healthy food environments revealed, very little published data regarding nationally established nutrition standards (Laar et al., 2019; Abdul-Rahaman and Agble, 2012). In most instances, recommended daily allowances (RDAs) and other internationally accepted intake recommendations are used as guidelines for measuring individual- and population level deficiencies (Abdul-Rahaman and Agble, 2012).

The Ghana School Feeding Programme (GSFP) a national policy intervention expected to provide quality and nutritious food to beneficiaries, lacks adequate nutrition standards to guide implementation (Abdul-Rahaman and Agble, 2012). A review of the GSFP by Abdul-Rahaman and Agble revealed that with the exception of one district, the menus of all the GSFP districts reviewed did not have quantities attached to them. On average, only half of the schools followed the menus. The study also found limited information on quality and quantity of food served in the

schools and absence of nationally established nutrition guidelines for standard measures to determine the quantity of ingredients to be used per child per serving. There were weak or non-existent mechanisms in place for monitoring activities of caterers to ensure that menus are being followed and the right quantities are being served. There are no known interventions to improve the nutritional status of school-age children currently being implemented in the country.

### **2.6.1 Nutrition Standards in Schools**

Nutrition standards is a collective term for the nutrition goals including nutrients and other dietary components that are required as well as those that are recommended for the promotion of health and well-being of an individual or group of individuals (Stallings and Taylor 2008). The type of foods sold in and around schools can present a major setback to fighting the ever-increasing prevalence of obesity among students. Nutrition standards serve as model for shaping eating habits of students in several settings. There is some evidence suggesting that nutrition standards if well enforced at the national or school levels can serve as an effective regulation of unhealthy food environments and hence reduce the risk of people to obesity and diet-related NCDs. Improving nutrition standards in schools is key strategy to improving healthy food environment thereby reducing risk of obesity and non-communicable diseases (L'Abbé et al., 2013). It has been reported in other jurisdictions that strengthened nutrition policies in most schools can contribute to healthy food environment and limit the availability of foods high in fat, sugar and salt leading to reduction in obesity and diet-related NCDs (L'Abbé et al., 2013). However, across countries, there are challenges in implementing such policies (Reeve et al., 2018). For instance, the Global recommendations for non-communicable disease (NCD) prevention, including the Global Action Plan for NCDs (WHO 2013) and the Rome Declaration on Nutrition and Framework for Action - 2014 (WHO 2016) have consistently called for intensified action on nutrition in school settings. The WHO's 'Report of the commission on ending childhood obesity' (2016) recommends establishing standards for meal provision to meet nutrition guidelines, eliminating unhealthy foods from the school environment and establishing mechanisms to safeguard public health from

conflicts of interest (WHO 2016). School -based interventions promoting consumption of healthy food and non-alcoholic beverages are frequently reported to be among the most cost-effective diet-related approaches to NCD prevention (Gortmaker et al., 2011). However, implementation of recommended policies for healthy food provision in schools has either been absent, inadequate, or inconsistent globally (WHO, 2013). A study by L'Abbe et al., (2013) reveal that in most public settings including schools there are no nutrition standards in place with little information on nature of foods offered for sale in these schools. The situation is even worse in developing countries such as Ghana. A study by Laar et al., (2019) to investigate Ghana's policies towards creating healthy food environment found no published evidence of nutrition policy or standards by government in schools or other public settings for food service activities to ensure the provision and promotion of healthy food choices. Similarly, the Food and Agriculture report on 33 low and middle-income countries indicated wide disparities in the existence of Nutrition Guidelines and Standards (NGS) for school meals. In that report, Ghana was among 8 countries that were in the process of developing an NGS for school meals. Benin and Kyrgyzstan had no nutrition guidelines or standards for school meals at all (FAO 2019). However, the Ghana government since 2005 has been implementing the School Feeding Program (GSFP), a well-coordinated, decentralized intervention providing disadvantaged school children with one hot nutritionally adequate, locally produced meal per child for every school going day (FAO 2019). Despite several years of its operation, there has been limited information on available nutrition standards guiding the caterers and nutrition officers in charge of GSFP (Laar et al 2019).

## **2.7 Summary of Literature Reviewed**

The food environment is a very broad area with various aspects including the school food environment which in turn comprise various perspectives. Therefore, research in this area can hardly be exhaustive. In more developed countries especially USA, Canada, Australia, Germany and United Kingdom, enormous research has been conducted and continue to be conducted to provide a better understanding of food environment and its influence on dietary practices and

health outcomes. Thus data, information and knowledge abound in those jurisdictions which informed various policy interventions. The data and information are largely country and jurisdiction specific. Much as these data and information serve as useful background information and reference, same may not be applicable wholly to the Ghanaian context. There is therefore the need for Ghana specific data through research.

A review of literature revealed an increasing research interest in school food environment in Ghana. Studies in this area is still emerging, there still exist significant information gap in the subject area. For instance, most of the Ghanaian studies reviewed looked at the food environment generally with a few focusing on school food environment. Literature and knowledge on school food retail environment and the food outlet density in and around schools in Ghana are virtually non-existent or scarce. Similarly, information on nutrition standards in Ghanaian schools is scanty (Abdul-Rahaman and Agble, 2012; Laar et al 2019). Understanding the school food retail environment and nutrition standards is very important because research, including Walker et al., (2010) revealed an association between school food retail environment and health-related behaviours and health outcome. An insight into the subject matter will provide empirical basis for country specific policy response.

The current study attempts at contributing towards bridging the existing literature and knowledge gap that will provide a better understanding of the subject matter with the ultimate aim of providing the relevant data and information for policy considerations.

## CHAPTER THREE

### METHODOLOGY

#### 3.0 Methodology

This chapter focused on the procedures adopted in carrying out the study. These include the study design, study site, variables, study population, sample size, sampling method, data collection techniques and tools, quality assurance, data processing and analysis, ethical considerations.

#### 3.1 Study Design

The study design adopted for this research was a description cross-sectional study. A quantitative data collection approach was adopted to ascertain the number of food retail outlets by measuring 250m outwards from each school marked for the study following road network that leads to the school and capturing all the food outlets along the road. Type of outlets, type of business, operating days and time, and types of foods and beverages sold were ascertained.

A qualitative data approach was also used to ascertain the availability of nutrition standards in all the selected school using an in-depth interview involving key personnel in each school.

#### 3.2 Study Area

The La Nkwantanang-Madina Municipality is located in the Greater Accra Region of Ghana. It was created in 2012. It was carved out of the Ga East Municipality. The municipality covers a total land surface area of 70.887 square kilometres with a population of 111,926 representing 2.8 percent of the region's total population. The population of the Municipality is youthful, about 38.7% and has an adolescent population of 21,441 (Ghana Statistical Service 2014). The Municipality is bordered on the West by the Ga East Municipal, on the East by the Adentan Municipal, the South by Accra Metropolitan Area and the North by the Akwapim South District. La Nkwantanang Madina Municipality is generally urban (84 percent). The Municipality has forty-

three (43) public primary schools and thirty-seven (37) public Junior High Schools (JHS). The total primary school enrolment is 15,826. The junior high school enrolment is 8,596 (Enrolment data GES-EMIS 2017-2018).

### **3.3 Variables**

The variables were categorized into outcome/dependent variable and explanatory/independent variables

#### **Outcome variables of interest**

- Number of food retail outlets
- Availability of nutrition standards
- Attributes of food retail outlet
- Proximity of retail outlets
- Types of meal (food, snack and beverages) sold by food vendors within or near the school

### **3.4 Study Population**

The study was conducted among selected basic schools within La Nkwantanang-Madina Municipality.

#### **3.4.1 Inclusion criteria**

Public basic schools (primary and junior high schools) were included in the study. It also included key school administration officials expected to have adequate knowledge about food policy and nutrition standard in the school. Also, outlets that were within 250meters along road network from the schools were included.

#### **3.4.2 Exclusion criteria**

Private basic school (primary and junior high schools) were excluded from the study. Also excluded in the study were outlets outside the 250meters road network buffer.

### 3.5 Sample Size

The sample size comprised of 15 key informants from 15 selected schools. Four hundred and sixty-eight (468) food retail outlets were identified around the 15 schools. All identified food retail outlets were included in the study.

### 3.6 Sampling Method

This study is nested in a larger study, the MEALS4NCDs study. The unpublished protocol of the main study is available (Laar et al 2020). Briefly, the study deployed a multistage sampling approach to select the study geographic region, districts, and the main Primary Sampling Units (PSUs) – public basic schools. The first stage of the sampling process entailed purposive selection of the Greater Accra Region, which hosts the national capital. It is the most urbanised and most marketed region of Ghana. The region is sub-divided into 16 administrative districts categorized as Metropolitan, Municipal, and Districts Assemblies (MMDAs). A representative sample of six districts was selected using both probabilistic and non-probabilistic sampling approaches.

The Accra Metropolis was one of the six districts selected. In each of the six districts, the required number of basic schools was selected using the probability proportional to size principle, with size being defined as the number of pupils in the school. Following this, schools in the two strata of rural and urban were further stratified as primary, or junior high, sorted based on roll size and systematic random sampling applied in their selection. According to the records of the Education Management Information System (EMIS) of the Ghana Education Service, the LaNMMA had a total of 80 public primary schools, and public junior high schools, with a total enrolment of 24,422 students in 2018 (GES, 2018). 31 schools were included in MEALS4NCDs study. However, 15 schools which were randomly selected were used in this study. Heads of schools and where Heads were not available Assistant Heads were purposively selected to provide key information about the availability of school's food policy and nutrition in each school. These respondents were selected because they are in a better position to have adequate knowledge on school policies,

regulations and their implementation. A census was used to enumerate all food retailers operating within the selected basic schools. One respondent from each food retail outlet were interviewed.

### **3.6.1 Sampling and mapping of food provision and food retail outlets within stipulated school zones**

We conducted a census of all food provision and food retail outlets inside the selected schools and a 250m road network buffer around all selected schools. This mapping exercise geo-locate all kinds of outlets categorized as supermarket, convenient/provision shop, kiosk, food stall/stand, table top, restaurant, chop bar, cold store, open market, bakery . Supermarket is a self-service food retail outlet (with accessible aisles to customers) that has at least 1 staffed checkout aisles or cash registers. Customers pick up items to be purchased and pay for them at either 1 or more checkout points. Convenient/Provision shop is a staff-service food retail outlet that has no accessible aisles to customers. Customer identifies or mentions food item to be purchased and the item is picked up for customer by staff. Usually bigger than kiosks and made from containers, or situated within private homes or buildings. Kiosk is a small enclosed wooden structure that can have either side open for retail. Food stall/stand is a partially enclosed (sides uncovered) wooden structure similar to a kiosk. Table top is a food outlet that has items displayed on tables. Restaurant is a formal eatery that provides a variety of prepared foods ranging from traditional to continental. Usually enclosed with sitting areas within the facility. Kitchen facilities are usually out of site. Chop bar is an informal eatery that typically serves freshly prepared traditional Ghanaian dishes such as banku, tz, fufu, ampesi with soups and sauces. Structure may be partially or completely enclosed but the kitchen/food preparation area is usually in sight. Cold store is a refrigerated room/building or a store that contains a refrigerated storage for the preservation and sale of food products needing refrigeration, for example unprocessed meats, unprocessed fish, etc. Open Market is a large open space/area for buying and selling of food products and other retail items. Typically has a variety of food vendors displaying different food items in different outlet types, but usually in food stalls,

food stands and table tops. Bakery is a food outlet that produces and sells mainly flour-based food products such as bread, cakes, pastries, cookies, etc. These definitions are adopted from the MEALS4NCDs study (Laar et al 2020).

### **3.7 Data Collection Techniques and Tools**

Interview guide was used to collect data from key informants that is school administration officials, whereas structured questionnaire was used to collect data from food vendors. The questionnaire was administered by trained research assistants. The school food retail environment was assessed by mapping and listing food outlet within 250m along road network of schools. Food retail outlets were categorised based on type of food sold. For nutrition standards, interview guide was used to collect data from key informants drawn from the schools. Participants were contacted through phone calls. Initial calls were made to schedule time with participants based on their convenience. Subsequently, participants were contacted at the scheduled time by the researcher or research assistant. Responses were elicited and recorded using a recorder. Where necessary, the researcher took down notes in the researcher's notebook. The data was subsequently transcribed, cleaned and coded.

### **3.8 Quality Assurance**

In order to ensure and assure quality, the research assistants were trained. The training was focused on ethics on data collection including confidentiality, privacy, voluntary participation, vulnerability of population among others. They were also trained on the necessary knowledge and skills needed for the collection of data and data integrity.

Pre-testing of questionnaire and other data collection tools was conducted prior to the commencement of the actual data collection. The pre-testing was carried out in a school within the

neighbouring Ayawaso West Municipality which has similar characteristics to the schools in LaNMMA. The essence of the pre-testing was to check the validity and reliability of the data collection tools. The pre-testing helped clarify the adequacy of the questions as well as estimate the approximate time for each questionnaire or interview. After the pretesting, the tools were reviewed, and the necessary corrections made and fine-tuned in readiness for the actual study.

Data was collected by the Principal Investigator and trained research assistants. During data collection there was regular monitoring to ensure that data collection tools were properly applied and also ensured compliance with ethical requirements. After the data collection, data was cleaned, and incomplete questionnaires were excluded from the study. This was to ensure data integrity. The data was entered in an excel spreadsheet and exported into SPSS version 20. Programmed error checks and cleaning were done to reduce data entry errors.

### **3.9 Data Processing**

Daily editing of the questionnaires was done on the field to fill or avoid technical omissions, clarify illogical or conceptually inconsistent responses on the questionnaire to ensure they were completed, consistent and reliable. The questionnaires were coded, and data entered into MS Excel version 16 computer software. In the data base, data entry errors such as inaccurate, incomplete, and other irrelevant data were identified and corrected or omitted.

### **3.10 Data analysis**

The data base from Microsoft Excel were exported to SPSS version 20 to process the data to identify patterns and trends for interpreting qualitative data for the study. Data from census and attributes of food retail outlets were classified into supermarket, convenient/provision shop, kiosk, food stall/stand, table top, restaurant, chop bar, cold store, open market, bakery. The results generated on the variables were analysed using counts and percentages and presented by frequency tables and charts.

With the qualitative data on nutrition standards, the proceedings of the interviews were recorded, and verbatim transcriptions done. Windows version 12 software was used to organize the data into codes and themes based on the research questions. Qualitative content analysis method was used to analyse the data. Themes that were linked were brought together to complete thematic analysis processes. Quotes from relevant themes were summarized. The results were presented as direct quotes.

### **3.11 Ethical Considerations**

Ethical clearance was obtained from the Ghana Health Service Ethics Review Committee (GHS-ERC) and administrative permissions from the regional and district offices of the Ghana Education Service as well as from the authorities of all participating schools and food retailer around the study vicinity.

#### **3.11.1 Informed Consent**

Informed consent was obtained from all respondents who participated in the study. In all instances where permission or consent was declined, the particular school or respondent was excluded from the study.

#### **3.11.2 Voluntary Participation**

Respondents were informed about their free will to participate or not. Informed consent forms and approval letters from education authorities were used to validate voluntary participation. Participants were not under any compulsion to participate and were allowed to withdraw voluntarily from the study at any given point.

#### **3.11.3 Confidentiality**

To ensure confidentiality of participants' information, the questionnaire was coded, and names or identifiers of participants were excluded from the questionnaire. Also, completed questionnaires were securely kept under lock and key. And other electronic data generated from the questionnaires

was saved in password protected folder and only accessible to the principal investigator (PI) and supervisor.

#### **3.11.4 Conflict of Interest**

The researcher declares no conflict of interest and has no direct benefit from this study.

#### **3.11.5 Compensation**

Participants were not compensated for taking part in the study and this was made known to them prior to their participation.

#### **3.11.6 Possible Risks and Discomforts:**

This study posed minimal risk to the respondents. The time that was spent in responding to the questionnaire could be stressful and inconveniencing to some respondents and to mitigate this, the questions were crafted in simple, straight forward and less intrusive manner. Another possible risk to respondents and the research team (Research Assistants, Data Entry Clerks and PI) was the spread of and/or contracting the Corona Virus disease (Covid-19). To mitigate this, all Covid-19 prevention protocols including social distancing, use of recommended nose masks and use of sanitizers were strictly adhered to. Where practicable phone calls were relied on to collect data.

#### **3.11.6 Funding**

The researcher self-funded the project. The field work component of the study was supported by the MEALS4NCDs Project.

## CHAPTER FOUR

### RESULTS

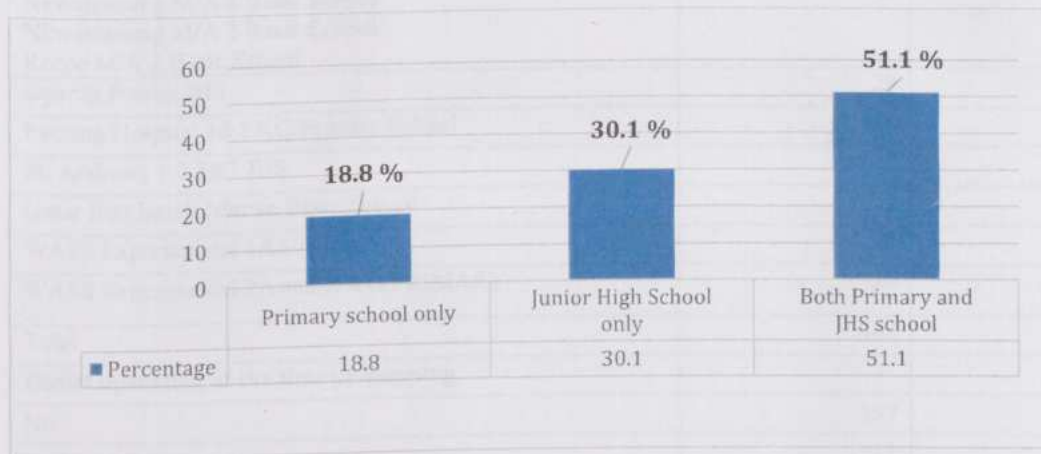
#### 4.0 Introduction

This chapter presents analyses of both the quantitative and the qualitative data and puts forward the findings of the study. The analysis covered the background characteristics of participating schools, census of food retail outlet, attributes of food retail outlets and availability of nutrition standards in schools.

#### 4.1 Background attributes of participating schools and respondents

The participating schools were 15 in number and were classified as Primary School only, Junior High School only and both Primary and Junior High Schools (Basic Schools). Majority (51.1%) of food retail outlets were located around basic schools, 30.1% were only Junior High School whilst 18.8% were only Primary School as shown in Figure 2 below.

**Figure 2: Type of School**



#### 4.2. Census of Food Retail Outlets

The study identified a total of four hundred and sixty-eight (468) food outlets around the 15 selected school within the La-Nkwantanang Madina Municipality. These outlets were located within 250 meters along road networks around participating schools. Fourteen percent (14%) of the outlets were located around Madina SDA JHS, followed by Baba Yara Community 2

KG/Primary (13.9%), Nkwantanang M/A 8 Basic School (12.6%), Umar Bun Hatab Islamic Basic School (12.2%). The rest of the schools each contributed between 9% and 1.5%. Also, at the time data collection that is from Monday to Friday, between 8am and 5pm daily, majority (257) representing 54.9% of the outlets were not operating, close to half, 211 (45.1%) were operating. Some of the schools were in a cluster and shared the same outlets. Nkwantanang M/A 8 Basic School, Nkwantanang M/A 2 Basic School and Redco M/A 2 Basic School were in the same cluster and share the same food vendors whereas Madina SDA JHS and Madina S.D.A KG & Primary shared the same food outlets. The details are contained in Table 1 below.

**Table 1: Census of food retail outlet**

Name of school	Number of food outlets	Percent (%)
Ayi Mensah M/A Basic School	41	8.8
Baba Yara Community 2 KG/Primary	65	13.9
Danfa Methodist B Basic School	39	8.3
Madina SDA JHS Madina S.D.A KG & Primary	68	14.5
Madina Fire Armour 1 Basic School	44	9.4
Nkwantanang M/A 8 Basic School Nkwantanang M/A 2 Basic School Redco M/A 2 Basic School	59	12.6
Oyarifa Presby JHS	29	6.2
Pantang Hospital 1&2 KG/Primary School	8	1.7
St. Andrews 1,2,3&7 JHS	19	4.1
Umar Bun Hatab Islamic Basic School	57	12.2
WASS Experimental 1&2 JHS	23	4.9
WASS Experimental 2A and B KG/PRIMARY	16	3.4
<b>Total</b>	<b>468</b>	<b>100</b>
<b>Outlet operating at the time of mapping</b>		
No	257	54.9
Yes	211	45.1
<b>Total</b>	<b>468</b>	<b>100</b>

### 4.3 Attributes of food outlets

#### 4.3.1 Background Characteristics of Outlets

The research results showed that 467 (99.8%) of the food outlets were located out of the schools' premises. Only one (0.2) was located inside the school.

Out of the 211 outlets operating at the time of data collection, majority (185) representing 87.7% of persons who operated the food outlets were females only, 20(9.5%) males only and 6(2.8%) were both males and females. In terms of type of business ownerships, 208 (98.6%) were individually owned whereas 3 (1.4%) were partnerships. As to how long the food outlets operated, those that were in operation for more than five years were 83 (39.3%). Fifty-one representing 24.2% of outlet were in operation for just one year, 27(12.8) for two year, 20(9.5%) for three years, 8(3.8%) operated for four years and 5(2.4) operated for five years. Seventeen, representing 8.1% could not tell how long they operated. Furthermore, 210 (99.5%) of the outlets provided assisted services whereas only 1 (0.5%) provided self-service. As far as licensing of the food outlets was concerned, the study revealed that only 95 (45%) of the outlets were licensed whereas majority 166 representing 55% were unlicensed. Out of the 95 licensed outlets, 67 (65.7%) were licensed by the Accra Metropolitan Assembly and the remaining 28(34.3%) were licensed by the La-Nkwatanang Madina Municipal Assembly. Also, only 101(47.9%) of the outlets provided sitting or convenient area for consumption of bought items whereas majority 110(52.1%) did not have that service. The outlets operated from Monday to Sunday with 99.1% operating on Monday, 98.1 operating on Tuesdays, Wednesdays and Thursdays, 86.7% operated Saturday whereas 46.9% operated on Sunday. The above findings are summarised in Table 2 below.

**Table 2: Background Characteristics of Outlets**

Location of food outlet	Frequency	Percentage
Inside school premises	1	0.2
Outside school premises	467	99.8
<b>Total</b>	<b>468</b>	<b>100</b>
<b>Food outlet operator's sex</b>		
Male	20	9.5
Female	185	87.7
Male and Female	6	2.8
<b>Total</b>	<b>211</b>	<b>100</b>
<b>Business Ownership Type</b>		
Individual	208	98.6
Partnership	3	1.4
<b>Total</b>	<b>211</b>	<b>100</b>
<b>Duration of outlet operation</b>		
One year	51	24.2
Two years	27	12.8
Three years	20	9.5
Four years	8	3.8
Five years	5	2.4
More than five years	83	39.3
Don't know	17	8.1
<b>Total</b>	<b>211</b>	<b>100</b>
<b>Type of Service</b>		
Self-service	1	0.5
Assisted service	210	99.5
<b>Total</b>	<b>211</b>	<b>100</b>
<b>Food outlet licensing status</b>		
Formal [Licensed to provide/sell food]	95	45
Informal [Self organized unlicensed food provision outlet]	166	55
<b>Total</b>	<b>211</b>	<b>100</b>
<b>Licencing Authority</b>		
AMA Certificate	67	65.7
LaNMA District Certification	28	34.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Sitting/Convenient area available for consumption of bought item</b>		
No	110	52.1
Yes	101	47.9
<b>Total</b>	<b>211</b>	<b>100</b>
<b>Days of Operation</b>	<b>N=211</b>	<b>Percentage</b>

	Frequency	
Monday	209	99.1
Tuesday	207	98.1
Wednesday	207	98.1
Thursday	207	98.1
Friday	209	99.1
Saturday	183	86.7
Sunday	99	46.9

### 4.3.2 Types of Outlets

Convenience/provision shop were 187 representing 40% of outlets, table tops were, 99(21.2%), food stall/stand, 79(16.9%), kiosks 29(6.2%), chop bar 14(3%), restaurant 8(1.7%), cold store 5(1.1%) and supermarkets, 2(0.4%) in that order. The details are contained in Table 3.

**Table 3: Type of outlets**

Type of Outlet	Frequency	Percent (%)
Supermarket	2	0.4
Convenience/provision shop	187	40.0
Kiosk	29	6.2
Food stall/stand	79	16.9
Table top	99	21.2
Restaurant	8	1.7
Chop bar	14	3.0
Cold store	5	1.1
Open market	6	1.3
Bakery	4	0.9
Other	8	1.7
Drinking Spot	15	3.2
Drinks/Water Depot	12	2.6
<b>Total</b>	<b>468</b>	<b>100</b>

### 4.3.3 Type of Food and beverage sold

As shown in Table 4 below, out of 211 outlets, 113 representing 53.6% of the outlets sold sugar, Sugar Sweeten Beverages (e.g., Fanta, Sprite, and Coca cola), constituting majority of foods and beverages sold. Other sugary foods (e.g. Ice-cream, cake, candy) excluding SSB Sugar accounted for 86(40.8%). Fifty-six (56) representing 26.5% sold sweetened canned fruits /fruit juice with

added sugar (e.g. Don Simon Fruit juice), 52 (24.6%) of outlets sold cooked/Mixed Dishes (eg. Waakye, jollof rice, red red, Apapransa, kpokpoi, fried rice, stirred fried noodles, banku), 42(19.9%) sold snacks (e.g. Savoury crackers, Crisps, sweetened popcorn, salted popcorn, cassava crisp, plantain crisp (chips), 17(8.1%) sold fresh fruits (e.g. Mango, Orange), while 8(1.7%) sold unsweetened canned/packageged fruits or fruit juice (e.g. Blue Skies fruit juice), 17(8.1%) sold alcohol whereas 149(70.6%) sold other products.

**Table 4: Type of Food and beverage sold**

Type of Food	N=211	
	Frequency	Percentage
Sugary foods (e.g. Ice-cream, cake, candy) except SSB	86	40.8
Sugar, Sugar Sweetened Beverage (e.g. Fanta, Sprite, Coca cola)	113	53.6
Fresh fruits (e.g. Mango, Orange)	17	8.1
Unsweetened canned/packageged fruits or fruit juice. (E.g Blue Skies fruit juice)	8	1.7
Sweetened canned fruits /fruit juice with added sugar (e.g. Don Simon Fruit juice)	56	26.5
Fresh vegetables/unsalted canned vegetables (e.g. Cucumber, carrot, onion)	34	16.1
Canned vegetables with added salt	19	9.0
Snacks (e.g. Savoury crackers, Crisps, sweetened popcorn, salted popcorn, cassava crisp, plantain crisp, (chips)	42	19.9
Sweet biscuits and cakes	87	41.2
Salted foods (e.g. salted nuts and salty snacks)	42	19.9
Whole grain bread or cereal with no added sugar	52	24.6
Refined grains and refined grains products (e.g. White bread, white rice)	84	39.8
Fresh Fish, Meat, egg	39	18.5
Processed Fish, Meat, Chicken products	76	36.0
Cooked/Mixed Dishes (eg. Waakye, jollof rice, red red, Apapransa, kpokpoi, fried rice, stirred fried noodles, banku)	52	24.6
Alcohol	17	8.1
Other (house koko and 'kose', locally prepared beverages e.g. sobolo, hot beverages e.g. tea, boiled/roasted corn, roasted yam, roasted plantain)	149	70.6

#### 4.4. Availability of nutrition standards in schools

The study sought to establish the feeding options in schools, availability of nutritional standards, respondents' understanding of healthy and safe foods as well as respondents' perception of healthiness safety of foods sold by vendors within school premises.

#### 4.4.1. Feeding options available in schools

The study identified the following feeding options; food vendors within the school premises, the regular National School Feeding Programme (NSFP) for primary level pupils, free meals provided for second and third (final) year JHS students under a Government of Ghana sponsored Covid-19 intervention, lunch box and food vendors outside the schools' premises. There was only one school that had school-organized canteen. Patronage of these feeding sources varied according to the level of the students. Patronage of the NSFP was reported to be high among primary level students especially lower primary, patronage of food vendors was high among upper primary and JHS level, students at both Primary and JSS brought packed lunch in lunch boxes from home. But number of students who brought packed were relatively small at both levels. Also patronage of NSFP among the second and final year JHS students during the Covid-19 era when government provided one hot meal for students was high. Below are typical responses from informants.

Below are examples of typical responses from the informants:

*"When school was in full session, the lower primary, that is from KG to primary 3 pupil patronised food provided by NSFP more. The upper primary i.e. primary 4 -6 don't like the NSFP food. I don't know whether people laugh at them for going for 'abine' they call it 'abine'. May be it is due to peer pressure. JHS students prefer food from food vendors. In terms of percentage it will be 50/50 because the upper classes in the primary usually patronize food from vendors so if you add them to the JHS you see it will be 50/50. Those who bring food from home are in the least."* (Headmistress of a Primary/JHS)

*"The students patronise the NSFP more. About 25 -30% buy food from vendors and 65-70% patronise food from the school feeding programme."* (Headmaster of a KG/Primary school)

*"About 90% patronize food provided by NSFP the rest buy from vendors."* (Headmistress of a KG/Primary school)

*"Percentage of students who buy from vendor is roughly 30%, only few buy from vendors but majority depend on school feeding".* (Assistant Headmistress of a KG/Primary School)

*"We are not on the NSFP. The school runs its own canteen for the lower primary that is from Kindergarten to primary 3. Almost all of them buy food from the School Canteen. There is also an open market called the bush canteen, the upper primary to JHS students buy food from those vendors before the Covid-19 outbreak. Some, about 5% also brought food to school. But during the Covid-19 era the government provided food for the second and final year JHS students and all the students patronise that food"* (Headmistress of a KG/Primary/JHS)

#### **4.4.2 Availability of Nutrition Standards**

Out of the 15 respondents interviewed, none had in place nutrition standards to regulate food retailing in schools. However, when informants were asked whether the schools regulated food retailing within school premise all informants indicated that food retailers were regulated. All the schools had guidelines in regulating food retailing although these guideline are not written. The regulatory approach was generally similar across schools. The following were typical responses given by the informants;

*"We do not have any documented standards or guidelines. But we have SHEP coordinators who monitor to ensure that food sold to students and even food served by the NSFP caterers are healthy, safe and hygienic. They check the quality and quantity of the foods before it is served. But there is no documented standards"*. (Headmaster of a KG/Primary/JHS)

Another informant states;

*"No please we don't have nutrition standards, we just use our layman understanding to determine what to be sold and what not. We do not have a written document but we have our dos and don'ts which our SHEP coordinator and her team enforce. For instance, we do not allow the sale of certain foods such as soft drinks, candies sweets etc. we don't also allow the sale of cold foods and drinks such as 'sobolo' and ice cream in the morning you know these are children and taking cold foods in the morning is not good for their health."* (Headmistress of a KG/Primary/JHS)

One other informant said; *"We really do not have nutrition standards but we ask the vendors to prepare something nutritious and we monitor them to ensure that the food they sell contains balanced diet and is healthy and safe. But we do not have a written or standardised document."* (Headmistress or KG/Primary/JHS)

*"No, we rely on our personal understanding of what food is healthy to do the regulation"* (Headmistress of a Primary/JHS) was yet another typical response.

In all the schools, food vendors required a vending permission before they can operate. The procedure for obtain permission was generally similar across the schools. The prospective vendor needs to produce a vending permit (licence) from the local Assembly and also that the food and or beverages to be sold was not already being sold by an existing vendor as reflected in the following responses;

*"When the vendors come, first we establish whether the food the person wants to sell is being sold by someone else. If yes then we cannot grant permission. If no one sells that food, we ask the person to go to the District Assembly for a health certificate. If the person brings the health certificate then we allow her to sell" (Headmaster of a KG/Primary school).*

*Another informant states thus, "They first have to notify the school that they want to sell and we find out the type of food they want to sell, then we asked them to go for health screening before they are allowed to sell. Usually they will have to go to the Assembly - La-NMMA for the health screening and health certificate" (Headmistress of a KG/Primary school). The health certificate being referred to is the vending permit or licence granted by the local Assembly*

#### **4.4.3 Enforcement of School Guidelines**

In all the schools, enforcement of guidelines were done by Schools' SHEP Coordinator solely or as part of committee set up by the school. Enforcement is done through monitoring and application of sanctions. The District SHEP Coordinator and the Circuit Supervisor both from the Municipal Education office also conduct monitoring. Informants were asked whether there was enforcement of guidelines, the answer was yes for all of them. When asked further how enforcement was done, the following responses were given by individual informants;

*"Yes we regulate the vendors somehow. But we don't have a written document. We have an in-school SHEP coordinator who monitors to ensure that vendors sell only healthy food and under safe and hygienic environment." (Headmistress of a Primary/JHS)*

*"We monitor them. We at times even have the high ranking officials like the Circuit Supervisor and the District SHEP Coordinator come around on monitoring. During monitoring they at times will taste the food and where there is the need, the vendors are asked to improve upon the food." (Headmaster of a KG/Primary/JHS)*

*"We monitor all vendors including the NSFP Caterers. With the NSFP Caterers, they have been provided with a menu so we monitor to ensure that the menu is adhered to. So we enforce the*

*Menu. We inspect the food everyday even at times the circuit supervisor comes around to check the food.*" (Headmistress of a KG/Primary school)

*"There is a team comprising of the SHEP Coordinator, the girls and boys prefects and the prefect in charge of sanitation i.e. compound representative".*(Headmaster of a KG/Primary/JHS)

*"There is a Headmistress in-charge, she ensures that vendors comply with school's directives. But if there is any challenge she brings it to our attention and for discussion. When people want to come sell, they apply to her. She interviews them and select the most suitable"* (Assistant Headmistress of a Primary/JHS)

*"We have in place a monitoring Committee headed by our school SHEP coordinator and the committee serves as some sort of a check. Because the vendors know the SHEP team members, at times the committee members rather send students unannounced or covertly to purchase some of the foods which is being served so the committee can get to know the true reflection of what is available in the market for sale to the students. Thus, the SHEP team has a way of checking the nutritional value and others so they can also make recommendations."* (Headmistress of a KG/Primary school)

As a means of regulating food retailing, majority of the schools prohibit the sale of certain foods and beverages which were perceived to be unhealthy. Below are some responses from key informants regarding the prohibition of certain foods;

*".... Like I said we don't allow the vendors to sell certain food and snacks, e.g. we don't allow the sale of toffee, sweets etc. But we don't have a written down document"* (Headmistress of a KG/Primary school)

*"Yes. We do not allow the sales of sweets and locally prepared beverages because we don't know the content of these beverages, how and where they were prepared. But the children at times go to the houses and shops around to buy toffees and sweets which we have no power to regulate"* (Headmistress of a KG/Primary school)

*"Yes, we prohibit sales of unhealthy foods. For instance we don't allow the sales of sweets, sugary drinks etc. We allow only one Ice Cream Vendor who sells only Fan milk products and he is permitted to come at certain period of the day that is only in the afternoons, we will not allow him to come in the morning. If the students are taking sweets at all then it is from vendors away from the school's vicinity"* (Headmistress of a KG/Primary school)

As far as the promotion of sale of healthy foods are concerned, some schools indicated they had a deliberate guidelines and directives to encourage the sale of healthy foods whilst others schools do not have such guidelines as showed in the following responses;

*"Yes, we encourage the sale of the staples foods such as Waakye, banku, rice and also fruits"*  
(Headmistress of a JHS)

*"Yes encourage the sale of healthy foods such as fruits, and food such as waakye, red-red, rice with stew etc."* (Headmistress of a Primary/JHS)

*"If you come here to sell food we investigate the type of food you are going to sell. So for instance we don't entertain the sale of ice cream and other sweets but foods like waakye/rice & beans, banku and stew are healthy foods which we encourage"* (Headmaster of a Primary/JHS)

Regarding compliance with schools' guidelines and directives, all the schools reported high level of vendor compliance as indicated below;

*"Compliance is high, I will say between 70-80%"* (Headmaster of a KG/Primary school)

*"Compliance is almost 100%"* (Headmistress of Primary/JHS)

Only three schools reported an incident of non-compliance;

*"Once, a food vendor was selling toffees, she always hid the toffees under her table. Some of the students reported her and the items were seized"* (Headmaster of a KG/Primary school)

*"A food vendor was giving out her mobile phone to students to make calls. So she was banned from selling in the school"* (Headmistress of a KG/Primary/JHS)

*"A food vendor was selling cold drink such as sobolo and fanta. When this was discovered she was banned from selling within the school premises."* (Headmistress of a KG/Primary school)

The schools reported various sanctions in the event of non-compliance. The vendor may be advised and directed to remedy the defect, or ban from sale of the prohibited item, suspension of operation, outright ban from selling in the school, seizure of prohibited item. Also, the school children are warned not to buy from the vendor. Below are typical responses;

*"If any vendor fails to comply, she will be stopped from selling in the school."* (Headmistress of a Primary/JHS)

*"If we find problems with any vendor we will advise her to correct the mistake, if she fails we will ban her from selling"* (Headmistress of a JHS)

*"We may seize a prohibited item or advice the student not to buy from the vendor"* (Headmaster of a KG/Primary school)

#### **4.5 Informants perception of healthiness and safety of food and beverages sold or provided by food retailers.**

The foods sold by the vendors within the school premises were perceived to be healthy by the Key Informants. When asked why informants perceived the food to be healthy, below were some reasons given per their responses;

*"Yes, the food provided by vendors is healthy, the meal is balanced. It is just like what we eat at home, it is okay. It is nothing different from home food. The food include Kenkey with fish or chicken, banku, rice, waakye, fried yam etc."*(Headmistress of a KG/Primary/JHS)

*"Presentation is neat, surrounding is neat, and quality of food is good. I have two teachers that is the SHEP coordinators who check on the quality of food daily. So they look at the appearance, they also taste the food. The teachers alternate."*(Headmistress of a KG/Primary/JHS)

*"Yes, it is healthy, the food is nutritious. We have the SHEP coordinator who is charge and together with the school prefect she monitors the vendors to ensure that they provide healthy food. Some of the foods they sell include waakye, banku etc."*(Headmaster of a KG/Primary/JHS)

Similarly, the foods provided by the NSFP were perceived to be healthy, the following reasons were given;

*"oooo the caterers of the NSFP vary their menu, at times they serve waakye and stew with egg, or Banku with okro stew with fish or with palm nut soup, or rice with gravy or vegetable or jollof rice all of these are healthy foods and are balanced diet."* (Headmaster of a KG/Primary/JHS)

*"You know it is a government programme so even before it is given to the caterer she knows what to do. They have various menu which is being monitored by the SHEP coordinators at the school and at the district level. So the food is healthy."*(Headmistress of a KG/Primary/JHS)

*"We taste the food. The vendors prepare some in a small ice chest for the teachers at the Primary level. Whatever they cook for the children they dish out some for the teachers. At least four teachers out of the six teachers eat the food every day so if there are health issues that will be identified and corrected. The teachers also inspect to make sure that everything is okay."*(Headmistress of a Primary/JHS)

The only school that operated a Canteen reported that the foods provided by the school's canteen were healthy;

*"The food provided by the canteen is healthy. The food is balanced and nutritious. The canteen serves both breakfast and lunch. The menu varies. For breakfast the menu include; milo, hausa koko, tom brown and so on and for lunch, banku, rice, that is various kind of rice."* (Headmistress of a KG/Primary/JHS)

The Key Informants also perceived the foods sold by vendors to be safe and hygienic

With respect to the safety of foods provided by the vendors, the following were responses from the Informants;

*"Yes the food is safe and hygienic. The vendors cover the food, they sweep around after every break time and they wash the dishes with clean water"* (Headmistress of a KG/Primary/JHS)

*"The food is prepared in the school and even the teachers also patronize the food. The surrounding environment is also clean"* (Headmistress of a Primary/JHS)

*"The children don't complain about the food, they eat and they are okay, if it was not safe there will be health issues. The last time I bought food and they serve me with vegetables, after eating I run badly, but we don't experience such occurrence with the students so the food is safe and hygienic"* (Headmistress of a KG/Primary school)

The following were responses given by some of the key informants regarding the safety of foods provided by the NSFP;

*"Yes, foods provided by caterers of the NSFP are safe and hygienic. The caterer has a place where she cooks the food which is close to the school so we monitor her regularly. The area where she cooks is clean and the food is served under clean environment. We make sure every food that she serves is healthy and safe."* (Headmistress, KG/Primary/JHS)

*"Yes it is safe. Where they prepare the food is not far from the school so we go there to monitor and inspect the environment and to ensure that the food is prepared under neat and hygienic conditions."* (Headmistress of a KG/Primary/JHS)

Foods provided by the only school with school-organized canteen was also reported to be safe and hygienic.

*"Ever since I came to this school I have never heard of any case of food poisoning so yes for now I will say the food is safe. As I said there is canteen which is within the KG premises. It is a complete house built with a kitchen, offices and a dining hall of a sort with arranged chairs. It also has wash rooms and changing rooms for the cooks. The food is served and consumed within. So the food is safe and hygienic."* (Headmistress, KG/Primary/JHS)

#### **4.6 Schools' perspective of the need for Nutrition Standards to regulate food retailing within premises**

When asked whether there was the need to develop nutrition standards to regulate food retailing in schools, all the key informants said yes. The following are some of the reasons given to justify the development of nutrition standards for schools;

*"Yes, it is very necessary to have nutrition standards in schools because it will help ensure that school children have access to healthy food, eat healthy food and remain healthy"* (Headmistress of a KG/Primary)

*Yes. Once we have a standardized nutrition standards. It will help in the monitoring and supervision. You know we have home economics tutors, they have knowledge in nutrition and they teach the children balanced diet at the JHS and even the lower level. A standardized nutrition guidelines will help in the monitoring."*(Headmistress of a Primary/JHS)

*"Nutrition standards will guide vendors on what to sell and under what condition. It will also ensure uniformity and consistency in the monitoring"* (Headmistress of JHS)

*"It will add to the value and quality of food being served to students."* (Headmistress of KG/Primary/JHS)

## CHAPTER FIVE

### DISCUSSIONS

#### 5.0 Introduction

This chapter discusses the findings of the study. The chapter is divided into three parts. These are census of food retail outlets, attributes of food retail outlets and availability of nutrition standards in schools.

#### 5.1 Food outlet census

The study revealed a total of four hundred and sixty-eight (468) food outlets along 250 metres road networks around the selected schools within the La-Nkwantanang Madina Municipality. Ogum-Alangea et al (2020) reported 77 food vendors within the 100-meter radius around five schools. The 250 metres approximates the distance that can be walked in 1 to 5 minutes, a comfortable amount of time for students to walk to and from food retailers during their lunch break. This study did not find any literature indicating a definitive or recommended number or concentration of outlets around schools. However, available literature suggests a strong relationship between the presence of food retailers near schools and students' eating behaviours (Ogum-Alangea et al 2020) and it has been shown that students in schools with 1 or more nearby food retailers were more likely to eat lunch at a food retailer compared to students with no nearby food retailers (Seliske et al 2013). Seliske et al revealed that 58% of students who ate from food retailers whilst at school was due to their exposure to 3 or more food retailers within a 1km walking distance from their school whereas 44.8% of students according to Ogum-Alangea et al (2020) purchased food outside school premises. There are also studies that suggest that unhealthy foods are sold around schools (Seliske et al 2013).

## 5.2 Attributes of food retail outlets

There are various attributes of food retail outlets. This study considered only the following; background characteristics, types of food outlets and types of food sold by outlets.

### 5.2.1 Background Characteristics of Outlets

At the time of data collection, all Ghanaian schools were closed down due to the Coronavirus (Covid-19) outbreak, only second and third (final) year JHS students were in school. Majority (99.8%) of the outlets were located outside the premises of schools, only 0.2% of outlets were located within school premises. The situation was so because most food retail outlets were not operating due to the closure of schools. However response from key informants indicated that prior to the Covid-19 outbreak and subsequent closure of schools the NSFP was operating in 86.7% of the schools, food retail outlets operated within the school premises of 80% of the schools, food outlets operated outside the premises of 66.7% of the schools. The NSFP which originally covered only primary schools as the beneficiaries was extended to the second and final year JHS during the Covid-19 outbreak where students were provided with one hot meal a day. The NSFP Covid-19 intervention constituted 80%. Only 0.2% of schools reported of having a school-managed canteen. A study by Carter and Swinburn (2004) reported a similar low prevalence (15.5%) of school canteen. Also, this study found that majority 55% of the outlets/vendors outside the school premises were not licensed. Only 45% were licensed. On the contrary all food vendors within schools premises prior to the closure of schools were licenced. The licensing entails registration of businesses supplying food for sale as well as food hygiene certification for food vending staff. Licensing of food vendors is aimed at ensuring that only wholesome and safe foods are sold to consumers.

Other studies have shown that school-managed canteens and vendors selling foods within the school premises can easily be regulated and these outlets are said to provide healthier food options compared to vendors outside school premises (Pettigrew et al., 2018). This supports the study

finding where all (100%) of the vendors operating within the premises of school had licences compared with only 45% of vendors who operated within 250 metres along road network outside the school premises.

### **5.2.2 Types of food retail outlets**

Convenience/provision shop constituted 40% and majority of the outlets mapped with supermarkets constituting the least, 0.4%. A similar study on the school food environment around Californian schools by Howard et al. (2011) reported a 28.6% prevalence of convenience shops and 23.8% of supermarkets. The 40% of convenience shops reported in this study is higher than the findings of Howard et al whereas the figure reported for supermarkets in this study is lower than the figures reported by Howard et al. In terms of ranking however, convenience shops were the majority and supermarkets the least in both studies. Also, a report on the retail food sector in Ghana reported 36% of Convenience shops and 4% of supermarkets, (USDA Foreign Agricultural Report: GAIN REPORT 2017).

The proximity of convenience store to the school is of concerned because studies have shown that students frequently shopped at convenient/corner stores before and after school and were most likely to buy inexpensive sugar-sweetened drinks, chips and candy (Howard et al., 2011; Borradaile et al 2009). Also, Howard et al., found that the presence of a convenience store within a 10-minute walking distance of a school was associated with a higher rate of overweight students than schools without nearby convenience stores.

### **5.2.3 Type of Food and beverage sold**

The study revealed high prevalence of energy-dense foods; sugary, sugar sweetened beverages and other energy-dense and salty foods. Sugary foods (e.g. Ice-cream, cake, and candy), 40.8%, SSBs (e.g. Fanta, Sprite, and Coca cola) accounted for 53.6% and salty snacks (e.g. Savoury crackers, Crisps, sweetened popcorn, salted popcorn, cassava crisp, plantain crisp (chips) accounted for 26.5% of all foods sold. This finding is consistent with the findings of Ogum-Alangea et al (2020)

where energy-dense foods formed 46.6% of all food purchases. The study also found healthy foods sold by these outlets; Cooked/Mixed Dishes (eg. Waakye, jollof rice, red red, Apapransa, kpokpoi, fried rice, stirred fried noodles, banku) which accounted for 24.6% of food sold. Evidence from a study conducted by Kubik et al., (2003) suggest that children are inclined to consume healthy foods (e.g. fruits, vegetables, milk) less when they have access to energy-dense foods. A Ghanaian study revealed that 9.3% of pupils preferred to buy fruits compared to 45.6% who preferred to buy energy-dense foods during break time (Amfo-Ayeh 2011). Evidence by Ogum-Alangea et al (2020) also suggests that a significant number of students (44.8%) who have access to preferred purchasing foods outside school premises. Whereas MacDiarmid et al., (2015) found that 63% of students who have access to places selling food or drinks out of school at lunchtime actually made purchases. It has been established further that overconsumption of energy-dense, nutrient-poor (EDNP) foods plays a significant role in the development of childhood obesity, displaces healthy food choices and can lead to poorer micronutrient intakes and result in poor health outcomes (Woods et al 2014). Therefore, the high prevalence of energy-dense foods available in food outlets around schools found by this study must be given serious attention. There should be regulations to limit students' access to foods outlets outside but within the proximity of schools

### **5.3 Availability of nutrition standards for regulating food retailing around schools**

At the time of data collection, schools were closed down so only Heads of Schools were interviewed. Results among the Head of schools indicated the availability of the following outlets; vendors operating within the school premises constituting lunch boxes, school-organized canteen and vendors operating outside the schools' premises. Only one school had a school-organized Canteen where food was provided for only lower primary pupil that is from kindergarten to primary three. The study also found that majority of the students patronised food from outlets within the school (that is NSFP, Vendors within schools' premises and school-organised canteen) during the school week. A study by Seliske et al., (2013) reported a similar high figure of 67.7%.

The study found no nutrition standards in any of the participating schools. This is consistent with studies including Laar et al., (2019) and Abdul-Rahaman & Agble, (2012) that found no evidence of nutrition standards in Ghanaian schools. Ogum-Alangea et al (2020) recently found no specific policies on food sold in the school environment. Even in the advanced settings, evidence suggests absents of ineffective nutrition standards in schools. For instance Carter & Swinburn (2004) reported the availability of nutrition standards in only 16.5% of schools in New Zealand Primary Schools whereas French et al (2002) reported 32% in Minnesota schools.

### **5.3.1 Regulation of food retailing in schools**

Despite that there were no nutrition standards all the schools had a way of regulating food vendors within school premises. The schools relied on unwritten or undocumented guidelines and directives to regulate the food retailing environment within schools. Generally the regulatory measures applied by all the schools were prohibitive in nature rather than promotional.

The regulatory measures included the acquisition of vending permit or licence from the LaNkwatanang Municipal Assembly. All the respondent schools required this licence from a vendor before she would be allowed to sell. A vendor undergoes health screening to ensure that the vendor is free from any communicable disease. The Local Assembly is the institution with the mandate to conduct the screening and issue a permit/licence/certificate. The essence of the screening is to prevent the transmission of communicable disease from vendors to consumers. This requirement is very important because it will help to protect the consuming school pupils against infection from food vendors.

Also, as a prerequisite for the grant of permission to sell, the food item to be sold was also taken into account. In particular, there were restrictions on the number of people who can sell a particular food item. So, once a particular food item was already being sold other vendors were not allowed to sell same type of food. The restriction was largely aimed at reducing unhealthy competition among food vendors and also to provide variety to students so that students are not tempted to go

outside the premises in search of food. Although the primary objective of this measure was to prevent students from going outside the school compound it had an ancillary benefit of offering the students with variety of nutrient options.

Another regulatory measure applied by most schools was the prohibition of the sales of what the school authorities perceived to be unhealthy foods. Almost all the schools do not permit the sale of foods such as noodles (Indomie) without egg and vegetables. Sale of candies, sweets, toffees, sugar sweetened beverages were not allowed. Also prohibited was the sale of cold foods and beverages in the mornings. Some of the drinks that were prohibited included ice cream, 'ice kenkey' and 'sobolo' both of which are local beverages. The reason for the prohibition was not because of the nutritional value of these beverages but because of their cold temperatures which in the view of school authorities was not good for the health of the students in the mornings. The sale of these drinks are however allowed in the afternoons. In most of the schools, purchasing food from vendors outside the school premises was prohibited although some students still violated the rules and bought food from outside.

Most of the schools were more concerned with prohibiting the sale of what they perceived to unhealthy rather than deliberately promoting the sale of healthy foods.

Prohibiting the sale of unhealthy foods within the school premises will have the effect of creating a healthy school food environment. However having a deliberate guidelines to promote the sale of healthy food will yield a much desirable results.

Evidence on the regulation of the availability of unhealthy food options to pupils at school shows mixed benefits (Ogum-Alangea et al., 2020). Williams et al (2014) for instance did not find strong evidence to justify policies related to regulating the food environments around schools. Some other studies however suggest that prohibiting energy-dense foods in the school premises have increased the provision and consumption of more healthy options schools (Adamson et al., 2013; Woodward-Lopez G., et al., 2010; Cullen et al., 2008). According to Pettigrew et al., (2018), 85%

of respondents reported that a regulatory policy had made the foods and drinks provided in schools healthier. Relying on this latter body of evidence, it could be said that although the various guidelines applied by schools in this study were not standardized and written, proper application of these guidelines could help create a healthy school food environment or in the least minimise access to unhealthy foods by school children.

### **5.3.2 Enforcement of School Guidelines**

The enforcement of guidelines generally is done through monitoring and revolves around the SHEP coordinators in the various schools. In most of the schools the In-School SHEP Coordinators were solely in-charge of monitoring and enforcement, in some other schools enforcement is done by committees with the SHEP Coordinators playing a key role. The Circuit Supervisor and District SHEP Coordinator both from the Municipal Education Office also conducted monitoring, but the monitoring by the schools' staff was more regular and frequent than that by the officers from the Municipal Education Office. During monitoring either by school or District education office staff, monitoring officers rely on their personal discretion and judgement to determine whether vendors are compliant or not. Monitoring officers do physical inspection of foods and in some instance taste the food, they also consider appearance of vendors, foods and food coverings. Arriving at whether or not the food met respondents' perceived healthy and safety standard was discretionary. As far as monitoring of caterers of the NSFP was concerned the dominant criteria was compliance with the NSFP menu. Compliance by Vendors and NFSP caterers was reported to be high, almost 100%. Sanctions that were most likely to be applied in case of non-compliance by food vendors included ban or prevention of vendor from selling item(s) in question, vendor advised and directed to remedy the defect, total ban on vendor from selling in the school if non-compliance persists and children warned not to buy from offending vendor. Other possible sanctions include suspension,

and confiscation of prohibited item. Three of the schools reported one case each of non-compliance.

The high level of compliance reported in this study is not consistent with finding of Woods et al., (2014) where high levels of non-compliance with school canteen policy guidelines was reported. The high non-compliance rates in Woods et al was attributable to the ineffective monitoring and enforcement. In this current study, monitoring was reported to be on daily basis in the worst case once every week. This reported high level monitoring may account for the high level of reported compliance.

Regulating the school food environment is particularly important because food environmental exposure beyond the home environment intensify during adolescence. This period has been associated with increases in unhealthy dietary behaviours (Brown et al., 2000).

The overall efforts by the participating schools towards regulating food retailing in schools suggests the existence of an enabling environment for the development and implementation of well-structured nutrition standards in schools.

### **5.3.3 Schools' perspective of the need for Nutrition Standards to regulate food retailing within school premises**

Results from the Heads of Schools suggested a need for nutrition standards for schools. The need for nutrition standards was unanimous among heads of schools. In the opinion of some of the school heads, nutrition standards will help ensure that school children had access to healthy food. Others were of the view that standards will facilitate the monitoring and supervision of food vendors and retailers as well as guide vendors on what to sell and under what condition.

This study revealed a need for nutrition standards in schools and is consistent with the body of literature that justifies nutrition standards for schools. The finding is also supported by the wealth

of evidence that suggest an influence of the school food environment on dietary practices of school children where provision of healthy foods positively influences dietary practices and vice versa (Ogum-Alangea et al., 2020; Pettigrew et al., 2018; Mâsse et al., 2014).

## 6.1 Conclusion

### 5.4 Limitation of the Study

A major limitation of the study was the relatively small sample size which was occasioned by time and resource constraint. As a result of this constraint, generalization of the findings may be a challenge.

Also, the study is limited because of it being cross-sectional design, as data collection is taken only at one point in time. A longitudinal study could have produced a much reliable outcome.

Finally, due to the Coronavirus disease 2019 (COVID-19) pandemic, all food outlets within the premises of participating schools as well as majority of outlets outside the schools were not operating at the time of the study as such the opportunity to assess vendors within the schools as well students was missed. Given that majority of the students patronised food from vendors within school premises relative to off-school vendors, an assessment of within school vendors and students would have given a much better understanding of the subject.

## CHAPTER SIX

### CONCLUSION AND RECOMMENDATIONS

#### 6.1 Conclusion

This study assessed the food retail outlets within a 250 metre road network buffer around public basic schools within the La-Nkwatanang Madina Municipality.

A total of four hundred and sixty-eight (468) outlets were identified within the buffer. Majority of the outlets were Convenience/provision shops and the least being supermarkets.

Majority of the foods and beverages sold were sugar sweetened beverages (SSBs) and other sugary foods. The least of the foods sold were unsweetened canned/package fruits or fruit juice. (E.g Blue Skies fruit juice).

Nutrition standards for the regulation of food retailing within the proximity of schools was non-existent in all the schools. Nonetheless, all the schools had a way of regulating food retailing within the school premises. Guidelines for regulating food retailing were not written and application of guidelines was discretionary.

All the schools conducted some form of monitoring of food vendors and caterers within the schools. The Schools Health Programme (SHEP) coordinators played a lead role in monitoring and supervision of food vendors.

This study found existence of efforts by schools to regulate school food retailing, however, the measures adopted in the regulatory effort were not structured nor standardised. This effort thus, suggests the existence of an enabling environment that will support the development and implementation of well-structured nutrition standards in schools. There is a strong expressed need for the formulation of nutrition standard to regulate food retailing within and around schools.

## 6.2 Recommendations

- Findings from this study provide evidential basis for the educational authorities, local assembly, central government and stakeholders in public health to develop nutrition standards to help regulate the food retail environment in, around and within basic schools in Ghana. In developing the standards, there must be an extensive stakeholder consultation and involvement including parents, teachers, food vendors, relevant NGOs, and Donor agencies. Once developed, the initial document should be piloted in a limited number of schools and fine-tuned where necessary. The key stakeholders more especially the officials of the various schools and education office in charge of the SHEP, parents and food vendors need to be trained and sensitised on the nutrition standards. The standards should make provision for monitoring mechanism to allow for effective monitoring of the implementation process. The local Assemblies as well as the District Education Offices will play a key role in the implementations. There should also be continuous capacity building of food vendors as well as officials in charge of the implementation and monitoring.
- The study found that although there was no documented and standardised nutrition standards, the schools still made attempts at regulating food vendors relying on discretion and undocumented guidelines. It is thus, recommended that schools' and educational authorities should in the interim document the existing guidelines and regulatory processes so as to ensure consistency and avoid or minimise arbitrariness.
- Further research on a larger scale could be conducted to give better understanding of the problem especially so when this very study was conducted at the peak of the Covid-19 outbreak when all schools were closed and majority of outlet were not operating.

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## APPENDICES

### APPENDIX I: PARTICIPANTS INFORMATION SHEET FOR KEY INFORMANTS

#### **TITLE OF STUDY: Food Retail Environment and Nutrition Standards in Selected Basic Schools within La Nkwantanang-Madina Municipality of Ghana**

##### **Introduction:**

My name is Zuwera Zankawah, I am the Principal Investigator herein. I am a Master of Public Health Student at the School of Public Health University of Ghana-Legon.

I am an employee of the Ghana Health Service as a nurse and currently stationed at the Tamale West Hospital.

##### **Background and Purpose of research:**

The research is aimed at investigating the school food retail environment and nutrition standards at Basic school level. In the course of the investigation, the number of food retail outlets within 250 meter radius around selected schools would be established. The investigation will also established the types of foods and beverages sold by these outlets, taking into account the healthiness of the foods and beverages. This will give an indication whether adolescents have access to healthy foods whilst at school or not. The research will also investigate the nutrition standards at the selected schools to determine the measures schools and educational authorities put in place to ensure that adolescents are exposed to healthy food environment whilst at school. Such information would help stakeholders and policy makers to formulate and implement the appropriate adolescent nutrition policy.

##### **Procedures to be followed**

If you agree to be in this study, pictures of your retail outlet will be taken, including measurement of the shelving length of the food products and the supermarket floor length.

Please note that the above activity will be conducted in your supermarket with your approval.

We will endeavour to make the sessions as short as possible and also make sure that you the participant is comfortable. It is expected to last for about two hours depending on the size of the supermarket. I assure you that the research team has been trained appropriately to take an approach that protects you by making sure both you the participant and research assistant are masked and a distance of not less than 6ft maintained between you during any interaction.

You would also be taught how to wear, remove and care for the facemasks. Unused protective gloves will be worn when measuring the shelving length of the food products and the food products will not be touched. Discussions will also be wholesome, discreet and confidential.

The study would take place at selecting basic schools within the La Nkwatanang-Madina Municipal Assembly. It would involve one respondent each from 31 basic school and respondent from each food retail outlet around the selected schools.

### **Confidentiality**

The participant should note that any information given to the researchers will be treated with care, respect and strict confidentiality. The information will be used solely for statistical purposes and your information will be anonymous.

### **Compensation**

There will be no material compensation for participants of this study.

### **Cost**

There will be no personal cost incurred by the participant in this research.

### **Benefits**

The selected schools may benefit from long-term programmes that are likely to be rolled out in the region as a result of the recommendations this study will make. Please note that there will be no payment associated with this study.

### **Possible Risks and Discomforts**

The time that will be spent in responding to the questionnaire may be stressful and to mitigate this, the questions are crafted in a simple, straight forward and less intrusive manner. Also, you are free to discontinue or withdraw at any point you are uncomfortable with any questions or the process. Another possible risk to you and the research team (Research Assistants, Data Entry Clerks and PI) is the spread of Corona Virus disease (Covid-19). To mitigate this, all Covid-19 prevention protocols including social distancing, use of recommended nose masks and use of hand sanitizers will be adhered to strictly.

### **Voluntary participation/withdrawal:**

Participation in this study is voluntary. If for any reason you do not wish to participate in the study, you are free to decline. You may withdraw from participating at any time if you feel uncomfortable.

### **Feedback to participant**

Data will be analysed in aggregation and no name or personal identity will be recorded on the questionnaires. Except for rare instances where it would be necessary to follow-up with the participants for clarifications on the answers provided, outcome or findings of the study would not be communicated to the individual participants directly. However, the outcome of the research will be shared with the Ghana Education Services and the Participating schools by way of feedback. The outcome may also be published in peer review journals.

### **Participant's information/ Data**

The raw personal information/data of individual participants will not be shared with anybody, institution or entity. However aggregate data following data inputting and analysis would be used to complete the research thesis. This aggregate data does not disclose or contain identities of individual participants and it is this aggregate information that may be shared with academia and policy makers. The completed questionnaire will be in the custody of the Principal Investigator and will be destroyed consistent with appropriate laws and regulations soon after the thesis is accepted by the University of Ghana.

### **Provision of Information and Consent for participants**

Participants will be given copies of the information sheet and consent forms after it has been signed or thumb printed for keeps.

### **Who to Contact for Further Clarification/Questions:**

This research has been reviewed and approved by Ghana Health Service Ethics Review Committee (GHS-ERC). If you have any question about your rights as a research participants, you can contact the **GHS ERC Office between the hours 9am to 4pm from Monday to Friday through**

**Nana Abena Apatu**  
The Administrator  
Ghana Health Service Ethics Review Committee  
Accra.  
Tel: 0503539896.



**APPENDIX II: CONSENT FORM**

**STUDY TITLE: Food Retail Environment and Nutrition Standards in Selected Basic Schools within La Nkwantanang-Madina Municipality of Ghana**

**PARTICIPANTS' STATEMENT**

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and satisfactorily explained to me in a language I understand (English  Ga  Twi ). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant..... ID Code .....

Participants' Signature..... OR Thumb Print..... OR Mark  
(Please specify).....

Date:.....

**INTERPRETERS' STATEMENT**

I interpreted the purpose and contents of the Participants' Information Sheet to the aforementioned participant to the best of my ability in the (English  Ga  Twi  ) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter.....

Date:.....

Contact Details:

**STATEMENT OF WITNESS**

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (English  Ga  Twi )

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print .....OR Mark (please specify).....

Date:.....

**INVESTIGATOR STATEMENT AND SIGNATURE** TEST MAPPING

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Form 1 Collection 1/11

Researcher's name.....

Signature .....

Date.....

Q3 School Code

Q4 Type of Food Outlet

- Supermarket
- Convenience/Prepared food
- School Canteen
- Kiosk
- Food Stall/Stand
- Table Top
- Restaurant
- Canteen
- Cold Storage
- Open Market
- Vendor
- Ministry of School Premises
- Ministry of School Premises

Q5 Outlet Operating at time of visit

- Yes
- No

Q6 Food Outlet Licensing Status

- Licensed/Permit (Issued to individual food outlet)
- Informal Vendor (Self organized unlicensed food program vendor)

If formal specify licensing authority

Q7 Type of Business

- Individual
- Partnership
- Sole Proprietor

Q8 Food Outlet Operator's gender

- Male
- Female

**APPENDIX III: TOOL FOR OUTLET MAPPING**

**Data Collector ID:**

**Date of Data Collection:**

**Q1. Food Outlet ID:**

**Q2. District Name:**

**Q3. School Code**

**Q4. Type of Food Outlet**

---

- Supermarket
- Convenience/Provision shop
- School Canteen
- Kiosk
- Food Stall/Stand
- Table Top
- Restaurant
- Chop Bar
- Cold Store
- Open Market
- Bakery
- Inside of School Premises
- Outside of School Premises

**Q5. Outlet Operating at time of visit**

- Yes
- No

**Q6. Food Outlet Licensing Status**

- Formal Retailer (Licensed to provide/sell food outlet)
- Informal Retailer (Self organized unlicensed food provision outlet)

**If formal specify licensing authority.....**

**Q7. Type of Business**

- Individual
- Partnership
- Chain/Franchise

**Q8. Food Outlet Operator's gender**

- Male
- Female

**Q9. Duration of Operation of Food Outlet**

[In complete years]

- One Year
- Two Years
- Three Years
- Four Years
- Five Years
- More than Five Years
- Don't know

**Q10. Type of Service**

- Self Service
- Assisted Service
- Both Self and Assisted Service

**Q11. Food on Sale**

- Sugary Foods (eg. Ice – Cream, Cake, Candy) except SSB
- Sugar, Sugar Sweetened Beverage (eg. Fanta, Sprite, Coca Cola)
- Fresh Fruits and unsweetened canned fruits (eg. Mango, Orange, Blue Skies)
- Canned Fruits with added Sugar (eg. Don Simon Fruit Juice)
- Fresh Vegetables and unsalted canned vegetables (eg. Cucumber, Carrot, Onion)
- Canned Vegetables with added salt
- Snacks (eg. Savoury Crackers, Crisps, Sweetened Popcorn, Salted popcorn, cassava crisps, plantain crisps, chips)
- Salted Foods (eg. Salted nuts and Salty Snacks)
- Whole grain bread or cereal with no added sugar
- Refined grains and refined grains products (eg. White bread, White Rice)
- Fresh Fish, Meat, Egg
- Processed Fish, Meat, Chicken Products
- Other

Please Specify.....

**Q12. Days of Operation**

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Sunday

**Q13. Hours of Operation (WEEKDAY).....**

Open:.....

Close:.....

**Q14. Hours of Operation (WEEKEND).....**

Open: .....

Close: .....

**Q15. Sitting place/Convenient area for immediate consumption of bought item.**

Yes

No

## APPENDIX IV: TOOL FOR NUTRITION STANDARDS (INTERVIEW GUIDE)

### Key informant interview guide.

#### Interview guide for assessing the availability of nutrition standards around basic schools within LaNMMA

Thank you for agreeing to talk to us today. I am an interviewer on an ongoing survey to assess nutrition standards for regulating food services/Food retailers around basic schools within the LaNMMA . We are interviewing stakeholders and therefore interested in your point of view. We will be grateful if we could take a few moments of your time.

We shall treat all information with utmost confidentiality and no information extracted shall be directly attributable to you nor your school.

Your participation in this interview is voluntary, you are not obliged to answer all questions and you free to withdraw your participation at any time. Are you willing to be interviewed?

Do you have any questions before we begin?

Data Collector ID.....

Informants ID.....

Informants Title/Position.....

Length of time in current position .....

Length of time with school.....

Interview date.....

1. What is the category/level of your school (eg Primary, JHS or both/basic)
2. What is the total number of students? (eg. Total for primary, total for JHS and grant total)
3. What is the total number of teachers? (eg for Primary and JHS)
4. What are the feeding option/source of feeding available to the student? (e.g. food vendors within school premises, NSFP, lunch box, school-organized canteen, vendors outside school premises).

- Indicate the feeding option that is most patronize

- Provide rough estimate of patronage for each in percentages if possible.

5. Are there food retailers/vendors within the school vicinity? If yes what time do they operate?
6. How many students buy food from food vendors? (Rough estimates in percentage)
7. Do food retailers/vendors require permission before they can sell food?
  - i. If yes from who? (eg from Assembly only or from school authority only or from both)
  - ii. How is permission obtain if any?
8. Are food vendors around your school regulated? If yes by who and how?
9. Does your school have in place nutrition standards to regulate food vendors and the nature/type of foods/drink/snacks sold to students?
  - If yes, request for a copy of the Nutrition Standards document
  - If no proceed to the next question
10. Are food vendors around your school regulated?
  - If yes by who and how?
  - Find out if there any guidelines prohibiting the sale of unhealthy foods/drinks/snacks?
  - Find out if there are any deliberate guidelines promoting the sale of fruits and vegetables?
11. Who is in charge of the enforcement of nutrition standards or guidelines if any?
12. Do food vendors comply with this guidelines?
  - What is the level of compliance (estimate in percentage)
13. Are there sanctions for non-compliance?
14. If yes, what are they? And are these sanctions applied?
15. If there are nutrition standards, how are they being implemented?
16. In your opinion, do you think the food provided by the following outlets are healthy?

- i. The National School Feeding Programme (NSFP)
- ii. Vendors within school premises
- iii. School-organized canteen

**Please explain your answer in each case. (Interviewer to probe for reasons or explanation)**

17. In your opinion, do you think the food provided by the following outlets are safe/hygienic?

- i. The National School Feeding Programme (NSFP)
- ii. Vendors within school premises
- iii. School-organized canteen

**Please explain your answer in each case. (Interviewer to probe for reasons or explanation)**

18. In your opinion, is there the need for nutrition standards to regulate foods sold to students?

**Please explain your answer (Interviewer to probe for reasons or explanation)**

**Thank you for your time**

## APPENDIX V: ETHICAL CLEARANCE

### GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

*In case of reply the  
number and date of this  
Letter should be quoted.*



MyRef. GHS/RDD/ERC/Admin/App/272  
Your Ref. No.

Research & Development Division  
Ghana Health Service  
P. O. Box MB 190  
Accra  
GPS Address: GA-050-3303  
Tel: +233-302-681109  
Fax + 233-302-685424  
Email: [ethics.research@ghsmail.org](mailto:ethics.research@ghsmail.org)

30th July, 2020

Zuwera Zankawah  
School of Public Health  
University of Ghana  
Legon- Accra

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

GHS-ERC Number	<b>GHS-ERC 060/02/20</b>
Study Title	The School Food Retail Environment and Dietary Practices of Adolescent in selected Junior High Schools within La Nkwantanang-Madina Municipality of Ghana
Approval Date	30 <sup>th</sup> July, 2020
Expiry Date	29 <sup>th</sup> July, 2021
GHS-ERC Decision	<b>Approved</b>

**This approval requires the following from the Principal Investigator**

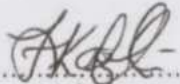
- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission 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.

**You are kindly advised to adhere to the national guidelines or protocols on the prevention of COVID -19**

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. James Akazili  
(Head, Ethics & Research Management Department)

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