UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

AN ASSESSMENT OF COMPLIANCE OF MEAL SERVICE CATERERS ROLES IN SCHOOLS FEEDING PROGRAMME AND ITS IMPACT ON THE SCHOOL FEEDING PROGRAMME

BY

JOANNA DZEAGU-KUDJODJI

(200036790)

A Dissertation in the Department of HOSPITALITY AND TOURISM EDUCATION Faculty of VOCATIONAL AND TECHNICAL EDUCATION, submitted to the School of Graduate Studies, University of Education, Winneba in partial fulfillment of the requirement for the award of the Master of Philosophy (Catering and Hospitality Education) degree.

DECEMBER, 2020

ACKNOWLEDGEMENT

This thesis would not have been completed without the direction, support and love from a number of people. I would first like to acknowledge my Lord and Saviour Jesus Christ. He has rescued me from my sin and given me eternal life. Without Him everything is meaningless, a chasing after the wind.

My heartfelt gratitude goes to my supervisor; Dr. Ellen Olu Fagbemi for her direction and commitment towards the completion of this dissertation. Dr. Olu, thank you for continually encouraging me when I was overwhelmed, and providing me with positive feedback as well as constructive criticism.

I would also like to acknowledge the support of my husband; for taking care of the home which provided a congenial atmosphere for this work. Also, I would like to extend my profound gratitude to my brothers and sisters for their support and encouragement. I am also grateful to all friends and loved ones for their prayers and encouragement. Thank you for making it your life's work to shape me and make me the person I am today.

I am also grateful to the employees of the selected caterers, and heads of the twenty-two (22) beneficiary basic public schools under the school feeding programme (SFP)in the Akuapem South District who took their time to answer the questionnaire to make this work a success.

DEDICATION

I dedicate this work to my Siblings

TABLE OF CONTENTS

Content **Page**

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

ABSTRACT

The Ghana School Feeding Programme (GSFP) faces much criticism in areas of service quality, food quality, food quantity, environmental quality, and menu standardisation. The aimed at investigating the compliance of meal service caterer's roles and their impact on the school feeding programme at the beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District. The study adopted survey research design. The target population comprised caterers and heads at basic public schools in the Akuapem South District. Purposive sampling was used in selecting 66 caterers and 22 heads of the beneficiary basic public schools under the SFP in the Akuapem South District. Questionnaire and interview were used to gather information from the respondents. The finding showed that the caterers pay staff who are employed from the beneficiary community, buy at least 20% value of foodstuffs from smallholder farmers, and comply with food safety and hygiene procedures. The study revealed that the caterers sometimes follow a few personal hygiene rules, and sometimes adhered to proper procedure of cooking, holding, and serving food to the school children. The study found no association between age group of caterers and compliance of role in SFP ($F(df)=1.567$, $p=0.196>0.05$). The study found that compliance of caterer's role under the SFP differ with respect to their educational level ($F(df)=2.735$, $p=0.005<0.01$). Also, an insignificant association was found between compliance of caterer's role and the number of years working in the SFP ($F(df)= 1.421$, $P=0.203<0.01$). The study concluded that compliance of caterers role had a significant effect on the performance of SFP. It was recommended that the coordinators of the SFP should organise periodic seminars, and training programmes to educate caterers of the SFP regarding their roles and the hygienic practices that could guarantee the pupils health.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

School Feeding Programmes (SFP) in schools conditional on school enrolment and retention have recently attracted attention as a policy instrument for achieving the Sustainable Development Goals 2 (SDG2) of universal primary education and the reduction of hunger in developing countries (UN General Assembly, 2015). Globally, more than 1.2 billion people have been affected by hunger, and children have counted most vulnerable population groups (Food and Agriculture Organization (FAO), 2009). The Government of Ghana started the SFP within the Akuapem South District (ASD) in 2012 with 22 schools currently benefiting from this programme (GES, ASD).

The concept of the school feeding programme is to provide children in selected public primary schools and kindergartens in the most deprived areas of the country with one hot, nutritious meal per day (Quaye, Essegbey, Frempong, & Ruivenkamp, 2010). The long-term goals are, firstly, to feed school children with locally prepared food that is considered nutritionally adequate. Secondly, to cushion poor rural households to afford the additional food intake needed to ensure the full complement of nutritional needs that will address the rampant short-term hunger and the problems of under-five and maternal malnutrition. Quality and quantity of meals served to the school children on the GSFP have been criticised over the years.

Bigson, Essuman and Boadu (2019) revealed that critics of the programme include the nutritional quality of meals served, the conditions under which food ingredients of the GSFP are procured and stored, and the hygienic conditions under which meals are cooked, served, and eaten. The health of the children, the safety of the food ingredients used in the meal preparation, and the hygienic conditions the products

run through before they get onto the plates of these children are of the essence because hygiene is a major challenge in Ghana (Dogbe & Kwabena-Adade, 2012). Food quality and quantity are, by all accounts acknowledged as a central part to fulfil children's nutritional requirements. Besides, it has been regularly ignored in the choice and preparation of the food. A primary motivation underlying these nutritional improvements is to increase children's health and reduce childhood obesity. A question of comparable import, however, is whether healthier meals influence student achievement. Recent research demonstrates that the provision of subsidised school meals can significantly increase school test scores (Figlio & Winicki, 2015; Dotter, 2014; Imberman & Kugler, 2014; Frisvold, 2015).

Information regarding the caterer's compliance of roles under the GSFP is scarce. Data on hygienic conditions and quality for the food preparation is scanty. However, the integrity and the wholesomeness of the food served to the school pupils cannot be overlooked, especially when one considers the magnitude of health and sanitation issues that are plaguing the developing countries like Ghana. This development has thus necessitated in assessing compliance of meal service caterers compliance to the roles in GSFP and its impact on the school feeding programme at the beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District

1.2 Statement of the Problem

Caterers under GSFP at primary and KG level played their role by preparing, cooking and serving meals to the pupils in beneficiary schools. An observation at Akuapem South District showed that caterers failed to comply with the roles to execute their catering duties to beneficiary schools/pupils under the programme. Issues cited during the visits at the various schools includes the nutritional quality and quantity of

meals served, the conditions under which food ingredients of the GSFP are procured and stored, and the hygienic conditions under which meals are cooked, served, and eaten by the children. Caterers under GSFP at primary and KG level played their role by preparing, cooking and serving meals to the pupils in beneficiary schools. An observation at Akuapem South District showed that caterers failed to comply with the roles to execute their catering duties to beneficiary schools/pupils under the programme. Issues cited during the visits at the various schools includes the nutritional quality and quantity of meals served, the conditions under which food ingredients of the GSFP are procured and stored, and the hygienic conditions under which meals are cooked, served, and eaten by the children.Moreover, the caterers do not use aprons, handled food with bare hands, and wore no hair coverings having a lot of effects on a substantial number of children who consume the food. Talk of the spread of faeco-oral diseases like Typhoid fever, Cholera among others and the amount that the government and individuals spend on the treatment of these diseases. According to Bolton (1997), children are more at risk of contracting a foodborne illness because they have not yet built adequate immune system (the body's defence system against illness) to deal with some diseases. Hence, practicing personal hygiene is of utmost important since contamination of food mostly comes from contact with faecal material or microorganisms delivered by contact with contaminated hands, cooking surfaces and utensils, or improperly cleaned dishes and cutlery.

Currently, there is no system designed to check the quality and quantity of meals fed to the children enrolled under the GSFP. The GSFP faces much criticism in areas of service quality, food quality, food quantity, environmental quality, and menu standardisation. These problems have extended to rising health challenges, children's satisfaction, retention, and academic performance. Also, many agents have engaged in food products that have low or no nutritive values. This is due to the fact that contracts

are awarded to unqualified caterers and agents. This is counterproductive to the achievement of the goals of GSFP, as it disrupts teaching and also affects the quality, quantity food and maintenance of hygienic environment for food preparation. Suleman et al. (2013) further revealed that 60% of the schools visited did not have adequate stock of plates, cups, and spoons, and the quantity of food served to the children was inadequate. This implies that some pupils have to wait and reuse plates used by their friends after washing them, and sometimes the food get finished at the detriment of students that waited. This study is designed to investigate the compliance of meal services caterer's role and its impact on school feeding programme Akuapem South District of the Eastern Region, Ghana.

1.3 Purpose of the Study

The purpose of this study is to assess the compliance of meal service caterer's roles in Ghana schools feeding programme and its impact on the school feeding programme.

1.4 Specific Objectives

The specific objectives of this study are to:

1. To examine the compliance of meal service caterer's roles in schools feeding programme.
2. To assess food preparation practices of caterers to ensure food quality and quantity in the school feeding programme.
3. To identify the association between selected demographic variables with the compliance of meal service caterers roles in schools feeding programme.
4. To determine the effect of compliance of meal service caterers roles on the performance of the school feeding programme.

1.5 Research Questions

The following Specific research questions will be addressed:

1. To what extent does the meal service caterers comply with roles in schools feeding programme?
2. What are the food preparation practices of caterers to ensure food quality and quantity in the school feeding programme?
3. Is there any association between selected demographic variables with compliance of meal service caterer's roles in school feeding programmes?
4. What is the effect of compliance of meal service caterer's roles on the performance school feeding programme?

1.6 Significance of the Study

Enhancing the nutritional content of public-school meals in Ghana is a topic of intense policy interest. The study will generate useful information that may be of great value to education policymakers, health officials, parents, and teachers at all levels. Policymakers will use the results to make informed policies and decisions to improve the SFP. Finally, the study will contribute towards building a high-quality feeding programme for children not only in the study areas but also in the other districts within the country. It will also relieve parents of their children's health challenges.

The results of the study will help improve the food quality, quantity, cooking environments, and nutritional values of meals provided by caterers on SFP. Finally, the study will add to the literature on foodservice and food quality, children's satisfaction, and retention by surveying the school-related attributes of service and food quality in a western setting.

1.7 Delimitation of the Study

The study concentrates on basic public schools under the school feeding programme (SFP) in the Akuapem South District. It specifically concentrated on the compliance of meal service caterers in schools feeding programmes, food preparation practices of caterers to ensure food quality and quantity in the school feeding programme, the association between selected demographic variables with compliance of meal service caterers roles in schools feeding programmes, and the effect of the compliance of meal service caterers role on the school feeding programme.

1.8 Organization of the study

The study report was organised into five chapters, references, and appendices. The first chapter is the introduction. It highlights issues such as the background of the study, statement of the problem, the purpose of the study, research questions. The research questions provided by this chapter guided the entire study. The second chapter deals with a review of the literature relevant to the study. The chapter review concentrates on both theoretical and empirical literature relating to the subject.

Chapter three discusses the methodology for conducting the study. This chapter outlines the methods that were used in the study which include issues such as research design, population, sample, and sampling procedure, data collection instrument, data collection procedure, validity and reliability of the instrument, data analysis, and ethical consideration. Chapter four deals with the findings and discussion of the data gathered from the field, while chapter five covers the summary, conclusion, and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the relevant literature pertaining to the study. It reviews the theoretical and empirical study on the role of meal service caterers and its impact on the school feeding programme. The chapter specifically reviewed under the following headings: an overview of School Feeding Programme (SFP), the role played by meal service caterers in schools feeding programmes, food preparation practices to ensure food quality and quantity, and the effect of the role of meal service caterers on the school feeding programme.

2.2 Theoretical Framework

The research was motivated by the theory of human needs. This is important because it demonstrates how fundamental human needs are handled and fulfilled. The state of felt scarcity and need which must meet can be described as human needs (Burton, 1990). The theory of human needs stressed the fulfillment of human needs that are necessary for its existence. According to the principle of human needs, the good living conditions need some minimum criteria. They are recognised as the physiological needs. Food, shelter, health and clothing are included. It is important to fulfill other essentials, including protection and shelter, a sense of belonging and intimacy, a sense of devotion, gratitude and eventually self realization. Maslow (1954) suggested, in line with his desires, to organize man's drive in a certain direction in hierarchical order.

According to Maslow (1993), a minimum need, including basic food, shelter and clothes, is the first type of physiological requirements. The second stage is the welfare of the person and the physiological needs. The third degree is a social necessity, and may be part of a certain party or organization. This covers fellowship, affection and

membership. The fourth degree is self-confidence, which is a feeling of esteem for yourself and self-motivation. It also involves how one can communicate with others. The last stage is self-realization, in which the individual searches for a future personal development and knowledge. Maslow (1993) says the individual goes through a hierarchy of needs, for example food and emotions, beginning with physical needs.

For a child to do this, the carers, e.g. instructors or guardians should provide the child with good food in order to achieve healthier development, according to Koltko-Rivera (2006). Security and security needs are termed terror and anxiety-free, and emotional harm-free protection. To be good in school and also at home, children should be assured of protection and protection. If protection is given, unrest is generated. Social needs require caring and affiliation, in which children should be appropriate and welcoming. The desire for self-esteem is the need for prestige so one feels remembered. This strengthens the pride of school children.

According to Maslow's needs hierarchy it reveals that pupils are usually comfortable and pleased when needs are fulfilled or satisfied. The school environment is nice and the schooling starts smoothly. The same is true, since there is dissatisfaction where desires are not served or satisfied. This model stresses the importance of food supply and protection. On a wider point of view, it means that countries must still fight to provide their people with basic needs (Kress, 1993). This implies for a developing world like Ghana that hunger must be avoided by supplying every person with basic needs such as food, clothes and shelter. Ghana's government has introduced the school feeding program to reduce food insecurity, especially among disadvantaged communities, such as children at school and children cannot live without food. The introduction of the school feeding programme encourages good health, high motivation, participation, attention in class and will reduce hunger.

2.3 Overview of School Feeding Programme (SFP)

Over the years, the school food programme has used the program to offer school meals to alleviate children's hunger on day-of-school (School Food Program (WFP), 2004). Bundy (2013) suggested that the focus of school feeding is on the delivery of schooling, health benefits for most disadvantaged children, which contributes to higher registration rates, reduced absenteeism and boost household food security. In addition to the improvements to food, the school feeding programmes, which lead to improvements of the nation overall and human growth, have a positive effect on nutritional status, gender equality and education. School meals have progressively been provided to reach a variety of educational benefits (Quaye, Essegbey, Frempong, & Ruivenkamp, 2010).

Ghana is therefore the first Sub-Saharan African State to adopt the SFP, as defined in the Comprehensive African Agricultural Development Programme (CAADP) as a Strategic Mechanism for the Socio-Economic Development of the New Partnership for Africa's Development (NEPAD). The insertion of the GSFP took place in 2004. From January 2006 until December 2010, the software was in existence. The pilot program followed, which was introduced between September and December 2005 (NEPAD, 2005). In 2010, the initiative aimed at servicing nearly 1,04 million kids in 138 Ghana districts (NEPAD, 2005). However, the GSFP is targeted at helping to minimize hunger, food safety, improve schooling, attendance and retention. There are long-term targets.

The SFP is fundamentally based, according to Quaye et al. (2010), on local food products to support domestic food production and thereby increase consumer access and to low resource farmers. Growing farmers' jobs and incomes at Community and National level is intended to achieve that aim. In addition, improved supply, access and usage at community level of food crops and goods is projected to improve food protection. The GSFP is projected to: increase real wages at national and community levels and increase

community-level jobs, and increase supply, distribution, usage and stability of the food crops at community level. This policy complements the Ghana government's growth policies (Quaye et al., 2010).

The Ghana Government (2015) announced that many changes have been implemented since 2009 to streamline the GSFP. The targeting requirements have been refined among other items. Re-targeting is carried out with the assistance of the World Bank by poverty level, food intake estimates, averaged share in national poverty and malnutrition per district (computed by the World Food Program with Detailed Food Security and Risk Evaluations, and spatial data variables). In 2011, the GSFP was upgraded to 1,6 million school children. Another significant advancement has been in the field of social transparency, primarily by involving the civil society in developing sub-district networks known as ZUTA forums in pilot districts that provide infrastructure, mechanism, and implementation constraints in schools for people to engage with other stakeholders. Other steps sought to improve communication and information dissemination, vertically and horizontally throughout the programme, as well as with external parties using documentation and the media (Government of Ghana, 2015).

According to the GoG (2015) report, numerous national and international reviews, pilot interventions and studies related to the review process were conducted between 2010 and 2012. They include technical and other support by the Dutch Social Responsibility Aid, the Home-Grown school feeding model, and procurement governance support from the Netherlands Development Agency. Others include the World Food Program and the Child Protection Partnership, Dubai Cares and the United States Agency for International Development (USAID). The GoG (2015) states that other interest interventions included the purchase for progress (aiding farmers to grow SFP

items) and the NRGP, and Savannah Agricultural Development Authority (SADA, for its Spanish initials) initiatives to farmers-based organisations (FBOs) to the local Marketing Firms. Evaluations and policy proposals were made by the Ghana National Association of Teachers, SEND Foundation and the Ecumenical Association for Sustainable Agriculture and Rural Development (ECASARD) to improve and optimize the delivery of school feeding in Ghana.

2.3.1 The Purpose of School Feeding in Schools

School feeding programme provides clear and effective outlets for resolving nutritious and developmental problems for children and creates marketing resources for livelihoods and food crops (GoG, 2015). The MDGs for poverty reduction, particularly school feeding schemes, have been implemented by many countries around the globe including the Netherlands, South Korea and the Philippines in the years preceding 2000 (WHO, 2003). Education is widely considered important to many countries' growth. While some others, such as Ahmed (2004), have posed problems about the causal link between education and economic development, Afoakwa (2009) stressed the effect of education on economic growth. Training also has been instrumental in the adoption in certain countries of modern agricultural technologies (Del Rosso, 2009).

Ahmed (2004) states that the success of the school feeding scheme has become a way of improving the pupils' health and food needs. Motivate them to remain in school and thereby decrease reproduction and is seen by themselves as an inherent good (He, 2009). This general principle is clearly articulated in the context of the sustainable development goals for equitable access to primary education and the reduction of gender disparities in education (He, 2009). The initial aim of the school feeding intervention was to feed school children with locally-built food that was adequately healthy and based on

local food. It was also meant to encourage the production of resources at community level by creating ready markets and rising household wages, which will in turn increase household and community poverty nutrition and breakdown periods. The policy goal is to boost registration, engagement and retention as a strategy in most poor communities in Ghana. However, it is important to encourage and increase domestic resource mobilization and use, rural household income and improvement of pupils' health and nutrition status.

According to Quaye et al. (2010), input from the field shows that, although with different focus levels, the initial goals of the school feeding program continue to be relevant. Healthy diet for Ghanaian children and a vehicle for preventive health is promoted as the current priority for child growth (through school hygiene and health activities). The need to build jobs, to create taxes and, by them, to raise local income to grow leads to local economic developments, is also a priority. For this reason, local farmers markets and expenditure in setting up local initiatives needed to sustain the scheme must be regularly supported.

The key goals of GSFP are to offer one hot meal made from local produce to children in the public schools per day at kindergarten, as illustrated in the GSFP Policy Document 2007-2010 (GSFP, 2006). This policy's secondary goal is to improve the country’s education, health and farming. The health aspect is that the recipient children's schools must also be fed sufficient potable water, dewormed and fed in a safe health setting. The registration of pupils would increase to reach compulsory basic education, in accordance with education improvement. With regard to agriculture, local products are patronized and food security is achieved in the region. Programme implementation partner organisations such as Netherlands Development Co-operation (SNV), (SEPD), and World Food Programme (WFP, 2004) are to carry out training sessions for caterers

and cooks to enhance their capacities. Roles were assigned to key stakeholders in order to achieve the set goals;

- The government who makes up of Cabinet, and Legislature is accountable for approving the GSFP Bill to legitimise the activities of the programme and procurement for funds;
- The local government and rural development (LGRD) manages delivery and oversight of the programme in cooperation with the Ministry of Education (MoE);
- The Ministry of Food and Agriculture (MoFA) ensure that agricultural goals are achieved;
- Ministry of Finance and Economic Planning (MoFEP) in charge of funding releases;
- Ministry of Women and Children Affairs (MoWCA) is responsible for monitoring and supervising the GSFP
- The National Secretariat of the GSFP is responsible at national level for implementing policy.

2.4 Role played by meal service caterers in schools feeding programmes

The School Feeding Strategy is important to in the setting of commitments Ghana has made at the foreign and national levels. Priorities and commitments on national and international growth of education, child health and wellbeing, agricultural and entrepreneurial productivity and development all have possible effects for and contributions to school feed. Effective collaboration is also needed in order to maximize the resources presented by numerous commitments and legislation for major impacts in the feeding and sustainable growth of national and local schools (Afoakwa, 2009). The Government of Ghana, in cooperation with its allies, Alliance for Child Welfare, and the

World Food Program (WFP), has initiated a process to protect and support school feeding activities and foster equality. It is anticipated that the policy will anchor the progress accomplished over the years and support a successful execution through sufficient and efficient infrastructure and solid management structures. It is also expected that school feeding would be isolated by shifting political dynamics and given a basis for legislation (GoG, 2015).

School Feeding in Ghana at primary and KG level embraces a school catering model where caterers are employed to carry out their catering duties for schools/pupils in the program within a renewable period by means of procurement guidelines for the beneficiaries (Quaye et al., 2010). In order to support the local economy, contract caterers are typically hired from the recipient communities and expected to reciprocate cooks from the same region under a contractual guideline. In Section 3.1 of the GSFP Catering Contract the caterers hired under the scheme have responsibility for: (1) supplying foods that comprise all of the 3 groups; (2) providing fruit, eggs and milk at least once a week; (3) showing and observing the GSFP-approved menu chart (4), attempt to buy at least 20% by the value of smallholder farm food (5) prepare and cook on-site food with kitchen equipment, storage and adequate drinking water, at no cost from the district, and (6) spend 60% of the day-to-day food scholarship to produce food at no cost (GoG, 2015).

GoG (2015) also stated that caterers will use the GSFP Mobile Measure to ensure they meet everyday nutrition and calorie requirements, apply the application for funding for feeding forms/Caterer demand form accepted by the head of the office and comply with the Health and Food Safety and Health Procedures quoted above. GSFP Catering Contract specified in GoG (2015) that caterers will be responsible for paid workers working in the beneficiary group, report especially on small-holder farmers' transactions (SHFs), and conduct their respective MMDA and GSFP members to track them. The

caterers under the scheme are responsible for planning, cooking and delivering meals for pupils at the schools of the beneficiaries.

The caterers perform the planning, supply and operation of all facets of the school meal including the procurement of ingredients, the transportation from the market to the restaurant, preparation of meals and feeding of students. Both significant costs, including wages for cooks and overhead (water and firewood costs or other energy sources such as LPG) are borne. In 2016–2017, the number of caterers was 4,975 and over 14,925 domestic cooks, who were given the financial incentive by the Scheme. Caterers are required in coordination with the districts to provide the meals according to the specification provided by the MMDAs. In fact, foods may vary because they are seasonal and are available, and the size of the portion may differ from the ration required by the Handy Steps. As of October 2018, the feeding allocation is 1.00 GH for caterers which is up from 0.80 GHS per child per day of school, and dependent on the school/MMDAs' registration figures to the central GSFP office (Regional Offices). It should be remembered that in Section 2, paragraph 2.4 of the GSFP Catering Contract, catering payment usually entails substantial time-frames up to 3-4 months; the provision demands that the catering provider be able to prefund for a minimum of one academic year. This ensures that caterers must pre-finance their catering facilities in anticipation of government reimbursements.

2.5 Food preparation practices to ensure food quality and quantity in SFP

The preparation of safe foodstuffs is achieved through the implementation and application of general prevention measures GPM (Reijet al. 2003). GPM is overall management (organization, implementation and observing) of methods, processes, controls and other precautions which, according to its intended use, exclude, prevent,

minimize and inhibit product failures and consistently deliver safe, suitable quality foods. The main concepts in the preparation of food. Preventing infected food spreads from humans, pets and rodents, according to the World Health Organisation (WHO). Separation of raw and cooked meals for the avoidance of infection. The use of clean water and cooked products to guarantee the preparation of foods for a sufficient period of time and at the correct temperature to remove pathogenics. In order to ensure food hygiene, personal hygiene, food processing and storage as well as food services must be taken into account by caterers (Wikipedia, 2014).

In 2005, the Ghana School Feed Program (GSFP) began in Ghana, according to Bigson, Essuman, and Lotse (2020), the impression was that a fast-gain intervention against hunger and dropouts from schools was possible. In some selected public schools funded by government, this program offers one hot, nutritional meal for school children each day. But the program seems to have difficulties implementing it ten years down the line. Crites of the program have not answered issues such as the nutritional quality of the meals served, the conditions under which GSFP food ingredients are procured and stored (Bigson, Essuman, & Boadu, 2019). The hygiene environments under which food is cooked and consumed. The well-being of children, the protection of the ingredients in food preparation and the hygienic conditions of products which predate their access to the plates are important because hygiene in Ghana is a major challenge (Dogbe& Kwabena-Adade, 2012). There is currently no framework planned to verify the consistency and safety of meals served to school children under the GSFP.

Sulemana, Ngah and Majid (2013) reported even on school kitchens under trees in the open air or on temporary preventive facilities. Food must be prepared either in the classroom or on the veranda in all cases (structure attached to the exterior of the school building). This counterproductively disrupts instruction and even the preservation of a

hygienic atmosphere for food processing, in order to achieve the objectives of GSFP. Suleman et al (2013) have also found the inadequate stock of dishes, cups and spoons in 60 per cent of the schools visited. This ensures that some students have to sit to reuse their mates' plates and spoons after cleaning them. In exchange, the students feed, generating lunch breaks for a longer duration and reducing time spent by the students in their classroom. It also makes possible the cross-contamination of viruses and other pollutants possible for the infants.

Bolton (2007) suggested that young children are at a higher risk for foodborne infection because they have not yet developed a proper immunity system for coping with certain pathogens (the body's disease prevention system). Therefore, it is of the greatest significance that personal sanitation should be exercised because food waste comes primarily from contact with faecal material or micro-organisms provided by contact with polluted hands, cooking surfaces and utensils, dirt in the field or dishes and cups not adequately washed. Research suggests that handling with soap, if commonly exercised, could minimize diarrhoea by around 50% and respiratory problems by almost 25% (Curtis &Cairncross, 2013; Jefferson, Foxlee & Mar, 2017).

Hoddinott and Yohannes (2012) pinpion that the food handling person should be clean and dressed in fresh clothes. FAO (2012) said there are too many means of endangering others when it comes to food handling. According to new estimates in some states more than half of foodborne diseases can be tracked back to food suppliers and poor hygiene (Curtis & Cairncross, 2013; Hoddinott & Yohannes, 2012). According to some sanitation laws, food safety issues should be reduced. The inability of food servers to wash their hands –or wash them properly– is, according to Victora, Huicho and Amaral (2016), one of customers' greatest risks. There is such a great deal of bacteria in the kitchen that can arise without treating or toiletting, such as unsafe handling of raw foods.

During decades and through complex evolutionary cycles, people have often sought to stop and find ways to overcome existing illnesses to strengthen and extend lives. Different illnesses lead to human life loss regardless of age. The danger to human health and life remains diseases, particularly disease induced by daily intakes and activities including food and hygiene. It is obvious and globally celebrated that unhygienic foodstuffs and other types of pollution in our everyday consumer goods have resulted in the death of millions of people worldwide, especially in Africa, where education deficit, hunger, lack of public health policies and lack of skilled staff have left Africa and Ghana at the hands of, amongst others (Dun-Dery, 2012).

Overall, polluted food and water are known and noticed to cause significant human health problem, including animal life. It is not shocking that there are, and have a great public-health value, diseases such as cholera, diarrhea, typhoid and hepatitis A. Professionals in West Africa, in particular, where access to quality hygiene education is only a hope, especially for caterers. Inadequate cleaning was described as a cause of infection by bacteria for raw foods for cooking and serving devices. Containers, pumps or tanks used for unprocessed raw materials storing or transport have occasionally been used without any washing and disinfection of processed items. In order to ensure the correct washing and desinfection and repair in order to deter pollution, machinery must be installed in the manufacturing plant that comes in contact with food. It is essential to know that micro-organisms are transmitted particularly from caterers' hands during food preparation. Bacteria was transferred into food and eventually into other areas from dirty hands of the caterer (Samakupa, 2003). Low infectious dosages have been related to hands as sources of infection of pathogens such as Shigella and Escherichia coli (Snyder, 1998). Bad hygiene has been described as a cause of transmission, especially deficient or lack of hand washing.

The caterers, if not the principal cause of tainted food, are unquestionably one. In Ghana, the bulk of health centers are packed with people of all ages with food-related illnesses (Agyei-Takyi, 2012). Unhygienic and infected food can lead to different diseases and complications. From a caterer's point of view, the diversity, consistency, product and food storage and facilities are planned to fulfill customer demands and not waste and loses. Street caterers are known to provide the economy with substantial income. Dr. Paa-Nii Johnson, Head of Processing and Engineering Unit told the Ghana News Agency that a socio-economic survey of 334 caterers and a mini-census showed the significant contribution of street suppliers to Accra's economy. More than 60,000 workers work in the road food business, with a projected annual turnover of about $100 million and a profit of $24 million.

An analysis by Rheinlander (2012) showed that while the fundamental awareness of food safety was shown by caterers and customers, the study did not stress fundamental practices in hygiene, such as hand wash, utensil cleaning, raw plant washing and the consistency of the ingredients. Instead of this, four key requirements for food selection may be defined and linked to (1) the esthetic appearance and stand of food, (2) caterer appearance, (3) interpersonal trust in the caterer and (4) customer desire and usability of food, which also does not emphasize the hygiene of food. Therefore, by analyzing the caterer's cleanliness, attractiveness and reputation, customers relied on tactics to reduce risk (Rheinländer, 2012).

In the report by FAO/WHO Expert Group, it is not easy to monitor caterers, because sometimes there is a high turnover and it can be difficult to keep track of them. The prices of diagnostic testing are high and only a limited percentage of the carriers of diseases are identified. After tests, infections can also occur. Testing bacteria in stool caterers is not cost-effective and is not advised. It is not recommended. It is not likely

that the detection of a carrier would make a major contribution to foodborne disease management. These views were reiterated by the WHO Second Regional Working Group on Food Safety held in Kuala Lumpur, Madagascar in 1987, in which the value of compulsory medical inspection for such workers was brought into question. A much more powerful prevention method, including training of food producers in hygienic procedures, was frequently ignored. The health professionals and public health authorities continue their discussions of the relative merits, cost and benefits of the food-handling personnel health inspections, despite the conclusions from these meetings, and there is no uniformity in the procedures taken by countries in carrying out such inspections.

2.5.1 The potential of food-handling personnel to transmit diseases via food

Food handling personnel are those who come in touch with a portion or whole of an edible end-product at every point from the farm to market. This term is incorporated in the description in WHO's report on health tests for food handling personnel. This principle is used in the report. A worker in the food industry or someone technically affiliated with it such as an auditor, who enters into close contact in his or her routine work with the food itself during its production, manufacturing, packaging or delivery including raw milk suppliers for direct use. The definition acknowledges that the liability for the use and regulation of food-handling techniques ranges from management to consumption. However, not all of them directly come into contact with food; in the same manner, the connections do not generally cause pathogens to be transmitted from each other to food so that disease can result. There is an appropriate distinction between those who will work and those for whom such a danger does not exist. Many at risk of transmitting pathogenic species may be identified as people whose duties require

interaction with unwrapped foods for raw or no further cooking or ways of treatment. In this division, there is a group of individuals interested in such things as cooking cold meat and meat products and such milk products like fresh cream and egg foods, as well as preparing salads, sandwiches and prepared meals.

In the larger sense, personnel should also be included in water treatment facilities. Special issues in terms of way of life and the challenge of deciding whether they have met control measures can be seen in street catering operators, which are widespread in both developed and developed countries (Rheinländer, 2012). When evaluating and delivering instruction to caterers, the quality of the job they are to perform needs to be understood. Contaminated foods are not handled such that organisms are killed before they reach the user. If there is an infectious dose of organisms in the food or their storage conditions are such that organisms can replicate, create an infectious dose or produce toxins in adequate amounts to induce illness (WHO, 2009).

The ability of food handling personnel to convey disease relies on their degree of interaction with real foodstuffs. The risks raised by these differ greatly, posing the problem of the equitable management of all these employees (Samakupa, 2003). The outbreaks of foodborne disease in the world, according to Nigusse and Kumie (2012), are found to have occurred in almost all situations because they have not met with adequate requirements in the preparing, refining, heating, storage or delivery of foodstuffs. A variety of sources and at various stages can introduce species into the food chain. The animals, the climate or sometimes humans are gastrointestinal pathogens (WHO, 2009). Many raw foodstuffs, particularly those of animal origin, are highly polluted with different types of organisms and efforts at microbial load reduction at different stages of development have generally failed (WHO, 2009). The removal of pathogenic species therefore primarily depends on the proper implementation at

manufacturing, supermarket and household stages of processing technology such as pasteurisation, irradiation, frying, freezing, pickling. Thus, the prevention of foodborne outbreaks depends on the correct use of certain technology, especially as regards time, temperature regulation, and the appropriate storage and preventing of cross-contamination (WHO, 2009).

2.5.2 Personal Hygiene

Research from 1998-2000 found that the vast majority of the recorded cases of food poisoning were attributable to improperly trained workers (Food Safety Authority of Ireland [FSAI], 2001). This strengthened Tebbutt's (1992) study when 22% of food businesses did not train hygiene workers. More than 90% of food safety problems arise from inadequate personal hygiene. Statistics shows that unsuitable hand washing alone accounted for over 25% of all foodborne diseases (Weinstein, 1991). Proper hand washing consists of: water at least 100oF is used to make a nice afterwards, soap is added, hand washing vigorously for at least 20 seconds to ensure that you shrink under your nails and fingers thoroughly under running water (Snyder, 1998). Hand washing should always be done after the bathroom; raw food should be affected; the scalp, face or body should be touched; snowing, coughing or tissues should be used. Smoking, eating, chewing gum or nicotine. Controlling the chemicals, disposal or management of waste; bussing or washing of the counter. Contact clothes or aprons (National Restaurant Association Educational Foundation [NRAEF], 2004).

Manning and Snider (1993) found that their knowledge and behaviors on hygiene and cross-contamination were not supported by personal hygiene and caterer handling experience. While regular and thorough washing of hands was necessary for the caterers, only one person was washed his hands, including caterers who were processing food and

money. As stressed in Chatterjee (2005) unhealthy and inefficient catering activities are attributable to lack of grooming and personal awareness. A research in the US indicated that unsatisfactory catering in food service establishments and homes accounted for around 97 percent of foodborne diseases (Howes et al., 1996). Education, preparation and the production of qualification exams on food safety are essential to ensuring that caterers know and are informed about the values of food safety and sanitation (Jacob, 1989). As a result, it is also important to preserve proper personal hygiene in humans that involve microorganisms naturally or from the atmosphere. Significant personal hygiene considerations include:

1. Caterers are cleaning their hands before touching food and also while cooking food.
2. After going to bathroom, caterers should wash hands (WHO, 2010).
3. Since wiping the caterers' dried hands.
4. Caterers should wear clean clothes.
5. Caterers would wear a mask of their face.
6. Caterers do not wear personal effects in the areas of food handling such as rings, watches and other objects.
7. Caterers must ensure the wounds and bruises are dressed waterproof.
8. Caterers avoid personal behavior, for example smoking, spitting,
9. Caterers should avoid chewing or feeding, sneezing or coughing over unprotected food.

2.5.3 Environmental hygiene

The primary processing of foodstuffs should not be carried out in areas where the presence of potentially dangerous compounds contributes to an excessive degree of

foodstuffs. Caterers should also identify possible sources of emissions from the atmosphere in order to generate healthier food. Risky microorganisms are found mainly in dirt, water, animals and humans, and they are carried by hands, washing cloths and utensils, cutting boards and slight touch with food, can cause foodborne diseases (WHO, 2012). These are the means for maintaining hygiene environment;

1. Preservation of food and food components during the processing, storage and transport against contamination by pests or chemical, physical or microbiological contaminants or other unfailing substances.
2. Waste shall not generate in the food handling, storage of food and other work areas and the environment adjacent to them. Waste stores shall be kept clean adequately.
3. There should be adequate drainage and disposal systems and facilities. They should be designed and manufactured to avoid the risk of contamination of food or mobile water (FAO, Corporate Document Repository, 1999).
4. Water consumption from a clean source or made safe for cleaning should be used.
5. Wash and sanitize all food-processing surfaces and equipment (WHO, 2010).

The hands are the primary way to move species to food from the faeces, nose, skin or other areas. Salmonella tyfi, non-typhi salmonella, Campylobacter and Escherichia coli have been found epidemiologically to have survived for different times and in some cases following hand washing on the boundary of the fingers and on other surfaces (WHO, 2009). Staphylococci cannot be cleaned away from the hands as they are part of the flora (WHO, 2002). Micrococcus spp. also contaminates serving utensils used at the vending site. and Staphylococcus aureus spp, derived from caterers, dishcloths, or water used during dishwashing or washing, in food preparation areas. It is reported that bacteria from dirty dishwashing and other sources adhere to the utensil

surface, which indicate cross-contamination between dishwashing water and food production surfaces, and can constitute a risk in the process of food vending (Rane, 2011).

2.5.4 Cross contamination

Cross-contamination is the transfer of germs from one food to another. About 10 to 20% of outbreaks of foodborne disease are due to caterer contamination (Zain & Naing, 2002). Cross-contamination of cooked and raw foods in the kitchen is caused mainly through contaminated hands and equipment. Cross-contamination may occur when uncovered raw food is stored in refrigerators or other holding devices, directly adjacent to or above ready-to-eat foods. Cross-contamination was identified in the recent review (Djureticet al., 1995) as the major contributor to foodborne disease outbreaks of 36,3 per cent (147/405). It is generally recognized that catering is an important vehicle for food contamination cross-contamination and improved hygiene and careful hand washing lead to basic control on the spread of potentially pathogenic transient micro-organisms (Allwood et al., 2004).

Many caterers also lack knowledge of the possibility of microbial and chemical pollution of food and how to avoid them (Hobbs and Roberts, 1993) (Hobbs and Roberts, 1993). A survey undertaken by Williamson et al. (1992) showed that improper use of kitchen utensils was widespread. Their finding shows that 37 percent of the survey respondents would only clean the knife and cutting board used to cut fresh meat before using the same surface again to slice fresh vegetables for a salad. In the other side, 5 percent of the respondents will start slicing the vegetables with the same knife and cutting board. They added that before cutting the fresh vegetables, only 54% would wash the knife and cutting table with soap and water.

The risk for infection of micro-organisms from raw foods may be minimized by basic steps such as washing and peeling. Furthermore, careful cooking eliminates almost all harmful microorganisms; tests indicate that cooking food at 70^0C will help to ensure that it is safe for consumption (WHO, 2006). When food is kept at room temperature, microorganisms can reproduce very easily. The growth of micro-organisms is decreased or prevented by maintaining the temperature below 5^0C or above 60^0C. Some harmful microorganisms are, however, only less than 5^0C (WHO, 2010). The adequate equipment for heating, colding, cooking and freezing foods, for preserving chilled or frozen foods, for food temperatures tracking, and if necessary, for regulation of ambient temperatures in order to ensure the protection and suitability of foodstuffs should be available, depending on the type of food processes (FAO, 1999).

1. Separate vegetable from raw beef.
2. Using different appliances and utensils for raw food handling, such as knives and cutting boards.
3. Maintain food in containers to prevent raw and prepared food interaction.
4. Wash vegetables and fruits, particularly when consumed raw.
5. Remove leafy leaves from the outer
6. Completely cook food; maintain a maximum temperature of 70^0C.
7. Reheat thoroughly cooked food.
8. Never leave cooked food for more than 2 hours at room temperature.
9. Cool both cooked and perishable foods promptly (preferably under 5°C)

According to WHO (2012), the personnel in the food manufacturing, storage and preparation sector are an important factor in ensuring food safety in the chain. Mismanagement and lack of caterers' hygiene may encourage pathogens to enter into contact with food and, in some cases, thrive and multiply enough to cause illness in the

user. Some caterers may add biological dangers after processing raw materials through cross-contamination, as they suffer from particular diseases and physical dangers by sloppy food handling (Rane, 2011). Many caterers load their customers with food in polythene containers. They blast air into the polythene bags while these foods are packaged, so it is possible to spread a variety of contaminants to the customer during this process.

A study by Buchanan and Whiting (1998) in Columbia found that over 30% of caterers tested were carriers, including Salmonella typhi, Staphylococcus aureus, Salmonella enteritidis and Shigella, of disease-intensive microorganisms (Buchanan and Whiting, 1998). The food storage temperature is an important issue which affects contamination by food and contributes to further contamination. The major causes leading to food poisoning outbreaks are food processing well before consumption, air temperature handling, improper cooling and heating, raw food and undercooking. Foods at elevated environmental temperatures have been identified as a significant contributor to outbreaks of food poisoning over a long period of time (Rane, 2011).

2.5.5 Safe Temperature of Food

Controlling temperature of cooked food is essential to ensuring that the food service facility complies with food safety legislation (McSwane *et al.,* 2004). Foodborne disease can be caused by misuse of temperature when cooking a meal. NRAEF (1999) says violence in periods where food is permitted to stand at temperatures conducive to bacterial growth for a prolonged period of time. McShane et al. (2004) also indicated that temperature abuse could both be caused by a lack of cooking or heat, and by the desired temperature to deter a dangerous microorganism from occurring. In deciding whether food is in or otherwise in a risk zone, use of devices to measures food temperatures such

as heatometers, thermocouples or infrared readings is important (McSwane *et al.,* 2004). The key goal of cooking is to boost food's palatability, explained Nott and Hall (1999), which means that the heating of many foods is necessary in order to destroy bacteria and thus improves food protection and storage. Pastoralisation and other processes of sterilization in operation warrant specific guarantees that all portions of the food component have been heated for a given time above a certain temperature (Nott & Hall, 1999). Various reports suggest that inadequate management and regulation of cooking temperature are the major causes of foodborne outbreaks (Todd, 1997). Improper keeping of food temperatures will also help to increase those bacteria by spores, since not all of those spores are killed by heating processes (McSwane *et al.,* 2004). It is also crucial that all the caterers take their duty to ensure that all cooked foods are monitored at and preparation stage.

2.5.6 Food from Unsafe Sources

The high cost of research is a challenge to most countries in the Southeast Asian and African and laboratories with the potential to identify common food hazards are uncommon (DeWaal & Robert, 2005). Walker and Jones (2002) clarified that conventional approaches to food security management appeared to concentrate on food outlets' overall presentation, structure and cleanliness. These strategies have not succeeded in solving the issue of foodborne diseases, but have not paid enough attention to the causes that cause disease (Walker & Jones, 2002). Miles et al. (2004) indicate that participants were to some degree concerned with all of the food safety challenges they had been confronted with. In contrast to the cost, nutrition, sanitation, and other lifestyle concerns there has been a tendence to be more worried with the dangers involved with the use of food technologies (e.g. food poisoning, fat in the diet, food hygiene). Foods

from an unapproved source or imported food can affect the risk of an outbreak (Sato, 2007).

2.6 Effect of the role of meal service caterers on school feeding programme

The Ghana School Feeding (GSFP) has been planned to deliver a hot and healthy meal every day to the pupils of simple public schools. Its targets included hunger and starvation elimination, enrolment in colleges, attendance and retention. As Afoakwa (2009) points out, some of the diet and health issues in school age children can be resolved by the role of caterers in the school feeding programme. Parents will inspire parents to register their children in schools and to see to it that they regularly participate, along with other school-based nutrition and sanitary programmes. The percentage of children in hungry education is uncertain, although in different situations it is expected to present a major concern. Many aspects lead to school children's hunger; children continue to drive long distances to school, ethnic meals that contain little or limited breakfasts, and lack of family time and opportunities for children to feed before or during the day. The role of the caterers increases the efficacy of the school feeding program so that schoolchildren's hunger is minimized and increased in the school system (Afoakwa, 2009).

The role of caterers in the school feeding program enhances nutritious and proper supper for school children, according to Ahmed (2004). In a Nepal survey, 5% of students were accused of skipping kindergarten, against 27% for children with regular nutritional status (Afoakwa, 2009). malnourished children started school in Ghana in a later age and finished less school than better-nourished children (Ghana News Agency, 2014). Children who attend school and success boost the amount of meals prepared for children. The role of the caterers will have a positive impact on the success of the school feeding

scheme. A recent study of the continuous school feeding program showed that caterer functions were correlated with supplying children with the right amount of food, ensuring the correct composition of meal preparation materials, and helping to cook food in sanitary sites (Pollit, 2005).

Victora et al. (2016) found out that the caterers job supports school-age children in delivering nutritious meals. Hygiene in Ghana is an important problem because of the welfare of the girls, the protection of the ingredients in the food production, and the hygienic conditions that the items pass before they enter into the plates of the children (Bigson et al., 2019). Bolton (2007) affirmed that small children are at greater risk of foodborne infection, since they have not yet developed a suitable immune system for coping with certain pathogens (the body's disease protection system). Therefore, it is highly necessary to exercise personal hygiene because food is often polluted by contact with faecal materials or microorganisms, which come by contact with contaminated hands, kitchen surfaces and utensils, the dirt on the ground or the cleanliness that is poorly used.

Adelman, Gilligan and Lehrer (2009) presented the relationship between school meals cooked for school children and school feeding performance. They demonstrate this influence on the viability of the program for school feeding. School meals increase the nutritional consistency and quantities and reduce concerns from pupils and teachers over meal served. This aims to improve the attendance of students, and children spend more time at school. The more children go to school the more they learn, and these experiences eventually lead to better academic success, thereby reducing their risk of abandonment.

GoG (2015) reported that a properly role played by the caterers under the school feeding has the potential to improve the nutrition of food prepared, ensures proper preparation and cooking method, and helps in preparing food in sanitary locations. The

improved nutrition of food cooked to the school children may also enhance school retention and performance in the short and overlong run. In the short run, school meals could alleviate hunger and make children concentrate and learn better so that school performance will be improved and hence drop-out is minimised. In the long run, school meals could enhance learning, provided that school meals improve the nutritional status of children and if nutritional status also affects learning. GoG (2015) the role of caterers contracted under the programme helps in achieving standardise menu and ensures the sustainability of the school feeding programme.

2.7 Conceptual framework

Based on a comprehensive literature review, a conceptual structure was developed. The conceptual structure is a diagram of variables and their interplay in order to meet the goal of the analysis (Brunswick, 2009). The SFPs are a recognizable network for social security used by world leaders. Communities involved in these services will see their children's concrete gains, such as consistently feeding their children or supplying extra meals to households. The GSFP is usually directed at food-insecure communities in high-concentration areas with low socio-economic status and inadequate school enrollment and enrolment. The goal of the GSFP was to improve school children's educational achievement to boost their possible future performance. However, school meals prepared by the caterers have influence in meeting the aim of the GSFP, as shown in Figure 2.1 below.

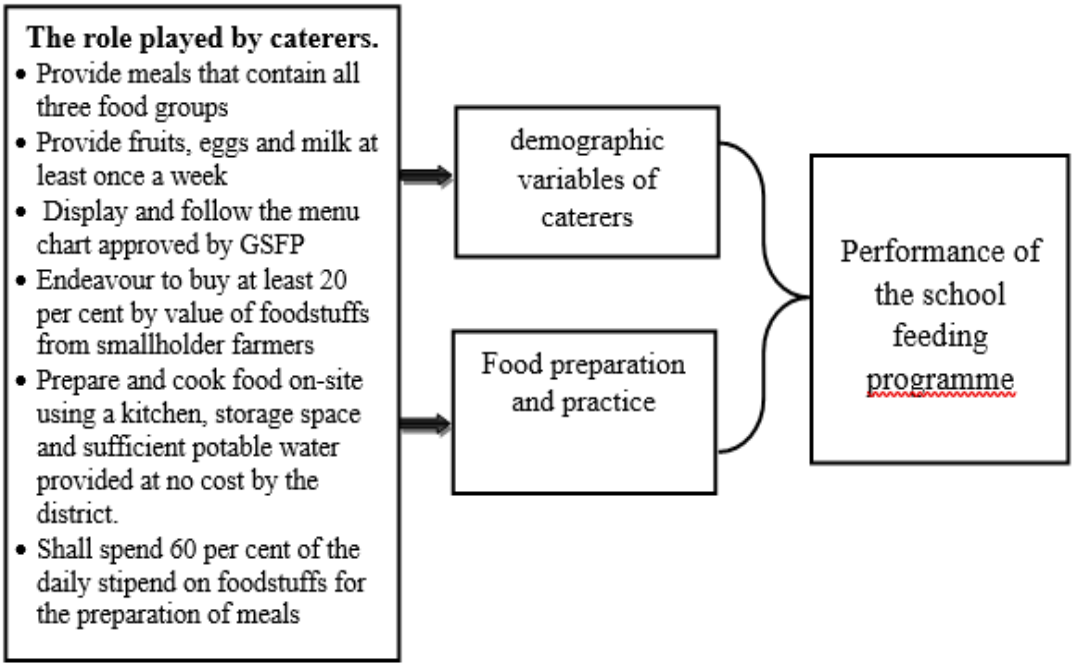

Figure 2. 1: Influence of caterers role compliance on performance of SFP

Source: Author's construct (2020)

Caterers roles in GSFP includes; delivering meals, consisting of three classes of foods, fruit, egg and milk at least once a week, showing a menu chart which GSFP approves and intends to purchase from smallholders at least 20% of their food, preparing and cooking on site food using the kitchen, having storage facilities and adequate drinking water given by the district without any expense at all. The role played by the caterers might be influenced by food preparation and practice, and the demographic variables of caterers. The GSFP has chalked many successes. Households may elect to have their children in schools for academic work because of the expectation of high return that comes with literacy. Arhin (2015) shows the appreciable rise in pupil enrollment in basic public schools that benefit since the launch of the GSFP. The GSFP increases enrollment at school by reducing the cost of attending school and giving extra benefits (formal education). This culminates in more research time and more studying time. If a child is serious with schooling, he or she is extremely likely to be held in school to benefit from the healthy advantages of schooling.

CHAPTER THREE

METHODOLOGY

3.1 Study Sites

The study was conducted in Akwapim South District (ASD) in the Eastern Region. The ASD has five circuits (Aburi, Pakro, Kitase, Nsaba, and Obodan) with a total of forty-four (44) schools. The study provided a brief profile of ASD. Elements presented under the study area include size, population distribution, economy, cultural activities, and educational status. The ASD carved out from the old Akuapem South Municipality was created on 6th February 2012 by an Act of Parliament (Legislative Instrument 2040). The ASD has a population of 37,501. The ASD is largely rural with 27,504 (73.4%) of the inhabitants living in rural areas as compared to 9,997 people (26.6%) in the urban areas. Aburi is the capital of ASD, and it is about 20km from Accra, the national capital.

3.1.1 Location and Size Akwapim South District

The Akwapim South District lies in the south-eastern part of the Eastern Region of Ghana between latitudes 5.45^0N and 5.58^0N, and Longitudes 0.0W and covers a land area of about 224.13 kilometres square. Its borders are Akuapem North Municipality to the north-east, Ga East District to the south, Nsawam Adoagyiri Municipality to the west, and Kpone-Katamanso Districts to the south-east (Figure 3.1).

Figure 2.1: Map of the Akuapem South District
Source: Ghana Statistical Service (GIS) (2010)

3.2 Research Approach

The study employed mixed-method approach in social research. This approach was adopted because it provides the researcher with an in-depth look at contexts, processes and interactions and it makes it possible to obtain a precise measurement of attitudes and outcomes. In addition, this research approach capitalises on the strengths of both quantitative and qualitative research and offers greater possibilities than a single method approach for responding to decision-maker agenda (Bryman, Becker, & Sempik, 2008). Moreover, a mixed method approach enables a researcher to obtain a more comprehensive understanding of educational phenomena, ranging from simple to complex, particular to general and from internal to external perspectives.

3.3 Research Design

The study adopts survey research design which seeks to obtain views from the caterers and heads of beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District. Surveys have been characterised by the collection of data from large numbers of people to describe or explain the characteristics or opinions of a population through the use of a representative sample (May 1997). The survey design was deemed appropriate for this study as it has the advantage of seeking the views of meal service caterers and heads of basic schools on compliance of meal service caterer's roles in schools feeding programme. It allowed for the use of both quantitative and qualitative techniques in the study.

3.4 Population

The study population consisted of all the twenty-two (22) beneficiary basic public schools under the school feeding programme (SFP)in the Akuapem South District. The target population comprised caterers and heads at basic public schools in the Akuapem South District. The study estimated about sixty-six (66) caterers (including cooks) and twenty-two (22) heads at basic public schools in the Akuapem South District.

3.5 Sampling Technique and Sample Size

In determining the sample size, all the 66 caterers and 22 heads at beneficiary basic public schools under SFP were used, since the population was small. The study adopted purposive sampling in sampling both caterers and heads of the beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District.

In using the purposive sampling technique, the researcher just handpicks the respondents to be included in the study. The process of purposive sampling is based on the assumption that the researcher is able to select elements which represent a 'typical sample' from the appropriate target population. Therefore, the study sample in total consisted of 88 respondents comprising; 66 caterers (including cooks) and 22 heads of the beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District.

3.6 Data Collection Instruments

The study employed questionnaire, interview and observation to gather information from the respondents.

3.6.1 Questionnaire

The questionnaire was designed for the selected sixty-six (66) caterers of the beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District; the items were related to the research questions raised in the study. The questionnaire was divided into four (4) sections A, B, C and D. The section A consist of biodata of respondents. Section B presents the compliance of meal service caterers roles in schools feeding programmes. Section C constitutes food preparation practices to ensure food quality and quantity. Section D presents the influence of the role played by caterers on the school feeding programme.

The respondents were expected to tick (√) the created boxes of columns where they strongly agree; agree; disagree, and strongly disagree to the given statements. In this study, the likert scale has five (5) columns from number five (5) to one (1) in a requisite order attached to various columns. The likert scale provides the basis for a neutral

response, as well as ranking highest and lowest responses of respondents in the study. The questionnaire items were based on the research questions raised in the study.

3.6.2 Interview

The interviewees were briefed about the objectives of the study. The questions in the interview guide were asked, and participants provided answers to them. In some cases, further probing questions were asked to elicit further explanations to responses provided by the interviewees. The interview sections were audiotaped using digital audio-recorders. Ethical issues such as consent for photographs, an audio recording of participants' voices were strictly adhered to throughout the interview process. In all, 22 headteachers from each study school took part in the interview. Each interview session lasted between 10-15 minutes. Wellington (2000) observed that one of the first tasks of an interviewer is to establish a rapport with the interviewee.

3.7 Validity and Reliability of Instruments

To ensure validity and reliability of the questionnaire, items were shown and discussed at length with colleagues in the school, lecturers and finally shown to the supervisor of the study. Items which seem similar was deleted and restructured to make sure the questions are authentic. Creswell (2005) said that the goal of good research is to maintain measures that are valid and reliable. Cohen, Marion and Morrison (2003) stated that validity must be based upon the particular instrument used to determine the purpose to which it is put.

Reliability of research instrument is much concerned with consistency where stable responses are generated to build confidence in further planning and decisions in the study to provide good results. Taale and Ngman-Wara (2003) explained that

reliability refers to the consistency that measures test items from one period to another over a period of time, situations and examiners. Normally, if results obtained seem similar, from the same test across situations, time and period, a high degree of reliability is produced. Sometimes, reliability is seen when consistent or stable responses are generated. Cohen, Marion and Morrison (2003) reiterated that reliability has to do with measuring the consistency and reliability over time, type of instrument, and group responses.

3.8 Procedure for Data Collection

During the data collection phase of this research, the researcher visited the sampled schools to familiarise and explain the purpose of the study to the heads, teachers, and other stakeholders. Prior to this, permission was sought from the Director of Education of the Akwapim South District, explaining the intent of the research. The research instruments were administered to the caterers and head teachers in the selected schools for the study. Participants were given adequate explanations before completing the questionnaire. They responded to the questionnaire in a relaxed manner in order for them to provide reliable information.

The teachers assisted in the distribution of the questionnaire to the caterers. This enabled the researcher to obtain 90.00% of all the questionnaires back. The researcher administered the checklists for classroom observation schedule. The checklist indicated how caterers and pupils behaved during the feeding process. Using the action checklist, the researcher visited the selected schools to observe caterers' services unobtrusively during cooking and the lunch break when meals are served.

3.9 Data Analysis

The data collected were summarised and analysed using bot

.292	6.462

h quantitative and qualitative methods. The quantitative data was analysed using descriptive statistics such as frequencies and percentages. In addition, T-test and ANOVA was used to test the difference between selected demographic variables with the role of meal service caterers in schools feeding programmes. Correlation analysis and Regression analysis was used to determine the effect of compliance of meal service caterers roles on the school feeding programme, The qualitative data obtained from the respondents during the interview sessions were analysed in common themes to bring out similarities and differences.

3.10 Ethical Requirement

A central feature of the research is to make results and findings public, to provide descriptions and explanations that are publicly available. However, the consent to participate in the focus group and interview was sought from respondents prior to the administration of the research instruments. Verbal assent was also obtained from parents or appropriate guardians of eligible sampled pupils before they were used in the study. The parents of recruited children were reached through the teachers via the district education directorate. Verbal assent and consent for photographing, audio and/or video recording of pupils' voices were also sought from both parents and the sampled pupils, respectively.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Response Rate

The study targeted a sample size of 66 caterers from which 51 filled in and returned the questionnaires making a response rate of 77.3%. This response rate was satisfactory to make conclusions for the study. According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Based on the assertion, the response rate was considered to be excellent and representative to the population.

4.2 Respondents Demographic Information

The demographic factors analysed included gender, age, highest level of educational qualification, and the number of years the caters have been working under the SFP. The demographic information of the respondents helped in determining the authenticity of the study and also provides the basis for ascertain whether the role of meal service caterers in SFP differ with respect to their demographic characteristics. Moreover, the demographic characteristics of the respondents were needed to be used as independent variable or a factor in relation to the t-test and ANOVA to identify exactly where significant differences exist.

4.2.1 Gender of Respondents

The research sought to establish the gender of the meal service caterers in SFP. The results are shown in Table 4.1

Table 4. 1: Gender of respondents

Gender	Frequency (N)	Percentage (%)
Male	0	0.0
Female	51	100.0
Total	51	100.0

Source: Researcher's Field Work, 2020

The result on the gender of the selected caterers is depicted in Table 4.1. The statistics indicate that both males and females were captured in the study. This is because the views of both genders were needed to make fair conclusions on the subject. From the findings, all the 51 meal service caterers under the school feeding programme comprised females bringing the percentage to 100.0%, hence the distribution of the caterers in both study areas (urban and rural) were predominantly females. This implies that the caterers working under the school feeding programme is preserve for a particular sex group since females are seriously engaged in it.

4.2.2 Age of Respondents

The research sought to establish the age range of the caterers. The results are presented in Table 4.2

Table 4. 2: Age group of respondents

Age group	Frequency(N)	Percentage (%)
21-30years	2	3.9
31-40years	32	62.7
41-50years	15	29.4
51-60years	2	3.9
Total	51	100.0

Source: Researcher's Field Work, 2020

As depicted in Table 4.2, the findings also indicate that 2 respondents

representing 3.9% were between 21-30years of age; 32 respondents representing 62.7% were aged between 31-40years of age, while 15 respondents constituting 29.4% were between 41-50 years of age. On the other hand, 2 respondents constituting 3.9% were above 51-60years of age. This implies that majority of the caterers working under the SFP were middle-aged, which can be attributed to general population in the country. Furthermore, the findings show that in the age group with the highest respondents that is 31-40 years. This implies that middle aged caterers make up the highest number of teachers at the various beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District.

4.2.3 Highest Educational level

The research also sought to establish the highest educational level of respondents. Table 4.3 shows the results.

Table 4. 3: Highest level of education

Education	Frequency (N)	Percentage (%)
Primary education	9	17.6
Senior high/Vocational education	34	66.7
Bachelor	6	11.8
Masters	2	3.9
Total	51	100.0

Source: Researcher's Field Work, 2020

As depicted in Table 4.3, 9 respondents forming 17.6% have attained educational up to the primary level from the various. However, 34 respondents constituting 66.7% have attained education up to senior high/vocational level. On the other hand, 6 respondents constituting 11.8% have attained bachelor education, whereas 2 of them forming 3.9% have had Masters education. This implies that majority of the caterers have

had some form of education and are in a good standing to argue professionally on the issue relating to the role they play, preparation practices engaged in by caterers to ensure food quality and quantity in SFP.

4.2.4 Numbers of years working under SFP

This research also sought to establish the number of years the caterers have been working under the SFP. The results are presented in Table 4.4.

Table 4. 4: Years of working as caterer in SFP

Number of years	Frequency (N)	Percentage (%)
1-5	48	94.1
6-10	3	5.9
Total	51	100.0

Source: Researcher's Field Work, 2020

From the findings presented in Table 4.4, 48 respondents constituting 94.1% of the respondents had been working as a caterer for 1-5years. In addition, 3 respondents forming 5.9% had been working as a caterer under the SFP for 6-10years. The statistics indicates that majority of the caters had been working for less than 5 years at the various beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District which is not encouraging.

4.3 Compliance of meal service caterers role in School Feeding Programme

Table 4.5 presents compliance of meal service caterers role in schools feeding programmes. The mean and standard deviation of the variables under consideration were computed. The computed means were compared with the predetermined mean of 3.0. Levene's Test for Equality of Variances was also conducted to compare the compliance

of service meal caterers role at different settings (Rural and Urban) whether their ratings were significant or not.

Table 4. 5: Responses on compliance of meal service caterers roles

Compliance of meal service caterers roles	Mean	Std. Dev	Levene's Test for Equality of Variances	
			F	sig
Pay staff who are employed from the beneficiary community	4.49	.857	10.697	0.002[a]
Buy at least 20 per cent value of foodstuffs from smallholder farmers	4.35	1.036	2.632	0.111[c]
Comply with food safety and hygiene as well as the health and nutrition procedures	4.25	0.744	0.004	0.951
Spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals	4.12	0.744	2.995	0.090[c]
Undertake to be monitored by his/her respective MMDA and GSFP representatives	3.84	1.046	1.629	0.208
Provide reports especially concerning purchases from smallholder farmers	3.61	1.150	4.594	0.037[b]
Provide meals that contain all three food groups	2.29	1.238	0.097	0.757
Provide fruits, eggs, and milk at least once a week	2.04	1.113	0.870	0.356
Use the GSFP handy measure during food preparation and service to ensure that the daily nutritional and caloric requirements stipulated are met	2.00	0.775	1.042	0.312
Prepare and cook food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district	1.92	0.891	1.940	0.170[c]
Display and follow the menu chart approved by GSFP	1.86	0.872	0.008	0.930

[a]$P<0.01$, [b]$P<0.05$, [c]$P<0.1$ *Mean ≥3.0=Agreed*

Source: Researcher's Field Work, 2020

From Table 4.5, the caterers agreed to their compliance with their role by paying staff who are employed from the beneficiary community. This statement had a mean score of 4.49 and a standard deviation of 0.857. A significant difference was found between the caterers at different settings (Rural and Urban) in playing their role by paying staff who are employed from the beneficiary community (t=10.697, p=0.002<0.01). This implies that caterers role by paying staff who are employed from the beneficiary community differs in different settings. The result is in line with the

Section 3.1 of the GSFP Catering contract which requires the contracted caterers in fulfilment of boosting the local economy by recruiting cooks from the same community, and pay staff who are employed from the beneficiary community (GoG, 2015).

In addition, the caterers reported that they play a role by buying at least 20% value of foodstuffs from smallholder farmers. The caterers agreed to the statement with a mean score of 4.35 and a standard deviation of 1.036. In finding the significant different between the service meal caterers at different settings (Rural and Urban) and their role in buying at least 20 per cent value of foodstuffs from smallholder farmers a significant different difference was attained at 0.1 ($t=2.632$, $p=0.111<0.1$). This finding agrees with the report by Quaye, et al. (2010) that contracted caterers are task to make purchase of foodstuffs from smallholder farmers in order to boost the local economy and are endeavour to buy at least 20 per cent by value of foodstuffs from smallholder farmers, and also to provide reports especially in relation to purchases from smallholder farmers (SHFs, etc.)

Concerning the statement of complying with food safety and hygiene as well as the health and nutrition procedures, the respondents agreed to that effect. A mean score of 4.25 and a standard deviation of 0.744 was attained. This indicates that the contracted caterers play their role by adhering to the safety and hygiene procedure in producing healthy and nutritious food to the school children. Statistically, an insignificant difference was found between the service meal caterers at different settings (Rural and Urban) and their role in complying with food safety and hygiene as well as the health and nutrition procedures ($t=0.004$, $p=0.951>0.05$). Section 3.1 of the GSFP Catering Contract reported that caterers shall use the GSFP handy measure during food preparation and service to ensure that the daily nutritional and caloric requirements stipulated are met, and comply with the Food Safety and Hygiene as well as the Health

and Nutrition procedures cited in the Code of Quantity and food hygiene checklist (GoG, 2015).

Furthermore, the caterers indicated that they spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals as their role. This statement had a mean of 4.12 and a standard deviation of 0.816. This implies that most of the caterers at the public beneficiary basic schools spend their remuneration in the preparation of meal for the school children. The Levene's Test for Equality of Variances shows a significant mean difference between service meal caterers at different settings (Rural and Urban) and their role in spending 60% of the daily stipend on foodstuffs for the preparation of meals ($t=2.995$, $p=0.090<0.1$). According to the GSFP Catering Contract it is the responsibilities of caterers contracted under the programme to spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals (GoG, 2015).

The respondents further agreed to that undertake to be monitored by his/her respective MMDA and GSFP representatives. This statement had a mean of 3.84 and a standard deviation of 1.046. In addition, an insignificant difference was found between the rating of service meal caterers at different settings (Rural and Urban) on undertaking to be monitored by his/her respective MMDA and GSFP representatives ($t=1.629$, $p=0.0.208>0.05$). Moreover, with a mean score of 3.61 and a standard deviation of 1.150, the respondents agreed that the play a role by providing reports especially concerning purchases from smallholder farmers. However, a significant difference was found between caterers at different settings (Rural and Urban) ratings on providing reports especially concerning purchases from smallholder farmers ($t=4.594$, $p=0.037<0.05$).

On the contrary, the caterers failed to play their role by providing meals that contain all three food groups ($x=2.29$, $SD=1.238$), providing fruits, eggs, and milk at

least once a week (x=2.04, SD=1.113), using GSFP handy measure during food preparation and service to ensure that the daily nutritional and caloric requirements stipulated are met (x=2.00, SD=0.775). On the other hand, the caterers disagreed in preparing and cooking food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district (x=1.92, SD=0.891), and displaying and following the menu chart approved by the GSFP (x=1.86, SD=0.872). These statements failed to meet the cut-off point of 3.0.

The finding shows that the meal service caterers at the various beneficiary basic public schools under the SFP in the Akuapem South District pay staff who are employed from the beneficiary community, buy at least 20 per cent value of foodstuffs from smallholder farmers, comply with food safety and hygiene as well as the health and nutrition procedures, spend 60% of the daily stipend on foodstuffs for the preparation of meals, undertake to be monitored by his/her respective MMDA and GSFP representatives, and provide reports especially concerning purchases from smallholder farmers.

4.3.1 Factor Analysis of Compliance of Meal Service Caterers Role

Eleven (11) variables on the compliance of meal service caterers role under the SFP were factorized. The tests were required for the appropriateness of the factor analysis for the factor extraction, including the Kaiser-Meyer-Olkin (KMO) measure of sampling accuracy, anti-image correlation, measure of sampling activities (MSA) and Barlett test of sphericity. The value of the KMO statistic is .525 which according to Pallant (2005; Guar & Guar, 2009) is satisfactory for factor analysis. In a nutshell, these tests show that factor analysis is appropriate for the factor extraction.

Table 4. 6: Factor loadings of compliance of meal service caterers role

Item	Factor	Variables included in the factor	Factor Loading	Eigenvalue	Variance explained %	Cumulative variance %
1	Providing adequate and nutritious food	Undertake to be monitored by his/her respective MMDA and GSFP representatives	.833	2.543	25.433	25.433
		Provide fruits, eggs, and milk at least once a week	.716			
		Provide meals that contain all three food groups	.608			
		Use the GSFP handy measure during food preparation and service	.663			
2	Complying with meal preparing and practices	Pay staff who are employed from the beneficiary community	3.21	1.575	15.749	41.181
		Buy at least 20 per cent value of foodstuffs from smallholder farmers	.569			
		Comply with food safety and hygiene as well as the health and nutrition procedures	.403			
		Spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals	.825			
		Display and follow the menu chart approved by GSFP	.773			
3	Providing safety and hygienic food	Comply with food safety and hygiene as well as the health and nutrition procedures	.302	1.430	14.302	55.483
		Comply with food safety and hygiene as well as the health and nutrition procedures	.607			
		Prepare and cook food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district	.740			
		Undertake to be monitored by his/her respective MMDA and GSFP representatives	-.413			
		Use the GSFP handy measure during food preparation and service	.332			
		Provide reports especially concerning purchases from smallholder farmers	-.329			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization
*a. Rotation converged in 5 iterations
Note. Factor loadings < .30 are suppressed

After the Varimax Rotation converged in 11 iterations with a Kaiser Normalization, all three factors were named (Table 4.6). The main projections of the statements offered in the questionnaire on the first factor are those related to Providing adequate and nutritious food. This encompasses variables such as: undertaking to be monitored by his/her respective MMDA and GSFP representatives, providing fruits,

eggs, and milk at least once a week, providing meals that contain all three food groups, and using the GSFP handy measure during food preparation and service.

The second factor, named complying with meal preparing and practices, is defined by statements such as: paying staff who are employed from the beneficiary community, buying at least 20 per cent value of foodstuffs from smallholder farmers, complying with food safety and hygiene as well as the health and nutrition procedures, spending 60 per cent of the daily stipend on foodstuffs for the preparation of meals, and displaying and following the menu chart approved by GSFP.

The third factor, determined by providing safety and hygienic food, is named complying with food safety and hygiene as well as the health and nutrition procedures, complying with food safety and hygiene as well as the health and nutrition procedures, preparing and cooking food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district, undertaking to be monitored by his/her respective MMDA and GSFP representatives, using the GSFP handy measure during food preparation and service, and providing reports especially concerning purchases from smallholder farmers. On the variance-covariance matrix, all the three extracted factors with an eigenvalue were greater than 1.0.

4.4 Food preparation practices of caterers to ensure food quality and quantity

Table 4.7 addresses the food preparation practices engaged in by caterers to ensure food quality and quantity in the school feeding programme. The variables under consideration were computed. The computed means were compared with the predetermined mean of 3.0.

Table 4. 7: Responses on the Food preparation practices of caterers

Food preparation practices of caterers	Responses		Decision
	Mean	Std. Dev	
Personal Hygiene (x=2.68)			
Wear clean clothes/uniform during cooking	4.12	.791	Always
Hair properly covered during the event	4.11	.973	Always
Wash hands before I start cooking	3.10	1.204	Always
Wash hands after returning from a break	2.39	1.297	Sometimes
Wearing jewellery during cooking	2.25	.821	Sometimes
Wash hands after touching the body, uniform, etc.	2.20	.980	Sometimes
Wear gloves when cooking.	1.71	.832	Never
Coughing and sneezing near food preparation/service areas	1.57	.831	Never
Cooking, holding, and serving procedures(x=2.64)			
Tasting food while cooking it	3.69	1.288	Always
Use the recommended cooking equipment when preparing food	3.41	1.236	Always
Follow proposed menu plan strictly in the contract document	3.08	1.294	Always
Food not properly covered	2.67	1.194	Sometimes
Food stored properly in the refrigerator	2.00	1.166	Sometimes
Move food to hold	1.88	.993	Never
Move food to hold or serve it without checking the temperature.	1.75	.821	Never
Equipment and other contamination (x=3.25)			
Kitchen equipment are cleaned/sanitised after use	4.08	.977	Always
Knives/kitchen utensils are cleaned/sanitised before use	3.59	1.383	Always
Working surfaces are cleaned/sanitised after use	3.27	1.185	Always
Students bowls are cleaned/sanitised before serving food	2.06	1.298	Sometimes

Mean <2.0=Never; 2.0 – 2.9=Sometimes; ≥3.0= Always

Source: Researcher's Field Work, 2020

4.4.1 Personal Hygiene Practices of Caterers

It can be observed from the study results in Table 4.7 that the caterers always wear clean clothes/uniform during cooking had a mean of 4.12 and a standard deviation of 0.791. This implies that the caterers pay attention to their clothes/uniform when

preparing food for the school children. On average, the caterers indicated that they always cover their hair during the event of food preparation. This is supported by a mean of 4.11 and a standard deviation of 0.973. Also, the caterers always wash hands before they start to cook. This statement attained a mean of 3.10 and a standard deviation of 1.204. The findings from the study reveal that the caterers sometimes wash hands after returning from a break. This is supported by a mean of 2.39 and standard deviation of 1.297. According to Victora et al. (2016) most caterers failed to wash their hands after visiting a place. Victora et al. (2016) further mentioned that failure on the part of caterers to wash their hands (or to wash them properly) is one of the biggest threats to consumers. There is so much contamination that can occur in a kitchen, such as improper handling of raw foods and cooked foods without sanitizing the hands or utensils.

Conversely, the caterers indicated that they sometimes wear jewellery during cooking. This statement reflected a mean of 2.25 and a standard deviation of 0.821. The caterers further affirmed that they sometimes wash their hands after touching the body, uniform etc with a mean score of 2.20 and a standard deviation of 0.980. However, with a mean score of 1.71 and a standard deviation of 0.832, the caterers asserted that they never wear gloves when cooking. Finally, the caterers reported that they never cough and sneeze near food preparation/service areas. This statement of caterers coughing and sneezing near food preparation/service areas had a mean of 1.57 and a standard deviation of 0.831.

Overall, with an average mean of 2.68, the finding revealed that the caterers at the beneficiary basic public schools under the SFP in the Akuapem South District sometimes follow a few personal hygiene rules to help minimize food safety problems, but for the individual items the caterers always wear clean clothes/uniform during cooking, cover their hair properly during the event, wash hands before cooking.

Practicing personal hygiene is of utmost important since contamination of food mostly comes from contact with faecal material or microorganisms delivered by contact with contaminated hands, cooking surfaces and utensils, the soil on the ground, or improperly cleaned dishes and cutlery. Research shows that, if widely practiced, hand washing with soap could reduce diarrhoea by almost 50% and respiratory infections by nearly 25% (Curtis & Cairncross, 2013; Jefferson, Foxlee & Mar, 2017).

4.4.2 Cooking, Holding, and Serving Practices of Caterers

It observed from Table 4.7 that caterers at the beneficiary basic public schools under the SFP in the Akuapem South District always taste food while cooking it with a mean score of 3.69 and a standard deviation of 1.288. On average, the caterers agreed they always use the recommended cooking equipment when preparing food. This is supported by a mean of 3.41 and a standard deviation of 1.236. Suleman et al. (2013) revealed that with the 60% of the schools visited, the caterers taste the food during cooking but did not have adequate stock of plates, cups, and spoons. This implies that some pupils have to wait and reuse plates and spoons used by their friends after washing them. As a result, pupils eat in turns creating prolonged lunch breaks and reduced time spent in class by the pupils. It also subjects the children to possible cross-contamination of diseases and other contaminants.

In addition, it appeared that the caterers always follow the proposed menu plan strictly in the contract document with a mean score of 3.08 and a standard deviation of 1.294. Moreover, with a mean of 2.67 and a standard deviation of 1.194, the caterers mentioned that sometimes the food prepared are not properly covered. The caterer further asserted that they sometimes store the food at refrigerator. This statement reflected a mean of 2.00 and a standard deviation of 1.166. The caterers further asserted

that they never move food to hold with a mean score of 1.88 and standard deviation of 0.993. This means that the cateres do not serve food at correct temperature, this may cause food contamination by microorgisms. They also reported that they never move food to hold or serve it without checking the temperature. This statement attained a mean of 1.75 and a standard deviation of 0.821. McSwane *et al*. (2004) mentioned that the abuse of temperature also may be caused by insufficient amount of cooking or reheating time and desired temperatures that should eliminate the existence of harmful microorganism.

The overall mean score of 2.64 indicates the caterers at the beneficiary basic public schools under the SFP in the Akuapem South District sometimes adhered to proper procedure of cooking, holding, and serving food to the school children. For the individual items, the finding shows that the caterers always taste food while cooking it, use the recommended cooking equipment when preparing food, and follow proposed menu plan strictly in the contract document. Bigson, et al. (2019) indicated that there are more critics concerning the quality of cooked meals and served, the conditions under which food ingredients of the GSFP are procured and stored, and the hygienic conditions under which meals are cooked, served, and eaten (unpublished results). The health of the children, the safety of the food ingredients used in the meal preparation, and the hygienic conditions the products run through before they get onto the plates of these children are of the essence because hygiene is a major challenge in Ghana (Dogbe & Kwabena-Adade, 2012).

4.4.3 Equipment and Contamination Practices of Caterers

The findings from the study reveal that most of the caterers agreed that the kitchen equipments are always cleaned/sanitized after use. This is supported by a mean of 4.08

and a standard deviation of 0.977. In addition, the caterers revealed that the knives/kitchen utensils are always cleaned/sanitised before use with a mean of 3.59 and a standard deviation of 1.383. The caterers further emphasized that the working surface are always cleaned/sanitized after use with a mean of 3.27 and standard deviation of 1.185. Indicating that on average most of the caterers of beneficiary basic public schools under the SFP clean the working surface to prevent any contamination. Conversely, the caterers mentioned that they sometimes clean/sanitize students bowls before serving the food. This statement attained a mean of 2.06 and a standard deviation of 1.298. This confirms that most of the caterers are not concerned with cleaning the bowls of the school children.

Overall, with an average mean score of 3.25, the finding shows that caterers clean/sanitize the kitchen equipment to prevent any contamination. Thus, the caterers clean/sanitized kitchen equipment, and working surface before after preparing food for the school children. The finding aligns with the work of (Rane, 2011) who mentioned that kitchen equipments should be clean and sanitize to prevent any contamination. The utensils used at the kitchen are often contaminated with Micrococcusspp. and Staphylococcus aureus spp. which may have originated from the caterers hands when they touched the food preparation areas, dishcloths, or the water during dish washing or hand washing which indicates cross contamination between dishwater, food preparation surfaces, and the food itself. It is reported that bacteria from dirty dish washing water and other sources adhere to the utensil surface and can constitute a risk during the food vending process (Rane, 2011). Potential sources of contamination from the environment should also be considered by caterers to safe food production. Dangerous microorganisms are widely found in soil, water, animal and people and these microorganisms are carried on hands, wiping cloths and utensils, cutting boards and the

slightest contact of these microorganisms to food can cause food borne diseases (WHO, 2012). These following points are means of ensuring hygienic environment according to WHO (2010) and FAO (1999).

4.5 Association between demographic variables with compliance of caterer's role in SFP

To answer research question three, ANOVA test were meant to find out the association between the compliance of meal service caterer's roles in schools feeding programmes with selected socio-demographic variables.

4.5.1 Association between Age Group and compliance of caterer's role in SFP

A one-way between groups analysis of variance was conducted to explore the association between age group of meal service caterers and compliance of role in Ghana school feeding programme. Participants were grouped according to their age range. Table 4.8 presents the result.

Table 4. 8: ANOVA of strands when grouped by age group of respondents

		Sum of Squares	df	Mean Square	F	Sig.
Provide meals that contain all three food groups	Between Groups	7.386	3	2.462	1.672	.186
	Within Groups	69.202	47	1.472		
	Total	76.588	50			
Provide fruits, eggs, and milk at least once a week	Between Groups	10.688	3	3.563	3.268	.029*
	Within Groups	51.233	47	1.090		
	Total	61.922	50			
Display and follow the menu chart approved by GSFP	Between Groups	6.139	3	2.046	3.015	.039*
	Within Groups	31.900	47	.679		
	Total	38.039	50			
Buy at least 20 per cent value of foodstuffs from smallholder farmers.	Between Groups	2.339	3	.780	3.714	.028*
	Within Groups	51.308	47	1.092		
	Total	53.647	50			

Prepare and cook food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district	Between Groups	1.284	3	.428	0.524	.668
	Within Groups	38.402	47	.817		
	Total	39.686	50			
Spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals	Between Groups	.361	3	.120	0.172	.915
	Within Groups	32.933	47	.701		
	Total	33.294	50			
Use the GSFP handy measure during food preparation and service	Between Groups	1.225	3	.408	0.667	.577
	Within Groups	28.775	47	.612		
	Total	30.000	50			
Undertake to be monitored by his/her respective MMDA and GSFP representatives	Between Groups	2.343	3	.781	0.700	.556
	Within Groups	52.402	47	1.115		
	Total	54.745	50			
Comply with food safety and hygiene as well as the health and nutrition procedures	Between Groups	.284	3	.095	0.162	.921
	Within Groups	27.402	47	.583		
	Total	27.686	50			
Pay staff who are employed from the beneficiary community	Between Groups	.645	3	.215	0.280	.840
	Within Groups	36.100	47	.768		
	Total	36.745	50			
Provide reports especially concerning purchases from smallholder farmers	Between Groups	18.757	3	6.252	6.200	.001*
	Within Groups	47.400	47	1.009		
	Total	66.157	50			
Total						**F=1.567p=.196**

*Note: *p-value is statistically significant at 5% (0.05)*
Source: Field Work using SPSS (2020)

As indicated in Table 4.8, ANOVA analysis of the difference between respondents view in different age group shows no significant association value (F(df)=1.567, p=0.196>0.05). This is because P-Value is greater than 0.05. On the individual item, there was a statistically significant association between age group of meal service caterers and role in providing fruits, eggs, and milk at least once a week (F(df) = 3.268, p=0.029<0.05). This shows that age group of the meal service caterers differ in respect to role in providing fruits, eggs, and milk at least once a week. In addition, a significant difference was found between the age group of the meal service

caterers and the role in displaying and following the menu chart approved by GSFP (F(df) = 3.015, p=0.039<0.05). Also, the role of meal service caterers in buying at least 20 per cent value of foodstuffs from smallholder farmers differ with respect to the age group of the meal service caterers (F(df) = 3.714, p=0.028<0.05). Moreover, there was a significant association between the age group of the meal service caterers and their role in providing reports especially concerning purchase from smallholder farmers (F(df) = 6.200, p=0.001<0.01).

The finding shows no association between age group of meal service caterers and role played in Ghana school feeding programme (F(df)=1.567, p=0.196>0.05). This implies that under the School Feeding in Ghana at the Primary/KG level, the catering roles to beneficiary schools/pupils under the Section 3.1 of the GSFP Catering Contract does not differ with respect to the age range of meal service caterers.

4.5.2 Association between educational level and compliance of role in SFP

This section addresses the association between educational level of meal service caterers and compliance of role in schools feeding programmes. Table 4.9 shows One-Way ANOVA test results on the role of meal service of caterers according to their different educational level.

Table 4. 9: ANOVA of strands when grouped by highest educational level

		Sum of Squares	df	Mean Square	F	Sig.
Provide meals that contain all three food groups	Between Groups	2.724	3	.908	4.396	.005*
	Within Groups	73.865	47	1.572		
	Total	76.588	50			
Provide fruits, eggs, and milk at least once a week	Between Groups	1.239	3	.413	5.507	.001*
	Within Groups	60.682	47	1.291		
	Total	61.922	50			

Display and follow the menu chart approved by GSFP	Between Groups	3.580	3	1.193	1.628	.196
	Within Groups	34.459	47	.733		
	Total	38.039	50			
Buy at least 20 per cent value of foodstuffs from smallholder farmers.	Between Groups	.888	3	.296	.264	.851
	Within Groups	52.759	47	1.123		
	Total	53.647	50			
Prepare and cook food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district.	Between Groups	3.416	3	1.139	5.093	.002*
	Within Groups	36.271	47	.772		
	Total	39.686	50			
Spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals	Between Groups	1.994	3	.665	7.684	.000*
	Within Groups	31.300	47	.666		
	Total	33.294	50			
Use the GSFP handy measure during food preparation and service	Between Groups	2.665	3	.888	1.527	.220
	Within Groups	27.335	47	.582		
	Total	30.000	50			
Undertake to be monitored by his/her respective MMDA and GSFP representatives	Between Groups	7.727	3	2.576	2.575	.065
	Within Groups	47.018	47	1.000		
	Total	54.745	50			
Comply with food safety and hygiene as well as the health and nutrition procedures	Between Groups	1.045	3	.348	7.226	.000*
	Within Groups	26.641	47	.567		
	Total	27.686	50			
Pay staff who are employed from the beneficiary community	Between Groups	1.910	3	.637	6.882	.000*
	Within Groups	34.835	47	.741		
	Total	36.745	50			
Provide reports especially concerning purchases from smallholder farmers	Between Groups	10.616	3	3.539	7.365	.000*
	Within Groups	55.541	47	1.182		
	Total	66.157	50			
Total					**F=2.735**	**p=0.005***

*Note: *p-value is statistically significant at 5% (0.05)*
Source: Field Work using SPSS (2020)

Inferring from Table 4.9, ANOVA analysis of the association between meal service caterers views in different educational level on role they play in GSFP. This means, the role of meal service caterers in GSFP differ with respect to their educational level (F(df)=2.735, P=0.005<0.01). Additionally, on the individual items, there was a

significant association between educational level of the meal service caterers on the role in providing meals that contain all three food groups (F(df)= 4.396, P=0.005<0.05); providing fruits, eggs, and milk at least once a week (F(df)= 5.507, P=0.001<0.01), and preparing and cooking food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district (F(df)= 5.093, P=0.002<0.01).

In addition, a significant difference was found between educational level of the meal service caterers on the role of spending 60.0% of the daily stipend on foodstuffs for the preparation of meals (F(df)=7.684, p=0.000<0.001), complying with food safety and hygiene as well as the health and nutrition procedures (F(df)=7.226, p=0.000<0.01), paying staff who are employed from the beneficiary community (F(df)=6.822, p=0.000<0.01), and Provide reports especially concerning purchases from smallholder farmers (F(df)=7.365, p=0.000<0.01).

There was a statistically significant association between educational level of meal service caterers and the role they play in schools feeding programmes. The association is one of a positive association where the level of role played by meal service caterer increased with educational level. The result suggests that the higher the educational level of the individual the higher the mean value of the role played in the school feeding programme by the caterer.

4.5.3 Association between caterers working experience and compliance of role

This section addresses the association between the caterers number of years working and compliance of role in the SFP. One-Way ANOVA test was performed to compare the compliance of role of meal service caterers according to their number of years working under the school feed programme. Table 4.10 shows the results.

Table 4. 10: ANOVA test on role of caterers grouped by working experience

		Sum of Squares	df	Mean Square	F	Sig.
Provide meals that contain all three food groups	Between Groups	1.588	1	1.588	1.038	.313
	Within Groups	75.000	49	1.531		
	Total	76.588	50			
Provide fruits, eggs, and milk at least once a week	Between Groups	1.588	1	1.588	1.290	.262
	Within Groups	60.333	49	1.231		
	Total	61.922	50			
Display and follow the menu chart approved by GSFP	Between Groups	.893	1	.893	1.178	.283
	Within Groups	37.146	49	.758		
	Total	38.039	50			
Buy at least 20 per cent value of foodstuffs from smallholder farmers.	Between Groups	.314	1	.314	.288	.594
	Within Groups	53.333	49	1.088		
	Total	53.647	50			
Prepare and cook food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district.	Between Groups	.020	1	.020	.024	.877
	Within Groups	39.667	49	.810		
	Total	39.686	50			
Spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals	Between Groups	3.982	1	3.982	6.656	.013*
	Within Groups	29.313	49	.598		
	Total	33.294	50			
Use the GSFP handy measure during food preparation and service	Between Groups	.354	1	.354	.585	.448
	Within Groups	29.646	49	.605		
	Total	30.000	50			
Undertake to be monitored by his/her respective MMDA and GSFP representatives	Between Groups	.078	1	.078	.070	.792
	Within Groups	54.667	49	1.116		
	Total	54.745	50			
Comply with food safety and hygiene as well as the health and nutrition procedures	Between Groups	.207	1	.207	.369	.546
	Within Groups	27.479	49	.561		
	Total	27.686	50			
Pay staff who are employed from the beneficiary community	Between Groups	.828	1	.828	1.130	.293
	Within Groups	35.917	49	.733		
	Total	36.745	50			
Provide reports especially concerning purchases from smallholder farmers	Between Groups	2.824	1	2.824	2.185	.146
	Within Groups	63.333	49	1.293		
	Total	66.157	50			
Total					**F=1.421**	**p=.203**

*Note: *p-value is statistically significant at 5% (0.05)*
Source: Field Work using SPSS (2020)

Table 4.10 shows that different groups of working experience under SFP have different point of view about the role in school feeding programme. As a result, the caterers number of years working in the SFP is considerable matter which has an

influence on their role in the SFP. Therefore, as working experience has been divided to categories, One-Way ANOVA test help to examine on mean differences between the number of years working under the SFP and compare each group. The accepted level for ANOVA test is P-Value <0.05. As depicted in Table 4.9, an insignificant association was found between the caterers number of years working in the SFP and their role played(F(df)= 1.421, P=0.203<0.01). For the individual item, a significant difference was found between the working experience of the meal service caterers on their role in spending 60% of the daily stipend on foodstuffs for the preparation of meals (F(df)=6.656, p=0.013<0.05).

As indicated in Table 4.9, ANOVA analysis of the difference between the caterers view in different working experience shows that there is an insignificant value. This is because P-Value is more than 0.05. This shows that the working experience of meal service caterers differ in respect to compliance role in school feeding programe.

4.6 Effect of Compliance of caterers role on the performance of SFP

In order to examine the relationship between compliance of caterers role and performance of school feeding performance, the variables for perceived performance of SFP were conducted. Respondents were asked to indicate their level of agreement to statements (indicators) on the performance of SFP, emanating from the literature review. The responses gathered with the aid of questionnaire administration are presented in Table 4.11.

Table 4. 11: Responses on overall performance measurement

Overall performance measurement	Mean	Std. Dev.	Decision
Ensures the sustainability of the school feeding programme p	4.35	.976	Agreed
Improve schoolchildren's food intake.	4.22	.832	Agreed
Helps serving the right quantity of food to school-aged children	4.10	1.188	Agreed
Improves personal hygiene practices	3.98	1.257	Agreed
Helps in achieving standardisation of menu for school children	3.98	1.068	Agreed
Ensures proper preparation and cooking method	3.94	1.173	Agreed
Helps in preparing food in hygienic condition	3.90	1.253	Agreed
Determines the proper type of meal to cook	3.76	1.290	Agreed
Prepares meal based on the enrolment figures	3.61	1.150	Agreed
Helps in serving quality food to the school-aged children	3.49	1.317	Agreed
Preparing a meal according to specification	3.29	1.418	Agreed
Ensures the taste acceptability of meals served is improved	2.08	1.129	Disagreed
Provide an adequate meal for school-aged children	2.02	.990	Disagreed
Proper transporting of foodstuffs from the market to the kitchen	2.00	1.095	Disagreed
Provides nutritionally adequate meals	1.98	1.086	Disagreed
Eliminates complaints made by pupils and teachers about meal served	1.96	1.131	Disagreed
Ensure proper composition of ingredients in meal preparation	1.61	.493	Disagreed

Source: Researcher's Field Work, 2020 *Mean*
≥3.0=Agreed

As depicted in Table 4.11, the caterers agreed that their roles and compliance ensure the sustainability of the school feeding programme. This statement had a mean score of 4.35 and a standard deviation (SD) of 0.976. This affirmed that staff failure to delivery on brand promise as a major role in customer satisfaction. Again, with a mean score of 4.22 and standard deviation of 0.832, the caterers indicated that their role under the school feeding programme improves the school children food intake. From the

study, the caterers indicated that their roles help serving the right quantity of food to school-aged children with a mean score of 4.10 and a standard deviation (SD) of 1.188**.** The result agrees with the assertion study by (Pollit, 2005). Pollit (2005) affirmed that a recent evaluation of an on-going school feeding program found that the roles played by the caterers were associated with serving the right quantity of food to the school-aged children, ensuring proper composition of ingredients in meal preparation, and helps in preparing food in sanitary locations.

Furthermore, the caterers emphasized that their roles improve hygiene practice. This statement had a mean score of 3.98 and a standard deviation (SD) of 1.257. This implies that the contracted caterers under the GSFP Catering contract in fulfilment of their roles helps in ensuring hygiene practice in producing food for the school children. Moreover, with a mean of 3.98 and a standard deviation of 1.068, the caterers indicated that fulfilling their roles helps in achieving standardization of menu for school children. An indication from the study further shows that the role of caterers under the SFP ensure proper preparation and cooking method. This statement reflected a mean of 3.94 and a standard deviation of 1.173. Again, the caterers asserted that their role under the SFP helps in preparing food in hygienic condition with a mean of 3.90 and a standard deviation of 1.253. On the other hand, the it appears that the role of the caterers under the SFP determines the proper type of meal to cook. This statement attained a mean of 3.76 and a standard deviation of 1.290. The report by GoG (2015) asserted that the role of caterers contracted under the programme helps in achieving standardize menu, ensuring hygiene practice in producing food for the school children, ensure proper preparation and cooking method and ensures the sustainability of the school feeding programme.

In addition, the caterers agreed that their role under the SFP helps to prepare meal based on the enrolment figures. It had a mean score of 3.61 and a standard deviation of 1.150. On the other hand, the caterers mentioned that performing their roles under the SFP helps in servicing quality food to the school-aged children. This statement attained a mean of 3.49 and a standard deviation of 1.317. However, with a mean of 3.29 and a standard deviation of 1.418, the caterers asserted that performing their roles under the SFP helps in preparing a meal according to the specification. Victora, et al. (2016) noted that the work of the caterers helps in serving quality food to the school-aged children. The health of the children, the safety of the food ingredients used in the meal preparation, and the hygienic conditions the products run through before they get onto the plates of these children are of the essence because hygiene is a major challenge in Ghana (Bigson, et al., 2019).

On the contrary, the caterers disagreed that the role they play under the SFP ensures the taste acceptability of meals served is improved (x=2.08, SD=1.129), provide an adequate meal for school-aged children (x=2.02, SD=0.990), proper transporting of foodstuffs from the market to the kitchen (x=2.00, SD=1.095), provides nutritionally adequate meals (x=1.98, SD=1.086), eliminates complaints made by pupils and teachers about meal served (x=1.96, SD=1.131), and ensure proper composition of ingredients in meal preparation (x=1.61, SD=0.493).

It appeared from the study that the role of the caterers under the SFP ensures the sustainability of the school feeding programme, improve schoolchildren's food intake, helps serving the right quantity of food to school-aged children, improves personal hygiene practices, helps in achieving standardisation of menu for school children, and ensures proper preparation and cooking method. According to the report by GoG (2015), properly role played by the caterers under the SFP has the potential to improve nutrition

of food prepared, ensures proper preparation and cooking method, and helps in preparing food in sanitary locations. The improved nutrition of food cooked to the school children may also enhance school retention and performance in the short and overlong run.

4.6.1 Factor Analysis of the overall SFP performance measurement

In order to evaluate the correlations between role of meal service caterer and performance of SFP at the beneficiary public basic schools, factor analysis was performed on the overall performance measurement variables. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was found to be .636. The KMO statistic varies between 0 and 1. A value close to 1 indicates that factor analysis should yield distinct and reliable factors (Hokoma, Khan & Hussain, 2008). Factor loadings of nine variables are depicted in Table 4.12.

Table 4. 12: Factor loadings of overall performance measurement

Item	Factor	Variables included in the factor	Factor Loading	Eigenvalue	Variance explained %	Cumulative variance %
1	Sustainability of school feeding programme	Ensures the sustainability of the school feeding programme	.703	1.967	21.853	21.853
		Helps serving the right quantity of food to school-aged children	.411			
		Helps in serving quality food to the school-aged children	.239			
		Eliminates complaints made by pupils and teachers about meal served	.853			
		Prepares meal based on the enrolment figures	-.705			
2	Improves satisfaction level of students and teachers	Improve schoolchildren's food intake	-.567	1.782	19.803	41.656
		Preparing a meal according to specification	-.515			
		Eliminates complaints made by pupils and teachers about meal served	-.567			
		Ensures the taste acceptability of meals served is improved	.788			
		Provides nutritionally adequate meals	.663			
		Provide an adequate meal for school-aged children	.531			
3	Ensures proper practices under SFP	Helps in preparing food in hygienic condition	.422	1.531	17.016	58.672
		Improves personal hygiene practices	.629			
		Proper transporting of foodstuffs from the market to the kitchen	.517			
		Helps in achieving standardisation of menu for school children	.769			
		Ensures proper preparation and cooking method	.239			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization
*a. Rotation converged in 5 iterations
Note. Factor loadings < .20 are suppressed

Table 4.12 summarizes the varimax-rotated factor matrix with Kaiser Normalization, which extracts three factors. Variables with loading <0.20 were dropped and items with higher loadings were considered to be important and to have influence on the label selected to present a factor (Kakkar & Narag, 2007). The variables; ensures the sustainability of the school feeding programme, helps serving the right quantity of food to school-aged children, helps in serving quality food to the school-aged children, eliminates complaints made by pupils and teachers about meal served, and prepares meal based on the enrolment figuresbelong to factor 1, named as sustainability of school feeding programme. Moreover, improve schoolchildren's food intake, preparing a meal according to specification, eliminates complaints made by pupils and teachers about meal served, ensures the taste acceptability of meals served is improved, provides nutritionally adequate meals, and provide an adequate meal for school-aged children belongs to the second factor and are described as improves satisfaction level of students and teachers. The third factor named as Ensures proper practices under SFP; helps in preparing food in hygienic condition, improves personal hygiene practices, proper transporting of foodstuffs from the market to the kitchen, helps in achieving standardisation of menu for school children, and ensures proper preparation and cooking method

4.6.2 Correlation Analysis

Correlation is concern of describing the strength of relationship between two variables. In this study the correlation co-efficient analysis was undertaken to find out the relationship between the caterers role and school feeding performance. Table 4.12 shows the amount of relationship that exists between the variables.

Table 4. 13: Correlation matrix of compliance of caterers role against GSFP performance

S/N	Construct	1	2	3	4	5	6
1.	Providing adequate and nutritious food	1	-.386**	-.051	-.136	.371**	.277*
2.	Complying with meal preparing and practices		1	.231	.390**	-.147	-.418**
3.	Providing safety and hygienic food			1	.043	-.127	-.106
4.	Sustainability of school feeding programme				1	-.107	-.233
5.	Improves satisfaction level of students					1	-.134
6.	Ensures proper practices under SFP						1

***. Correlation is significant at the 0.01 level (2-tailed*
**. Correlation is significant at the 0.05 level (2-tailed)*
Source: Field Work, Using SPSS-23.0, 2020

Statistically, the study found a positive significant correlation between providing adequate and nutritious food and improves satisfaction level of students (r= 0.371, p<0.01). The results of Pearson's correlation coefficient further show a positive relationship between providing adequate and nutritious food and ensures proper practices under SFP (r=0.277, p<0.05). On the other hand, a significant relationship was found between complying with meal preparing and practices and sustainability of school feeding programme (r= 0.390, p<0.01). Also, the results of Pearson's correlation coefficient further show a significant relationship between complying with meal preparing and practices, and ensures proper practices under SFP (r= 0.418, p<0.01).

As a rule, the correlation coefficients between 0 and 0.30 marks a weak correlation, from 0.30 to 0.70 a moderate correlation, and between 0.70 to 1.0 an elevated correlation. This implies that there is an elevated correlation between complying with meal preparing and practices as independent variable and ensures proper practices under SFP as dependent variable. Again, a moderate correlation exhibited between providing adequate and nutritious food as independent variable and improves satisfaction level of students as dependent variable. On the other hand, weak correlation was found between

providing adequate and nutritious food as independent variable and ensures proper practices under SFP as dependent variable.

4.6.3 Regression Analysis

In order to address the last research question, regression analysis was conducted to find out the effect of compliance of caterers role on the performance of the SFP (Table 4.14). The results are summarized from the original Table from SPSS-23.0.

Table 4. 14: Impact of compliance of caterer role on GSFP performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.540[a]	.292	.247	.966	.292	6.462	3	47	.001	1.783

a. Predictors: (Constant), Providing adequate and nutritious food, complying with meal preparing and practices, providing safety and hygienic food
b. Dependent Variable: School feeding performance

Table 4.14 shows regression model analytical table, which uses providing adequate and nutritious food, complying with meal preparing and practices and providing safety and hygienic food as role of caterers under SFP proxies. In addition, sustainability of school feeding programme, improves satisfaction level of students, and ensures proper practices as SFP performance proxies. The study found a positive and significant ($p=0.001<0.01$) impact of role of caterers on SFP performance. This implies that the role played by caterers have impact on the performance of the school feeding programme.

It also shows that R^2 was 0.292 which accounted for 29.2% of the variation in the SFP performance. The role of caterers is significant in ensuring performance of the school feeding programme at the basic public beneficiary schools in the Akuapem South District. The overall significance of the model displayed in Table 4.12 ($F=6.462$, $P<0.01$) and the Durbin-Watson show that the mode is fit at 1.783. This implies that the role of

caterers influence on school feeding performance at the various beneficiary public basic schools in Akuapem South District is significant at 0.001<0.01 level (2 tailed).

Table 4. 15: Regression analysis - SFP Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.337	.985		3.387	.001		
	Providing adequate and nutritious food	.253	.113	.285	2.236	.030	.926	1.080
	Complying with meal preparing and practices	.131	.098	.166	1.330	.190	.962	1.040
	Providing safety and hygienic food	.426	.146	.374	2.923	.005	.920	1.087

a. Dependent Variable: SFP Performance

As shown in Table 4.15, the standardized coefficients are the estimates resulting from an analysis of standardized variables that have variances of 1. The average changes in the independent variable associated with one unit in the dependent variable are indicated by unstandardized coefficients which statistically monitor the remaining independent variables. The unstandardized coefficients in Table 4.13 were therefore used in this study. There is no proof of a significant multi-collinearity between the independent variables for all VIF values below 3 and far below the VIF cutoff value of 10. Providing adequate and nutritious food is found to have the greatest influence on school feeding programme performance (β=0.253, t=2.236, p = 0.030<0.05). In addition, providing safety and hygienic food is found to have a significant effect on school feeding prograamme (β=0.426, t=2.923, p=0.05>0.05).

Hence, the complying with meal preparing and practices is an insignificant predictor of school feeding programme performance (β=0.131, t=1.330, p=0.190>0.05). From the result obtained after the regression analysis (outlined in Table 4.13), it was observed that the model can well predict the effect of role of caterers on school feeding programme performance. Then the performance of school feeding programme will continue to increase if caterers provide adequate and nutritious food, comply with meal preparing and practices, and provide safety and hygienic food. In this study the role played by the caterers under the SFP were used as independent variable, so less able to explain any factors that affect the performance of SFP completely. Therefore, for further research, it is advisable to add another independent variable.

4.7 Analysis of Qualitative Data

The researcher conducted an interview with the heads of the beneficiary basic public schools under the school feeding programme (SFP) in the Akuapem South District. The interview was conducted to compliment the questionnaire for the quantitative data. The interview from the heads indicated that most the caterers comply with their role in the school feeding programme. According to the heads, the caterers are contracted to prepare, cook and serve meals to the school children. Some of the view point of the respondents includes:

Head 1 revealed:

> Caterers are expected to deliver meals to the school children according to what was stipulated in the contractual agreement.

Also, Head 3 affirmed that:

> The caterers manage all the aspects of the school meal preparation, delivery, and serving, including purchasing of the ingredients, transporting from the market to the kitchen, meal preparation and feeding the school children.

From Head 7:

> The caterer has to provide a meal to the school children to reduce child hunger and, improve child

According to Head 18:

> The caterer is responsible for buying food from the market and preparing and distributing the meal to the school children at the beneficially public basic schools.

This indicates that school feeding in Ghana at the Primary/KG level adopts a caterer model of school meal provision, where caterers through procurement guidelines are contracted to execute their catering duties to beneficiary schools/pupils under the programme over a renewable period of time (Quaye, et al., 2010). Sanogo & Lee (2017) indicated that GSFP would not be possible without the key role of caterers that ensure that Ghana's schoolchildren receive one nutritious, hot meal a day at school. Caterers are owners of small or mediumsized private-sector businesses that are contracted by District Assemblies (DA), the local government authorities, to prepare and cook meals for schools in their jurisdiction. Often run by women, catering companies usually supply meals for one school. Caterers are allotted 50 Ghanaian Pesewas per child per day to procure foodstuffs, store food products, cook and deliver meals to schools.

Concerning the effect of compliance of caterers roles on the effectiveness of SFP, the heads revealed that the role played by the caterers affect the effectiveness of the school feeding program. The heads clarify that the provision of meal to the school children helps in attaining the main objectives of the school feeding programme. One head expressed a very interesting point of view with her comment about the effect of caterer's role:

> The role of the caterers to the large extent affects the effectiveness of the school feeding programme, this is because if the caterers do not cook the food to the school children to eat the aim of the programme will not be achieved

According to Head 2:

> "…the role played by the caterers affect the effectiveness of the school feeding programme…because if a whole class is not fed for some reasons…..it does not make the feeding programme successful, thereby defeating the main objective of the program.

Head 4 mentioned that:

> Caterers role in school feeding programme affect the effectiveness of the programme because they prepare and serve the food to the school children…..when they are unable to perform their duties well it will affect the effectiveness of the school feeding programme.

Head 5 commented that:

> The caterers role played in the school feeding programme is very important in achieving the aim of the policy. This is because they help in spearheading the programme to be successful.

The finding aligns with the work of Afoakwa that the caterer's role helps in achieving the main objective of the SFP. As indicated by Afoakwa (2009) the role played by caterers on the school feeding programme can address some of the nutrition and health problems of school-age children. SFPs, and other school-based nutrition and health programs, can also motivate parents to enroll their children in school and to see that they attend regularly. Ahmed (2004) affirmed that caterer's role in school feeding programme improves nutritionally and adequate meal for school-aged children. Adelman, et al (2009) study revealed that the meals prepared on one hand show effect on the sustainability of the school feeding programme. This is because the role of caterers improve serving the quality and quantity of food, and eliminates complaints made by pupils and teachers about meal served. This helps to increase the class attendance, children will spend more time learning in school.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

A number of findings were made after a discussion of the responses. They are summarized as below;

5.1.1 Compliance of meal service caterers roles in School Feeding Programme

- The finding showed that the meal service caterers pay staff who are employed from the beneficiary community, buy at least 20 per cent value of foodstuffs from smallholder farmers, and comply with food safety and hygiene as well as the health and nutrition procedures.
- The study revealed that under the SFP the caterers spend 60% of the daily stipend on foodstuffs for the preparation of meals, undertake to be monitored by his/her respective MMDA and GSFP representatives, and provide reports especially concerning purchases from smallholder farmers.

5.1.2 Food preparation practices of caterers to ensure food quality and quantity

- The finding revealed that the caterers at the beneficiary basic public schools under the SFP in the Akuapem South District sometimes follow a few personal hygiene rules to help minimize food safety problems. Furthermore, it appeared that the caterers always wear clean clothes/uniform during cooking, cover their hair properly during the event, wash hands before cooking.
- The study indicated that caterers at the beneficiary basic public schools under the SFP in the Akuapem South District sometimes adhered to proper procedure of cooking, holding, and serving food to the school children. Also, the finding

showed that the caterers always taste food while cooking it, use the recommended cooking equipment when preparing food, and follow proposed menu plan strictly in the contract document.

- It emerged from the study that caterers at the beneficiary basic public schools under the SFP in the Akuapem South District always clean/sanitize the kitchen equipment and the environment to prevent any contamination.

5.1.3 Association between demographic variables with compliance of caterer's role

- The finding showed no association between age group of meal service caterers and role played in Ghana school feeding programme ($F(df)=1.567$, $p=0.196>0.05$)
- The study found that compliance of meal service caterers role under the SFP differ with respect to their educational level ($F(df)=2.735$, $P=0.005<0.01$).
- According to the study, an insignificant association was found between compliance of meal service caterers role under the SFP and the number of years working in the SFP ($F(df)= 1.421$, $P=0.203>0.01$).

5.1.4 Effect of compliance of caterers roles on the performance of SFP

- The finding indicated that providing adequate and nutritious food have greatest influence on school feeding programme performance ($\beta=0.253$, $t=2.236$, $p = 0.030<0.05$). In addition, providing safety and hygienic food is found to have a significant effect on school feeding prograamme ($\beta=0.426$, $t=2.923$, $p=0.05>0.05$).

- It appeared from the study that complying with meal preparing and practices is an insignificant predictor of school feeding programme performance (β=0.131, t=1.330, p=0.190>0.05).
- The study revealed that compliance of caterers roles in SFP have a positive and a significant effect on the performance of school feeding programme (F=6.462, P=0.001<0.01).

5.2 Conclusions

The role of contracted caterers under the Ghana School Feeding Programme (GSFP) faces much criticism in areas of service quality, food quality, food quantity, environmental quality, and menu standardisation. These problems have extended to rising health challenges, children's satisfaction, retention, and academic performance. School Feeding in Ghana at the Primary/KG level adopts a caterer model of school meal provision, where caterers through procurement guidelines are contracted to execute their catering duties to beneficiary schools/pupils under the programme over a renewable period of time. The study indicated that the meal service caterers at the various beneficiary basic public schools under the SFP in the Akuapem South District pay staff who are employed from the beneficiary community, buy at least 20 per cent value of foodstuffs from smallholder farmers, and comply with food safety and hygiene as well as the health and nutrition procedures. Also, it emerged that that under the SFP the caterers spend 60% of the daily stipend on foodstuffs for the preparation of meals, undertake to be monitored by his/her respective MMDA and GSFP representatives, and provide reports especially concerning purchases from smallholder farmers.

According to the study, the caterers at the beneficiary basic public schools under the SFP in the Akuapem South District sometimes follow a few personal hygiene rules

to help minimize food safety problems. Also, the caterers sometimes adhered to proper procedure of cooking, holding, and serving food to the school children. It emerged from the study that caterers at the beneficiary basic public schools under the SFP in the Akuapem South District always clean/sanitize the kitchen equipment and the environment to prevent any contamination.

It was evident that there is no association between age group of meal service caterers and role played in Ghana school feeding programme. Moreover, there was no association between the role of meal service caterers under the SFP and the number of years working in the SFP. On the other hand, it appeared that compliance of meal service caterers roles under the SFP differ with respect to their educational level. The study concluded that compliance of caterers roles in SFP have a positive and a significant effect on the performance of school feeding programme.

5.3 Recommendations

The following recommendations were made on the basis of the results of this study:

- It is recommended that the selection and award of contract with the caterers should be done on a competitive manner to avoid any possibility of convenient supervision. Children's taste, preference, hygienic issues on quality and quantity of food; all need to be taken into consideration for the choice of food to be served.
- The coordinators of the SFP should organise periodic seminars, conferences and training programmes to educate caterers of the SFP regarding their roles and the hygienic practices that could guarantee the pupils health.
- The authorities of the beneficiary public basic schools should monitor cooking done in the school to ensure proper hygienic practices to avoid food contamination.

- Furthermore, the financiers of the GSFP need to pay the caterers and the payments should be made on time. This should not be treated as any other governments programme where payments are done anyhow.

5.4 Suggestions for further Research

Based on the recommendations of the study, a replication of this study would be helpful in re-examining the validity of its findings for which the researcher was not able to investigate. Further empirical studies using larger sample sizes from different and greater geographical diversity would be helpful in validating the role of meal service caterers and their impact on the school feeding programme. Also, a study of should be conducted on the challenges faced by the caterers and other actors that might have negative influence on the school feed programme.

REFERENCES

Abui, A. R. (2013). *School feeding as a mechanism for promoting school enrolment in some selected schools in the Afigya Kwabre District.* Unpublished thesis, University of Education, Winneba.

Adams, J. & Hayes J. (2001). Understanding and managing personal change. Martin Robinson Publications. USA.

Adelman, S. W., D. O., Gilligan, & Lehrer, K. (2009). *How effective are food for education programs?* International Food Policy Research Institute.

Afoakwa, O. E. (2009). *Home Grown School Feeding Programme – The Ghanaian Model as Icon for Africa*. University of Ghana, Legon – Accra, Ghana.

Ahmed A. (2004). Impact of feeding children in school: Evidence from Bangladesh. *International Food Policy Research Institute*; 2-34.

Ahmed, A. U., & Billah, C. D. (2004). *The food for education program in Bangladesh: An evaluation of its impact on educational attainment and food security. FCND Discussion Paper 138.* Washington, D.C.: International Food Policy Research Institute.

Allen, L. H. & Gillespie S. R. (2001). What Works? A Review of the Efficacy and Effectiveness of Nutrition Interventions. ACC/SCN: Geneva in collaboration with the Asian Development Bank, Manilla; 20-111.

Amcoff S. (1980). World nutrition and nutrition education. UNESCO/OXFORD University Press Publication: Oxford Medical Publications; 19-213.

Amin, K. (2005). *Effects of Ghana School Feeding Programme in selected primary schools in Kasena Nakana East District.* A thesis submitted to the University of Education, Winneba,

Arhin, H. (2015). *Educational and Health Impacts of Two School Feeding Schemes: Evidence from a Randomized Trial in Rural Burkina Faso*. Policy Research Working Paper No. 4976. Washington, D.C.: World Bank.

Ausubel, D. P. (2000). The Psychology of Meaningful Verbal Learning. New York, NY: Harvard University Press.

Badri, E. (2014). Benefits of a school breakfast programme among Andean children in Huaraz, Peru. *Food and Nutrition Bulletin*, *17*(1), 54-64.

Bennett, N., Crawford, M. & Cartwright, M. (2003). Effective Educational Leadership. London: Paul Chapman Publishing.

Bukari, K. S., & Hajara, D. (2015). *Factors affecting female's participation in education:* The Case of Tocha Woreda in SNNPR. School of Graduate Studies, Addis Ababa, Addis Ababa University.

Bundy, D. (2013). Rethinking School Feeding. International Food Policy Research Institute. Retrieved from https://www.ifpri.org/sites/default/files/DBundyppt.pdf. Accessed: November, 18, 2020.

Bundy, D., & Burbano, C. (2009). *Rethinking school feeding: Social safety nets, child development and the education sector.* Washington, DC: World Food Programme and the World Bank.

Buttenheim, A., Alderman, H., & Friedman, J. (2011). Impact evaluation of school feeding. *International Food Policy Research Institute*. Washington, DC: World Bank.

Chambers, L. J. (2001). School Feeding Program and its impact on academic achievement in ECDE in Roret Division, Bureti District in Kenya. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS) 4*(3), 407-412.

Cohen, L., Manio, L., Morrison, K., & Morrison, B. B. (2007). *Research methods in education*. London: Routledge.

Creswell, W. J. (2013). *Qualitative inquiry and research design:* Choosing among five approaches. London: Sage Publications.

Del Rosso, J. & Marek, T. (1996). Class Action: Improving School Performance in the Developing World through Better Health and Nutrition. Directions in Development, World Bank; 11-196.

Del Rosso, J. M. (2009). *School feeding programs: Improving effectiveness, development Goals and Girls'* empowerment.

Ellis, A. U. (2012). *Food for education*: A Review of Program. *International Food Policy Research Institute*. Washington, DC: World Bank.

Fabumni M. & Okore A. (2000). Analysis of the relationship between average class size secondary school academic performance. *African Journal of Educational Planning and Policy Studies (AJEPPS*), 1(2), 12-32.

Galloway, B. (2009). *Assessment on the Effects of Child Undernourishment on the Academic Performance of Students in Governmental Primary School: The Case of "Atselibnedingel" Governmental Primary School in Addis Ababa* (Master's Thesis, Addis Ababa University, Addis Ababa, Ethiopia)

Gelli, P. (2016). Schools and skills in developing countries: Education policies and socioeconomic outcomes. *Journal of Economic Literature 40*(2), 436–482.

Golafshani. N. (2013). Understanding reliability and validity in qualitative research. *Qualitative Report, 8*(40), 597-609.

Government of Ghana (2015). Draft National School Feeding Policy. file:///C:/Users/FEES/Downloads/School%20Feeding%20Policy%20(1).pdf. Accessed: October, 9, 2020.

Grantham-McGregor, S. M., Chang, S. & Walker S. P. (1998). Evaluation of school feeding programs: some Jamaican examples. *American Journal of Clinical Nutrition,* 67:785s-789s.

He, F. (2009). *School feeding programs and enrollment:* Evidence from Sri Lanka. Unpublished manuscript, Columbia University.

Hoofi, C. (2015). School Feeding Programs in Developing Countries: Impacts on Children's Health and Educational Outcomes. *Nutrition Review*, *69,* 83-98.

Huang, X. (2004). *Construct validity and reliability.* London: High Education Studies.

Huang. J, Liu, M., & Bowling, N.A, (2014). Insufficient efforts responding: Examining an insidious confound in survey data. *Journal of Applied Psychology, 110*, 828-846

Jacoby, H. G. (2002). Is there an Intrahousehold 'Flyper Effect' Evidence from a School Feeding Programme. *The Economic Journal, 112*(1), 196-221.

Levinger, B. (2016). School Feeding Programs in Less Developed Countries: *An Analysis of actual and potential impact: Bureau for Food and Voluntary Aid.* Washington D.C.: World Bank.

Maslow, A. (1954). *Motivational and personality.* New York: Harper and Row

Mohammed, A. (2014). Assessing Ghana School Feeding Programme on the Enrollment of Beneficiary Schools in the Tamale Metropolitan Assembly of Northern Ghana. *International Journal of Economics, Commerce and Management United Kingdom 2*(10), 23-24.

Moore, E., & Kutze, F. (2008). Evaluation of the Burkina Faso School Feeding Program. Catholic Relief Services. *Consultant Report,* 1-32.

Neumann, C., Makudi, E. O., & Nimrod, O. B. (2011). Effects of school feeding intervention on school attendance among school children in rural Kenya.

Nunnally, J. C. (1985). *Psychometry theory* (2nd ed.). New York: McGraw-Hill.

Oniago, M. (2011). *Research on impact of School Feeding Programme on Performance of Children in Bondo Division*. Kenya.

Pollit, E. (2015). Does breakfast make a difference in school? *Journal of the American Dietetic Association, 95*(10), 1134-1139.

Pollitt, Cueto, & Jacoby, D. (2005). Fasting and cognition in well-nourished and under-nourished school children. *American Journal of Clinical Nutrition, 67*, 779-784

Quaye, W., Essegbey, G., Frempong, G., & Ruivenkamp, G. (2010). Understanding the concept of School Feeding Programme. *International Review of Sociology, 20*(3), 427-444.

Ranivnder, K. (2017). Practice, contribution challenges and sustainability of school feeding program in Ethiopia Somalia Region state, Ethiopia. *Journal Human and Social Science, 24*(1), 26-40.

Services, C. R. (2001). *School feeding program in the three poorest regions of Ghana,* 1997-2002.

Simeon, D. T., & Grantham-McGregor, S. (2008). Effects of missing breakfast on the cognitive functions of school children of differing nutritional status. *American Journal of Clinical Nutrition, 49*, 646-653.

Sanogo, E. & Lee, W. (2017). *Linking school feeding caterers to finance: Loan opportunities enabling caterer purchases from smallholder farmers.* Retrieved from https://snv.org/cms/sites/default/files/explore/download/snvlearning_case_4_-ghana.pdf. Accessed: December, 8, 2020.

Sulemana, M., Ngah, I. & Majid, M. R. (2013). The challenges and prospects of the school feeding programme in northern Ghana," *Development in Practice*, 23 (3), 422–432.

UN Millennium Development Goals, Progress Report for Kenya (2005)

UNICEF (2007). Achieving Universal Primary Education in Ghana by 2015: A Reality or Dream? *Division of Policy and Planning Working Papers*, 67-76.

UNICEF, (2006). Information fact sheet. p. 2.

United Nations Development Program, (2003). *Human development report.* New York: World Bank.

APPENDIX A

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

SCHOOL FEEDING PROGRAMME – CATERERS SURVEY

QUESTIONNAIRE

Preamble: I am a student at the University of Education, Winneba. The purpose of this questionnaire is to investigate the role of meal service caterers and its impact on the school feeding programme. It would be greatly appreciated if you could complete this questionnaire. The study is purely for academic purpose and nothing else. Be assured that your response will not, in any way, be linked to your identity. You are kindly requested to answer the questions below by indicating a tick (√) or writing the appropriate answer when needed. Thank you

Section A: Socio-demographic characteristics

1.0 Name of School: _____Circuit: _____

2.0 Setting: Rural [ ] Urban [ ]

3.0 What is your age?

a. Below 21years ( ) b. 21-30years ( ) c. 31-40years ( )

d. 41-50years ( ) e. 51-60years ( )

4.0 What is your gender?

a. Male ( ) b. Female ( )

5.0 What is your highest level of educational qualification?

a. Primary ( ) b. Senior High ( ) c. Bachelor ( ) d. Masters ( )

e. PhD ( ) Others (specify): .....

6.0 How long have you working as a caterer under the school feeding programme?

a. 1-5years ( ) b. 6-10years ( ) c. 11-15years ( ) d. 15years and above ( )

7.0 What is your income/salary per month? (if applicable)

a. below GH₵ 300 ( ) b. GH₵ 300 - 599 ( )

c. GH₵ 600-899 ( ) d. GH₵ 900 –1,199 ( )

e. GH₵ 1,200-1,499 ( ) f. GH₵ 1,500 and above ( )

Section B: Role of meal service caterers in schools feeding programmes

8.0 To what extent do you agree or disagree with the following role of meal service caterers in school feeding programmes. Please rate your responses using a scale of 1 to 5: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). **Please tick the box which best reflects your view and state briefly where necessary**

S/N	The role played by meal service caterers	SCORE				
		1	2	3	4	5
1.	Provide meals that contain all three food groups					
2.	Provide fruits, eggs, and milk at least once a week					
3.	Display and follow the menu chart approved by GSFP					
4.	Buy at least 20 per cent value of foodstuffs from smallholder farmers.					
5.	Prepare and cook food on-site using a kitchen, storage space, and sufficient potable water provided at no cost by the district.					
6.	Spend 60 per cent of the daily stipend on foodstuffs for the preparation of meals					
7.	Use the GSFP handy measure during food preparation and service to ensure that the daily nutritional and caloric requirements stipulated are met.					
8.	Undertake to be monitored by his/her respective MMDA and GSFP representatives					
9.	Comply with food safety and hygiene as well as the health and nutrition procedures					
10.	Pay staff who are employed from the beneficiary community					
11.	Provide reports especially concerning purchases from smallholder farmers					

Section C: Food preparation practices to ensure food quality and quantity

9.0 To what extent do you agree or disagree with the following food preparation practices to ensure food quality and quantity in the school feeding programme. Please tick the box which best reflects your view and state briefly where necessary

Part I: Personal Hygiene
Kindly indicate which of the following hygiene protocols you observe when cooking

s/n	Personal Hygiene	Never	Rarely	Sometimes	Always	Very often
1.	Wash hands before I start cooking					
2.	Wash hands after touching the body, uniform, etc.					
3.	Wear gloves when cooking.					
4.	Coughing and sneezing near food					
5.	preparation/service areas					
6.	Wash hands after returning from a break					
7.	Hair properly covered during the event					
8.	Wearing jewellery during cooking					
9.	Wear clean clothes/uniform during cooking					

Part II: Cooking, holding, and serving procedures
Kindly indicate procedures involved before, during, and after meal preparation

s/n	Statements/Constructs	Never	Rarely	Sometimes	Always	Very often
10.	Follow the proposed menu plan in my contract document.					
11.	Follow the proposed menu plan strictly in the contract document.					
12.	Move food to hold or serve it by checking the temperature.					
13.	Tasting food while cooking it					
14.	Move food to hold or serve food at the wrong temperatures.					
15.	Use the recommended cooking equipment when preparing food.					
16.	Food not properly covered.					
17.	Food stored properly in the refrigerator.					

Part III: Equipment and other contamination
Kindly indicate if the equipment is thoroughly kept from being commitment

s/n	Statements/Constructs	Never	Rarely	Sometimes	Always	Very often
18.	Students bowls are cleaned/sanitised before serving food					
19.	Knives/kitchen utensils are cleaned/sanitised before use.					
20.	Working surfaces are cleaned/sanitised after use.					
21.	Other kitchen equipment are cleaned/sanitised after use.					

Section D: Effect of the role played by caterers on the school feeding programme

10. To what extent do you agree or disagree with the following effect of the role of meal service caterers on the school feeding programme. Please rate your responses using a scale of 1 to 5: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). **Please tick the box which best reflects your view and state briefly where necessary**

S/N	Influence of role played by caterers on the school feeding programme	SCORE				
		1	2	3	4	5
1.	The role played by caterers provides nutritionally adequate meals.					
2.	The role played by caterers provide an adequate meal for school-aged children.					
3.	The role played by caterers helps in serving quality food to the school-aged children.					
4.	The role played by caterers helps serving the right quantity of food to the school-aged children.					
5.	Ensure proper composition of ingredients in meal preparation					
6.	The role played by caterers ensures the taste acceptability of meals served is improved.					
7.	Ensures proper preparation and cooking method					
8.	Improves personal hygiene practices					
9.	The role played by caterers helps in preparing food in hygienic condition					
10.	Eliminates complaints made by pupils and teachers about meal served					
11.	Proper transporting of foodstuffs from the market to the kitchen					
12.	Preparing a meal according to specification					
13.	Prepares meal based on the enrolment figures					
14.	The role played by caterers ensures the sustainability of the school feeding programme.					

15.	The role played by caterers improve schoolchildren's food intake.					
16.	The role played by caterers determine the proper type of meal to cook.					
17.	Helps in achieving standardisation of menu for the school children					

APPENDIX B

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

INTERVIEW FOR THE HEADS OF SELECTED PUBLIC BASIC SCHOOLS

PREAMBLE: This interview schedule has been designed purely for academic work, and it is intended to elicit information that will be very useful in Ghana. The purpose of this questionnaire is to **investigate the role played by caterers and their impact on the school feeding programme.** You will be contributing greatly to the success of this research if you answer the questions as frankly as you can.

Section A: Personal Details of Respondent

Institution:…….

Gender: ……..

Age: ……

Job Title: ……

Educational Level: ……

Section B: Role played by caterers and its impact on the school feeding programme

1. Oftentimes, caterers are mostly blamed for poor quality and quantity of meal prepared, what is your comment on this assertion?

   ……

   ……

   ……

2. Are there any roles that are supposed to be played by the meal service caterers?
   Yes ( ) No ( )
   If "Yes" what are the roles played by the caterers within the SFP
   ……
   ……
   ……

3. How can you comment on the effectiveness of the roles played by the meal service caterers?
   ……
   ……
   ……

4. How often does your office monitor and advise the caterers on the quality and quantity of food served to the school children?
   ……
   ……

5. How often do you receive complaints about the quantity and quality of meals served to the child in school?
   ……
   ……

6. What is the nature of the complaints you receive?
   ……
   ……

7. Does your child often bring home some of the served meals from school?
   ……
   ……
   ……

9. What is the hygienic conditions under which meals were prepared?

……

……

10. What is the hygienic conditions underserved and eaten in the schools?

……

……

11. Do the stakeholders contact visits for issues relating to safety regulations?

……

……

12. Does the role played by the caterers affects the effectiveness of the school feeding programme?

Yes ( ) No ( )

……

……

……

……

……

……

Any additional comments

……

……

……

……

……

……

……

……

APPENDIX C

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

THE CHECKLIST OBSERVATION GUIDE

Item Number	Criteria (Characteristics of Interest)	Response Format		Field Notes
		Yes	No	
1	The food preparation environment is always kept clean.			
2	Food prepared for children is served hot.			
3	Foods are prepared elsewhere before bringing to the school.			
4	The cooks wash their hands properly and under running water before handling the food.			
5	Pupils are satisfied with the quantity of food given to them.			
6	The food has a good flavour.			
7	The eating environment is hygienic and safe.			
8	Food is served on time.			
9	Pupils queue to access the food.			
10	Pupils wash their hands under running water before eating.			
11	Pupils use their own serving plates from their home.			
12	Pupils decide where to sit to eat.			
13	Pupils are supervised during dining time.			
14	Pupils are given adequate time to eat.			
15	Pupils throw leftover foods into dust bins.			
16	Pupils eat in an environment free from flies.			
17	Pupils eat in turns.			
18	Pupils eat every bit of food served them.			
19	Pupils wash their own plates before foods are served.			
20	The meal served is tasty.			