

**IMPACT OF SCHOOL FEEDING PROGRAM ON QUALITY OF EDUCATION IN  
PUBLIC PRIMARY SCHOOLS IN UNPLANNED SETTLEMENTS IN NAIROBI  
COUNTY, KENYA**

**CHARITY KAARI KANAMPIO**

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**DECLARATION**

This research project is my original work and has not been presented for a degree or any awarding in any other university.

Signature.....

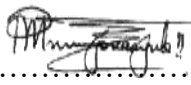
Date 15<sup>th</sup>.06.2022

CHARITY K. KANAMPIO

C51/81861/2015

Student

This research project has been submitted for examination with my approval as University Supervisor

Signature...

Date: 15<sup>th</sup>.06.2022

Dr. PATRICK M. KASYULA

Department of Political Science and Public Administration

Supervisor

## **DEDICATION**

I dedicate this project to my husband Fuad Ali and my daughters Barbara, Julie and Nadia. They have been my pillar and support through this journey. Secondly to my late parents, Eustace and Edith Kanampiu who always believed in me.

## **ACKNOWLEDGMENT**

I am thankful to God for enabling me to complete this project. I am grateful to my supervisor Dr. Patrick M. Kasyula for his guidance, assistance and patience during this journey. To all my graduate lecturers; thank you for the knowledge you imparted on me. The whole experience was impactful. I want to thank my colleagues in the MPA class of 2015 for the insightful debates we used to have, and especially Ms. Catherine Kamau for walking together with me in this journey. I want to thank my husband Fuad Ali and my daughters Barbara, Julie and Nadia; my nephew Paul, my brother Dr Munene Kanampiu and Professor Mugendi M'Rithaa for their constant encouragement and support. Thank you for being patient and considerate throughout this long journey. To my friend Robert K. Muraya; thank you for your technical support. Finally I want to take full responsibility of the work done in this research.

## ABSTRACT

School Feeding Program (SFP) though a good strategy for improving access to education, faces challenges in terms of its long-term impact that could be linked to poor planning either before or after adopting it. This study sought to find out the impact of school feeding program on education quality in public primary schools particularly in the unplanned and highly impoverished settlement areas of Nairobi. The study's specific objectives are: to assess the effect of frequency of SFP on quality of education in public primary schools; to examine the effect of timing of SFP on quality of education in public primary schools and to examine the effect of SFP's food features on quality of education in public primary schools. This research study was grounded on the Equal Opportunity theory advanced by Dennis E Mithaug. The study adopted descriptive survey design, a method that compiles measurable information that can be statistically analyzed so as to describe a research problem dispassionately. The target population was 72 individuals who included 68 head teachers whose schools are under school feeding program out of 225 public primary schools in Nairobi, 3 Ministry of Education officials and 1 World Food Program official. The small target population obliged the study to carry out a census that included all members of the population into the study. Data collection instruments included a structured questionnaire as well as a key informant interview schedule. Statistical Package for Social Sciences (SPSS) computer software was used to analyze data and whereby the data was summarized and coded and finally presented via tables. The research findings were interpreted and analyzed at par with the research objectives. Impact of frequencies of SFPs on quality of education in public primary schools was not statistically significant therefore the null hypothesis was true and accepted. The impact of timing of SFPs on quality of education was statistically significant and therefore the null hypothesis was rejected. The impact of SFP's food features on quality of education was statistically significant and therefore the null hypothesis was rejected. For better and positive impact, the study recommends that stakeholders and sponsors of the SFP should ensure food is supplied throughout the term and throughout the year in a predictable and consistent manner. School administrators should ensure adherence to known regulatory policies and guidelines and should ensure those who serve wear the right clothing. SFP sponsors should ensure there are nutritionists who assess status of served food in terms of all necessary features and that those who interact with the food preparation process have undergone necessary training. The rationale of this study is that its findings could serve as reference and induce insight on further studies on the effects of SFP on education quality in learning institutions and as well help education managers and planners, policy makers and implementers of the program understand better ways through which SFP could be used to improve its impact on quality education.

## TABLE OF CONTENT

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGMENT	iv
ABSTRACT	v
TABLE OF CONTENT	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
ABBREVIATIONS AND ACRONYMS	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the study	1
1.2 Problem statement	4
1.3 Research questions	5
1.4 Objectives of the study	5
1.4.1 Specific objectives	5
1.5 Justification of the study	6
1.6 Scope of the study	6
1.7 Definition and Operationalization of Key Concepts	7
1.8 Research Hypotheses	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Introduction	9
2.2 The concept of quality education	9
2.3 School feeding program	10
2.4 Effect of frequency of school feeding programs	13

2.5 Effect of timing of school feeding programs	14
2.6 Effect of school feeding programs' food features on quality of education	15
2.7 Theoretical and Conceptual framework	16
2.7.1 Theoretical framework	16
2.7.2 Conceptual framework	17
CHAPTER THREE	19
RESEARCH DESIGN AND METHODOLOGY	19
3.1 Introduction	19
3.2 Research design	19
3.3 Study location	19
3.4 Target population	20
3.4 Sampling Technique and Sample Size	20
3.5 Data collection instruments	21
3.6 Validity of research instruments	21
3.7 Reliability of the research instruments	22
3.8 Piloting	22
3.9 Data collection procedure	22
3.10 Data analysis	23
3.11 Ethical considerations	23
CHAPTER FOUR	24
DATA PRESENTATION AND DISCUSSION OF FINDINGS	24
4:1 Introduction	24
4.2 Response Rate	24
4.3 Background Information	24
4.3 Descriptive Analysis	25
4.3.1 Frequency of School Feeding Programs	25

4.3.2 Timing of School Feeding Programs	29
4.3.3. School Feeding Programs' Food Features	30
4.3.4 Education Quality in Public Primary Schools	36
4.4. Inferential Statistics	38
4.4.1 Correlations	38
4.4.2. Regression	39
CHAPTER FIVE	43
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	43
5.1. Introduction	43
5.2 Summary	43
5.3 Conclusions	45
5.4 Recommendations	47
5.5. Suggestions for Further Research	47
REFERENCES	48
APPENDIX I: QUESTIONAIRES.	55
APPENDIX II: INTERVIEWS SCHEDULE FOR THE KEY INFORMANTS	60



## LIST OF TABLES

Table 3:1: Target Population	20
Table 4:1 Background Information	25
Table 4:2 Frequency of School Feeding Programs	28
Table 4:3 Timing of School Feeding Programs	30
Table 4:4 School Feeding Programs' Food Features	34
Table 4:5 Education Quality in Public Primary Schools	38
Table 4:6 Correlations	39
Table 4:7 Model Summary	39
Table 4:8 ANOVA <sup>a</sup>	40
Table 4:9 Multiple Regression Coefficients <sup>a</sup>	41

## **LIST OF FIGURES**

Figure 2:1 Conceptual Framework

18

## **ABBREVIATIONS AND ACRONYMS**

<b>ECD</b>	Early Childhood Education
<b>FPE</b>	Free Primary Education
<b>FPE</b>	Free Primary Education
<b>HACCP</b>	Hazard Analysis and Critical Control Points
<b>HGSFP</b>	Home Grown School Feeding Program
<b>KI</b>	Key Informant
<b>KI1</b>	Key Informant 1
<b>LCIRAH</b>	Leverhulme Centre for Integrative Research on Agriculture and Health
<b>MDGs</b>	Millennium Development Goals
<b>MOE</b>	Ministry of Education
<b>NESSP</b>	National Education Sector Support Program
<b>NMK</b>	Njaa Marufuku Kenya
<b>NSLP</b>	National School Lunch Program
<b>SFP</b>	School Feeding Program
<b>USDA</b>	United States Department of Agriculture
<b>WASH</b>	Water, Sanitation and Hygiene
<b>WFP</b>	World Food Program

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

School Feeding Program (SFP), a targeted safety net program whose aim is to provide nutritional support to vulnerable learners is about 2 decades old. Its origin can be traced to the year 2000, when the UN launched United Nations Millennium Development Goals (MDGs), one of which was to eradicate poverty and hunger by the year 2015 (UN, 2010) which regarded SFP as a key instrument in achieving global education and eventually act as a catalyst to human development. Thus, SFP as an approach designed to provide food to young children as a safety net that would lead to the achievement of MDGs was born (Dheressa, 2011). Subsequently, the World Food Program (WFP) has provided food to millions of children (WFP, 2006) which motivates them to enroll in a school and maintain a constant attendance especially in regions with low participation in basic education. The goal has been inherited by the goal number two under Sustainable Development Goals (SDG) that are guiding the global development efforts between 2015 and 2030. The second goal aims at issues of hunger, food security and nutrition value and promoting sustainable agriculture (UN. Department of Economic and Social Affairs, 2021).

SFP have a potential of improving the educational standards of the children (Mkanyika, 2014). The World Food Program has managed to reach to an average 66 million children in schools in over 70 countries all over the world (Darling, 2015). Africa and other developing countries is the biggest beneficiary of the WFP's SFP Program (WFP, 2017). Developed countries such as the U.S have their school feeding program that are very common with schools; for instance; the National School Lunch Program (NSLP), in the United States, has 99% provision rate of food to public schools in the country (United States Department of Agriculture, 2008).

Hunger has been identified as one of the paramount hindrance in school attendance for children within many households in the lower income bracket (Kirk, 2005). Argued, hungry children are not able to participate in class, and when they do participate, they hardly concentrate. Children that have better nourishment have better cognitive development, are more attentive in class, and have the good health that facilitates learning (Laar, 2015). Besides, such children would rather deal with immediate issues that affect them other than attending school (Pichegru, 2010, Kirk, 2005). This apparently means low

school enrollment and a high number of school dropouts thus a recurring poor education level but SFP is used as a measure to curb this educational issue. There's a school feeding programme, *Desayunos Escolares*, in Mexico via which breakfast is provided to school children in view of executing the Mexican constitutional right to food and whose double pronged approach is to intervene against both overweight and under-nutrition which are two common problems in the country (Drake, Burbano, & Bundy, 2016). SFP in India is universal and is governed by the constitutional rights to food, positive right to life and personal liberty and which legally obliges the government to provide free meals to school (Government of India, 2006).

In Morocco, upon establishment of SFP by the WFP, the school enrolment increased within two years. The Government through the National School Meals Program (NSMP), feeds over 1.4 million basic education learners, majority (70%) of whom are from rural areas (WFP, 2017). In Ghana, where the school enrollment increased from half a million to above one million demonstrated that SFP is an effective strategy. The program has led to a high number of children who purposely participate in activities offered by schools, which has resulted into more children being enrolled and having a constant attendance. The effect of the program has been noted for increased performance of students (Laar, 2015).

In Namibia, the communities offer support to SFP in kind through contributions such as fuel, water, utensils, and shelter and storage facilities (Government of the Republic of Namibia, 2006). SFP aims at empowering the underprivileged students as well as HIV/AIDS affected and infected learners. The rise of health, economic and natural dynamics such as HIV pandemic, poverty, floods and drought respectively necessitated a subsequent increased funding from the government. As per the World Bank, (2016), about 8.8 million learners are served a hot breakfast and in addition those from poor provinces receive some lunch in the South Africa.

Locally and through the National Food Security and Nutrition Policy 2012, the Kenyan government provides school meals in view of enhancing food security for school children (Republic of Kenya, 2005). The country got two Government funded programs: -Home Grown School Meals (HGSM) and *Njaa Marufuku* Kenya (NMK), that feed 1.5 million learners with a hot lunch of corn and legumes (The World Bank, 2016). However, as opined by Dr. Romano Koome the once Permanent Secretary in the Ministry of

Agriculture, the challenge is to have all relevant ministries cooperate to ensure that SFPs are implemented jointly (cited in Songa, 2011).

Despite the positive impact of SFP, a few challenges have been experienced that affect its contribution to quality education, mainly as a result of other factors that lead to a few discrepancies (McEwan, 2013). For instance, though schools have experienced a rise in students' enrollment, the dropout rate especially in lower and middle levels of education is high as well. Several reasons have been outlined to be the reason for this huge dropout. According to Darling (2015) hunger has been the major reason for such significant dropouts since the food provided is not sufficient to carry a student throughout the whole day. The school has to find people who will be cooks, maintain the stores and also buy equipment such as cooking pots or firewood, issues that predicate on the value of the program. In a study on the multi-functional Home Grown School Feeding Program (HGSFP) in Adentan Municipality of the Greater Accra region, revealed that salary arrears for caterers weakened their commitments while increased enrollment against limited infrastructure daunted teachers which overall strained SFPs (Kedze, 2013).

In cases where the SFP is supported through donor projects, it could collapse after donor withdrawal (Kabera & Alexis., 2015). Increased number of students due to the SFP could also lead to poor quality of education (Boyd & Donald, 2008). The ratio of teachers to students could also increase per school, thus a teacher handles more students than required by ministry of education standards and which compromises the teacher's ability to effectively interact with every student personally hence cannot offer different attention between good and poor performing students. Consequently, poor performing students lag behind and eventually their potential is not realized. Furthermore, provision of extra-curricular activities such as games and computer classes is less due to shortage of equipment. This could undermine the quality of education as schools are not able handle the rise in student enrollment. In facilitating SFPs, schools incur other indirect costs such as employment of chefs and buying cooking equipment thus compromising the value of the program.

The management of the program could also be a major issue since the program covers marginalized communities which implies monitoring and evaluation has to be done regularly in order to establish demographics or geography of targeted areas which are factors that could affect school attendance other than lack of food. This is evidence from a study done in Kajiado, Kenya that attests to challenges facing the implementation of SFPs.

These include schools' constrained potential to effectively run the SFPs especially due to increased enrollment yielding from free education in conjunction with the school feeding programs (Munuhe, 2014). On the other hand FPE and SFP could compromise education quality due to large number of learners.

To efficiently achieve best results under SFPs reliable strategies need to be put in place that regard enrollment and continuous attendance issues beyond the provision of food (McEwan, 2013). The strategy should also incorporate participation of the community surrounding and should include Early Childhood Education (ECD) to ensure a smooth transition to primary education. It should consider utensils and personnel involved in the program and should also solve problems emanating from high enrollment of students.

Nairobi is a cosmopolitan city that is affected by urban poverty. As 2016, organizations such as the Feed the Children (FTC) partnered with the WFP, the Government of Kenya and other donors, to fill gaps in SFPs in the Nairobi slums in the face of rising food prices. The partnership that reached approximated 120,000 children faced diverse issues such as scarce family resources to purchase adequate and nutritious food, many were orphaned or suffered chronic illnesses (Feed the Children, Inc., 2016).

## **1.2 Problem statement**

SFP is a good strategy for improving access to education especially among the most affected children in the slum areas. The program that reached 120,000 children in the Nairobi County as of 2016 consumes a lot of resources and logistics. In the year 2021 WFP is serving 2000 children in Kibera slum alone at an estimated cost of Ksh 70 million annually in this slum alone. The motivation to start the program was enhanced educational and health benefits to vulnerable children. Though SFPs may seemingly look simple, they are complex interventions that require trade-offs during design, in terms of objectives, targets, modalities for feeding and costs. To this end, several examined studies have looked at the importance of SFPs in increasing primary schools enrollments to a significant extent (Dheressa, 2011; Kabera & Alexis, 2015; Otieno, 2014; Kariuki, Kosgei, & Chepkwony, 2013; Githuku, 2015; Kedze, 2013; Munuhe, 2014). However, a scanty number of studies have critiqued SFP and its contribution in delivering standard and valuable education in public primary schools generally and specifically within Nairobi County. Some questions arise that could indicate the effect of SFP on quality of education. For example, how does SFP increase teacher/learners' contact time? Does it improve on

improve on the mean standard score of the learners? Does it enable the affected schools to access better learning resources and facilities? Despite this, there are several determinants and influencers of quality education that have an effect on education that could be linked to SFP. This study assessed the impact of SFP of education quality provided in public primary schools within unplanned settlements in Nairobi, a city with a high General Enrollment Rate (GER) of 84% based on the Government statistics of 2016. There are large numbers of enrolled children in the unplanned and highly impoverished settlements of Kibra, Kariobangi, Mukuru, Mathare, Kawangware and Kangemi who are supported under SFP. This study sought to determine how SFP has impacted on the quality of education in supported urban schools as far as healthy learners, adequate resources and facilities and enrollment rate are concerned. The study therefore examined and documented how the SFP impacts on quality of education. The programme is an important contributor towards the second SDG, whose aim is to end hunger as well as achieve food security, improve nutrition and promotion of sustainable agriculture. In this way it has contributed knowledge on the extent SFP is contributing towards SDGs.

### **1.3 Research questions**

This study sought answers for the following questions:

- i. What is the effect of frequency of school feeding programs on quality of education in public primary schools?
- ii. What is the effect of timing of school feeding programs on quality of education in public primary schools?
- iii. What are the effects of school feeding program's food features on quality of education in public primary schools?

### **1.4 Objectives of the study**

This study purposed at establishing the impact of school feeding program on quality of education in public primary schools located in the unplanned settlement areas within the Nairobi City County.

#### **1.4.1 Specific objectives**

The study was guided by the following specific objectives:-



- i. To assess the effect of frequency of school feeding programs on quality of education in public primary schools.
- ii. To examine the effect of timing of school feeding programs on quality of education in public primary schools.
- iii. To investigate the effect of school feeding programs' food features on quality of education in public primary schools.

### **1.5 Justification of the study**

Currently, there exists a knowledge gap on the impact SFP has on quality of education among public primary schools in Nairobi City County. The SFP have been adopted by both Governments and Non-Governmental Organizations as a tool to increase student enrollment. It is therefore important to ascertain the relationship between SFP and quality of education delivered for purposes of improving its implementation and its impact on the long term. This study has gathered information and insight on the impact of SFP on education quality in public primary schools. This could help education managers and planners, policy makers and implementers of the program improve the performance of the programs. It could also be beneficial to financiers of the program that include international development agencies and the government and other bodies since it has provided insights that are indicative of a pertinent component of the program: that is education.

At the policy level, information gathered from this study would assist policy makers at the Ministry of Education (MOE) to develop appropriate decisions and actions that would ensure sustainability of the program and attainment of the long-term goals and targets. The information could also enlighten policy makers on areas where more emphasis is needed regarding implementation thus closing in on the gap between SFP and quality education.

This study has increased awareness and insight into the role of schools in achieving the most out of the SFP. School management could use the insights from the study to effectively implement SFP. This study has also contributed to academic literature on SFPs and to how to effectively implement it, which could be relevant to interested students, researchers and academicians.

### **1.6 Scope of the study**

This study covered the SFP issue and its impact on education quality in public primary schools in Nairobi City County, Kenya. It focused on four issues;- frequency of SFPs,

timing of SFPs, SFPs diet and the SFPs food features; and their effect on the quality of education in public primary schools where SFPs are active. The study targeted primary schools that are supported by SFP in the unplanned settlements of Kibra, Huruma, Dandora, Kawangware/Dagoretti.

### **1.7 Definition and Operationalization of Key Concepts**

**Diet** refers to the types of food in a comprehensive meal a person or community consumes regularly and habitually (Merraiam Webster Dictionary, 2022). In this study this refers to the food that is served to pupils under the school feeding program specifically under considerations whether it is balanced (that is does it have carbohydrates, proteins and vitamins)

**Education quality** refers to implementation of education in such a way that it provides learners with all capabilities they need in order to become economically productive later in life thus able to develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual well-being (UNICEF, 2000). In this study this refers to the capacity of schools under the school feeding program in the study area to provide holistic education to the learners to an extent that they are able to perform competitively with learners from schools that are not under the program as indicated by performance at KCPE, enrollment, their physical health and adequacy of resources and facilities.

**Features** refer to the distinctive attributes or aspects of something or an entity (Dictionary, 2022). In this study this refers to specific attributes to food rations given to learners under SFP namely: freshness, temperatures and cooking quality.

**Food features** refer to characteristics of allotted amount of food on daily basis or per serving (CHAN, 2022). In this study this refers to amount of food in terms of quantity given to pupils under the school feeding program as well as characteristic such as temperatures and freshness

**Frequency** refers to the number of occurrences of a repeating event in a given span of time. (UK Dictionary, 2022) In this study this refers to the number of times feeding is done within the public primary school under study within a day, a week or monthly

**Mean score** refers to a piece of information, usually an average number, that conveys the combined performance of an examinees during a test and shows what they have achieved or what level they have reached (Collins Dictionary , 2022). In this study this refers to average marks earned by the average score during the Kenya Certificate of Primary Education examination.

**Resources and facilities** refer to materials that teachers use in order to assist students to meet the expectations for a predefined learning based on a specific curricula. These materials could be in the form of learner guides, text books, texts, videos, software and others (Law Insider, 2022). In this study this refers to teaching aids and tools and teachers are able to access as a direct or indirect consequence of having an SFP in their primary school.

**Teacher/learners contact time** refers to the amount of time during which learners receive instruction from a classroom teacher (International Bureau of Education, 2021 ).In this study this refers to time that teachers are able to get into contact with learners in schools supported by SFP as a direct consequence of SFP.

**Timing** refers to a particular point or period of time when something happens (Merram webster, 2022). In this study this refers to specific hours when learners are fed under school feeding program during the course of the day and even a week. It is morning, midday, afternoon or evening, or is it in specific days, such as weekdays or weekends

## **1.8 Research Hypotheses**

**H<sub>01</sub>:** There is no statistically significant impact of frequency of school feeding programs on quality of education in public primary schools

**H<sub>02</sub>:** There is no statistically significant impact of timing of school feeding programs on quality of education in public primary schools

**H<sub>03</sub>:** There is no statistically significant impact of school feeding program's food features on education quality in public primary schools

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter has discussions on quality education, it then focuses relevant theoretical and empirical literature. It also has both the theoretical and the conceptual frameworks.

#### **2.2 The concept of quality education**

International Human Rights treaties, comprehensive laws and a policy framework which is subject to protection and implementation grant every child right to education. However, states such as Kenya face challenges in enforcing these laws and policies (UNICEF, 2014) specifically in order to provide quality education. According to United Nations Children's Fund (UNICEF, 2000), to facilitate acquisition of quality education, the learners must be healthy, well-nourished and should participate in the learning process. In addition, the community must be ready and willing to grant requisite support to the learners. Moreover, quality education is characterized by a conducive environment that is gender-sensitive and adequately resourced with enough facilities. Quality education must utilize information that is resourceful enough to induce basic knowledge on literacy, arithmetic and life skills. For provision of quality education in schools it calls for trained teachers to embrace pupil-centered learning methods. Good management and skillful assessment of learning facilities and institutions is prime to enhancing effective learning and curbing education challenges. The deliverables of education such as knowledge, skills and attitudes must adhere to the national education aims and must as well create a positive impact to the society (United Nations Children's Fund, 2000).

Many countries across the world spend millions of money on education resources every year in public schools. A research done in Tanzania that examined challenges that face primary education in the country found that teaching aids and resources required by teachers in primary school were inadequate, a situation that resulted into limited access to textbooks (Chacha & Zhong, 2013). The findings of a study by Masino and Niño-Zarazúa (2016) were that the availability of resources such as infrastructure, staff and equipment has a direct positive influence on provision of quality education in developing countries. However, as revealed in a study by Wekesa, (2013) in Navakholo District, Kenya, a very high number of primary school learners led to inadequacy of instructional material, which further curtails the ability to provide primary quality education in public schools.

Many public schools in developing countries are characterized by a limited infrastructure in against an ever-growing pupil enrollment per year. A research done in California found that children in smaller classes achieve better results in academics. This is because their teachers can easily deal with smaller numbers of pupils and hence are able to give enough time to each and every pupil, and as a result quality education is guaranteed (Baker, Farrie, & Sciarra, 2016). Contrary to this means that learners get poor quality of education.

According to a policy brief by the Institute of Economic Affairs (2017) high quality primary education continues to remain a challenge among the marginalized groups in non-formal settlements that are characteristic of poor quality teaching, limited learning resources and unconducive as well as congestion evidenced by the high populations that often rise above 30 pupils per class. All these inhibits effective teaching (Chen, 2017).

Spacious class rooms, libraries, laboratories, adequate water and sanitation facilities are high contributors of improved academic achievement (Ndemba, 2014). As per Kubania (2014), majority of Kenyan primary schools are inadequate in terms of crucial facilities and infrastructural resources particularly classrooms and for Water, Sanitation and Hygiene (WASH). For the available ones, 32% are unmaintained and in poor condition. A report by Sitati (2014) showed that increased enrollment led to congested classrooms, very high pupil teacher ratio in some regions and poor learning facilities.

High level of performance of learners is one of the main and perhaps most important goal of any learning institution (Steinmayr, Meißner, Weidi, & Wirthwein, 2017) that include schools, colleges and universities. However, whereas there are many factors that affect learning attainment, these lead to poor performance for the learners and the learning institution. An illustration is where due to large classes, teachers cannot easily deal with high numbers of learners and cannot give them enough attention and as a result quality education is not guaranteed (Baker, Farrie, & Sciarra, 2016).

### **2.3 School feeding program**

SFP is linked with quality education regardless of whether its effect is positive or negative. For example an increase in enrollment under SFP without a responsive increase in the amount of other teaching resources could derail the quality of education. Though SFPs may seemingly look simple, they are complex interventions that require trade-offs during design, in terms of objectives, targets, modalities for feeding and costs. This complexity is

attributable to the many objectives the programs respond to especially in education, health and nutrition, agriculture and community development (Tembon, 2016).

At the school level the SFPs have a traction (magnet effect) and increased attendance rates in schools and lower initial dropout rates (Espejo, 2009) and an overall increase primary school enrollments as proved by previous research (Mutua , 2013, Githuku, 2015). Increase in number of pupils seems to be a great challenge to the management of various schools (Gelli, 2015) as it causes the ratio of teacher to pupils to rise against a backdrop of poor teacher remuneration, as well as poor acquisition, management and control of financial resources and weak management and governance that limits the availability of quality education in public schools.

Worldwide various governments have adopted SFPs majorly in order to improve education by retaining learners in school. Food and Agriculture Organization's (FAO) 2007 estimates revealed that as high as 75 of more millions entered the bracket of individuals who were chronically hungry within the period between 2003 and 2005 (FAO 2008), and which was projected to hit 923 million (mostly children) people worldwide (mostly in developing countries) within a few years. Persistent lack of food and nutrition leads to sustained poor health and low productivity both for individuals and states. Underweight and stunted growth among the children become prevalent and leads to lowered immunity and mortality.

Establishing SFPs mainly aimed at creating an incentive that encourage schooling for children and especially girls (Jomaa , McDonnell , & Probart , 2011). In addition Sumberg and Sabates-Wheeler (2011) observes that SFPs are used as a market avenue of produce from local small scale farmers and thus catalyzes economic empowerment initiative for the locals. Home Grown School Feeding (HGSF), a program which was financed by the Bill and Melinda Gates Foundation in UK is premised on this approach. As per Broca and Stamoulis (2003), merits for use of locally produced food stuffs under SFPs include sustainability, appropriateness of the products and cost effectiveness. Jomaa *et al.* (2011) proffers that “childhood under-nutrition imposes significant economic costs on individuals and nations, while improving children's diets and nutrition positively affects their academic performance and behaviors at school and their long-term productivity as adults.”

A study that reviewed secondary literature on how SFP impacts nutritional health and academic outcomes among children in the age of school-going in developing countries by Alderman, Hoddinott and Kinsley (2006) showed that malnutrition has numerous and adverse effects on learners. This is shown in terms of delayed or reduced access to education, small body-size, and low self-esteem and reduced earnings. Relevant stakeholders may intervene through initiatives such as Food for Education (FFE) Program to provide food to pupils as well as their families and as a result raise the enrollment and school attendance. The end result could lead to poverty and hunger eradication, gender equality and empowerment of women.

The main intention of SFPs has been to eradicate short-term hunger and boost nutrition and intellect of children. It also geared towards the economic empowerment of affected families within the locality of schools that benefit. The benefits of SFPs cut across a wide array of disciplines such as education, health as well as boosting consumption by the marginalized members of the society though more research is important (Alderman & Bundy, 2012). According to Jomaa, McDonnell and Probart, (2011), SFPs have several benefits such as provision of energy and other nutritional substrates as well as improved school enrollment and attendance. However, some shortcomings of the SFPs need to be given a more systematic Theory-Based evaluation for improved effectiveness and efficiency of the entire program (Jomaa, McDonnell, & Probart, 2011).

As per Gokah (2008), SFPs have been used over more than eight decades in the USA and UK to boost children's health. It became popular among political leaders and policy makers and as a result spread over to Asia, Africa and Latin America. In Bangladesh, the Government launched the innovative SFP named Food for Education (FFE) program in 1993, with objectives of facilitating education by boosting number of children who enroll and attend school, to reduce rate of dropout and to deliver quality education (Ahmed & Ninno, 2002).

The 2011 World Food Prize was co-shared between John Agyekum Kufuor (Ghanaian ex-president) and Luiz Inácio Lula da Silva (Brazilian ex-president), due to their role of implementing successful social programs in their respective countries, in which SFPs were regarded for both nations had operationalized. Afridi (2010) further points out that Brazil school feeding programs included in the constitution in 2001 while on the other hand, in India, the state government was instructed by the supreme court to offer cooked meals in the targeted schools (Afridi 2010 cited in (Lawson, 2012).

In 2011, a USAID funded food security project called trilateral co-operation was initiated in Brazil and Mozambique. The project that purchased agricultural produce from the locals was designed as an SFP on the HGFS principle and was boost to both the education sector and the societal economic welfare. Furthermore, the benefits of SFPs cut across a broad scope of issues that include education, agriculture, food security, economic empowerment and health. It fits as a social safety net for the under privileged children.

#### **2.4 Effect of frequency of school feeding programs**

A study by Sally, Susan and Susan (2014) found that some cognitive functions in school were improved on the provision of breakfast to students at school especially among highly malnourished children. However, it is hard to conclude whether frequency of school feeding programs lead to concentration on tasks given or better performance as the study further found that well organized schools highly lead to longer concentration and better performance.

The number of times food is served to children especially in pre-school is believed to highly contribute to academic achievement and hence quality education. This frequency in feeding initiated by the SFPs could therefore enhance quality education in all schools that adopt the program. A study that examined how SFPs' influenced academic performance in children who attend pre-school in Kayole Zone of Nairobi City County found excellent performance at Kenya Certificate of Primary Examinations (KCPE) examinations for 90% of those schools which fed the pupils twice a day while 10% of those where children were fed once performed above average. The study then concluded that frequency of feeding highly contributes to academic performance (Otieno, 2014). However, the study was limited to one area which could be a limitation to generalization of the findings, and hence the need for this study.

By motivating and providing requisite energy for learning, frequent provision of food could as a result boost academic performance. Since food is an essential requirement during learning many schools in both public and private sectors in needy environments tend to adopt SFP to help keep the pupils in school and to concentrate in their studies. A research conducted that examined the impact of SFP's on academic achievement of children that take ECDE in Roret Division, Bureti District in Kenya revealed a high KCPE performance for school with SFP when compared with those without the program. The research also identified that private schools with the SFP as the best performing



followed by the public ones with the same program. Nonpublic schools that failed to adopt the program performed worst (Kariuki, Kosgei, & Chepkwony, 2013) and as such it was concluded that SFPs and academic performance were positively correlated. However, while there have been studies around SFP and its impacts on performance in education, less is known of the impact of frequency and timing of SFP on performance in urban poor areas of Nairobi such as Dagoretti, Kawangware, Kibra, Huruma and Mathare.

## **2.5 Effect of timing of school feeding programs**

According to Masters (2016) unscheduled eating is unhealthy and additionally, reports from the Nutrition society bold out that it is not just what one eats, but even when one eats has been associated with several health complications such as weight gain, hypertension, and type 2 diabetes. Furthermore, this was confirmed by Researchers at the Semel Institute at the University of California, Los Angeles (UCLA) whose report revealed that poor timing of meals on regular basis has significant implications for learning and memory (Health Corps Inc., 2016). This research was premised on the fact that inappropriate hours of eating especially late-night eating has already been implicated and linked to risk of pre-diabetes. Regular pattern of eating may negatively impact an individual's metabolic health as well.

The findings of a study by Coates, Banks and Dorrian (2016) were that the timing of food intake and diet quality had a direct influence on the sleep and work patterns in humans which further strengthens the argument that timing of meal time is important to health. Regardless of the diet plan that is right for a person, individuals have been consistently reported to witness positive results when they eat regular meals, which on overall promote a healthier lifestyle (Tru Health Medicine, 2018). According to an article published by Health-24 (2017), the timing and length of inter-meal break directly influences the activity levels and preferences of children.

It is believed that schools which provide their pupils with breakfast on daily basis report improvements in academic performance. This further corroborates with the findings of a study that evaluated school feeding programs using some Jamaican example premised on the fact that school feeding programs influenced increased time spent in school by pupils, attentiveness that pupils give to tasks, improvement on cognitive functions and improved nutrition status (Sally, Susan, & Susan, 2014). The study also found that some cognitive functions in school were improved on the provision of breakfast to students at school

especially among highly malnourished children. This suggests that meals that come earlier in the day could have better impact on learners when compared to those that come later in the day.

## **2.6 Effect of school feeding programs' food features on quality of education**

Various types of foods satisfy hunger differently however the reasons behind these differences have not been clearly accounted for (Rolls, 1995). The type and quantity of food affect health and wellbeing. The amount individuals eat is influenced too by factors such as palatability of foods as well as taste, smell and texture. It can also be influenced by social setting while appetite is a factor of the feeling or rather the magnitude of hunger. According to EUFIC (2012) induced or routine eating patterns as well as individual tastes and preference of different kinds of food are issues of significant consideration too (EUFIC, 2012).

Satiation is dependent on several factors such as the quantity or rate of consumption of a particular food as well as the utility and the perception about the satiety or rather the satisfaction value of a particular food. Other issues are energy amounts of the consumed food, the dietary fat and the quantity and form of food as represented by portion size, and form of food. According to Rolls, (1995), sensory-specific satiety and variety is dependent on changes in tastes and preferences during a meal, concern for variety and intake during a meal as well as monotony in the Diet. Where small portions of served food reduces satiation, larger portions have been associated to over-eating that would lead to gaining of too much weight as well as upset of the digestive system thus triggering indigestion symptoms such as bloating or belching (Government of Australia, 2017). According to Anthony (2017), there are various factors that influence satiety and preference of a given type of food and which include social-cultural and emotional factors, education and economic levels as well as serving sizes. All these comprehensively affect food intake and body weight.

In accordance with Maslow (1970) in his theory of the hierarchy of needs, food is one of the lower needs and as such, its provision to learning children is tantamount to their motivation to seek education and flourish academically by boosting their learning process. K.I.E (1998) postulates that foods vary in their nutritional value and chemical composition and as well the body must get enough of each nutrient. This study looked at specific factors that would influence food intake and satiation among the learners under SPF such

as freshness, temperature, level of cooking, taste, smell and texture, link to eating habits as well as cultural sensitivity of the offered foods.

The future of the world is highly dependent on individual children who have experienced growth and development. Research has it that there is an increase in number of pre-school children suffering from malnutrition. Those among them who are suffering from severe malnutrition are 3%. UNESCO (1990) found that 40% of children under the age of 5 years fall prey to protein deficiency; half of whom as a result succumb to anemia. Philosophies and Rights of a child as declared by the UN emphasized that the caretakers and guardians of children have a responsibility to provide them with quality nutrition and education. This should be done all through their early childhood in view of availing conducive environment and hence enhancing their growth and development.

According to UNESCO (1990), timely focus and commitment to provision of quality health and nutrition education in early childhood stages will enhance future growth and development at a nationwide perspective. This implies that implementers of SFP should be conscious on how the program is implemented because its effect is long term both to the individual and to the nation, and arguably making this proposed study important.

## **2.7 Theoretical and Conceptual framework**

The section describes the theory on which the study was based and the conceptual framework that shows how the variables relate with each other.

### **2.7.1 Theoretical framework**

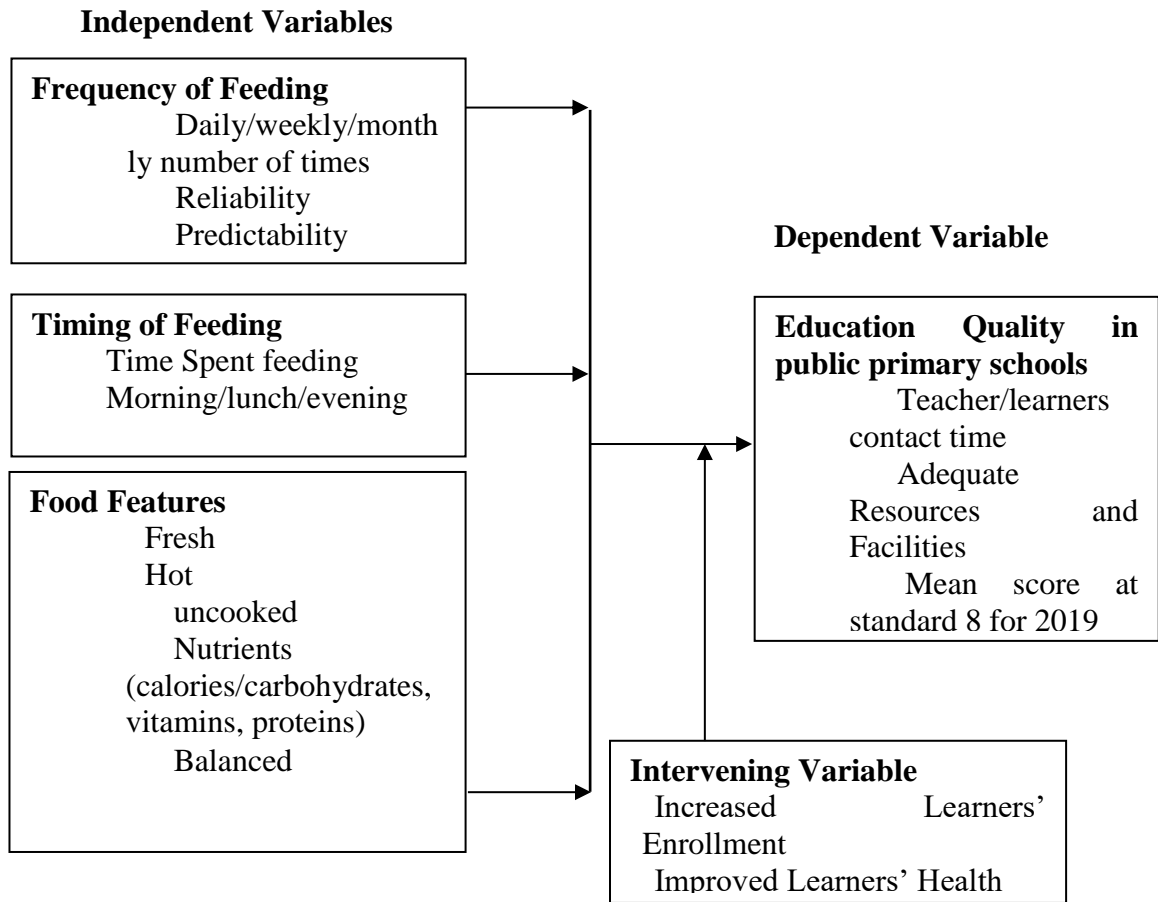
The study was grounded on the Equal Opportunity theory advanced by Dennis E Mithaug (1996). This theory revolves and aims at explaining the collision between the right to self-determination and what is actually experienced (Mithaug, 1996). This theory proposes that the society has a collective responsibility to assure all its members have fair prospects in self-determination. Based on the propositions of the theory, there are less situated individuals who need and deserve help in a society so that they can reestablish their experience of self-determination. It advocates for social restructuring to enhance the granting of every individual rights that ensure self-determination. However, psycho-social captivity denies some individuals and groups capacity to determine their future. It further postulates that reduced capability to ensure self-determination for the underprivileged is as

a result of social forces that cannot be controllable. This makes it necessary to boost self-determination of such individuals who are less well-situated in the society.

This theory is pretexted on the equal opportunity principle which is a baseline standard for drawing conclusions that posits that individuals should be treated on equal terms unless where the difference is justified to enhance lending, hiring, housing, salary and wages voting rights and other concerns in fair terms. According to De Vries (2011), issues that should neither restrict nor enhance the opportunities for anyone includes; prejudices, personal preferences and artificial barriers. In this study lack of food is a psychological and social conditions affecting some school going children, which is their external factor and calls for improvement of prospects through joint responsibility for enhancing intrinsic determination among these children by providing them with food. This study aims at investigating how provision of food through SFP is impacting access to quality education in the poverty stricken areas within Nairobi.

### **2.7.2 Conceptual framework**

The Figure 1:1 presents graphically the researcher's way of explaining and relating of variables in the context of this current study. It is a display of how the each variable is connected with one another. By design, the conceptual framework is the "map" that guided the researcher in pursuing the investigation. The figure shows how the independent variables (Frequency of SFP, Timing of SFP, SFPs diet, SFPs Food Features) influence the dependent variable which is education quality in public primary schools. The dependent variable was an index containing healthy learners, adequate resources and facilities and enrollment rate.



**Figure 2:1 Conceptual Framework**

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

Content of the chapter has description of the research issues related to methodology:- the design, study location plus target population. It explains how sampling was done as well as sample size plus the research instruments and how these were validated and reliability established, data collection approaches and analysis techniques.

#### **3.2 Research design**

A descriptive cross-sectional survey design was adopted by the study in collecting data. This was meant to ensure that findings could respond to the study's general and specific research objectives (Kothari, 1990). Descriptive research enables researchers to describe populations, situations and phenomena in a systematic accuracy. It concerns itself with the questions: 'what', 'where', 'when' and 'how' questions. However, it does not tackle the questions on 'why' (McCombes, 2020). In practical terms, when investigating variable(s) the design is able to use a wide variety of research methods. This design was deemed appropriate for the study because it enable collection of both quantitative data and qualitative data. As a result it provided concrete facts describing the situation in relation to the specific objectives. It was a cross-sectional study because data was collected from many different individuals at a single point in time. The design facilitated mixed methodologies that obtained data from both the independent and dependent study variables. Mixed methodologies mean that mixed (quantitative and qualitative) data was collected. Descriptive statistics were applied in processing and analyzing quantitative data. This included means and average. It also allowed inferential statistics. Qualitative data was textual and was analyzed thematically along the study objectives.

#### **3.3 Study location**

This study targeted various public primary schools supported by SFP in Nairobi County. The primary schools were selected from Kibera, /Huruma, Dandora, Kawangware/Dagoretti slums. Being the smallest but most populous county, Nairobi has 225 both private and public primary schools

### 3.4 Target population

The study covered 68 teachers that head public primary schools whose schools have adopted school feeding program out of 225 public primary schools in Nairobi and 3 ministry of education officials in Nairobi who are in charge of these study areas. These included the ministry officer in charge of Dagoreti Division, Kibera Division and from Embakasi division that hosts Starehe and Huruma areas. It also included the program manager from WFP as a key informant.

**Table 3:1: Target Population**

Category	Kawangware/ Dagoretti	Dandora	Starehe/ Huruma	Total
Head Teachers	26	19	23	68
Ministry of Education officials	1	1	1	3
WFP				1
Total				72

### 3.4 Sampling Technique and Sample Size

A census was used in the study. This is whereby there was a complete universe summation and in which every member of the target population is studied. A census allows for intensive study since it allows for wide and broad data collection with a higher degree of accuracy especially when the universe is small. Census is also suitable for a heterogeneous population and especially when the target population is low (Farooq, 2013). In this study the population is low and thus can be easily accessed by the researcher. The study also used purposive sampling.

In addition to the basic unit of research which was the head teachers, the researcher selected specific respondents as key informant interviewees. Choice of a respondent was informed by important considerations for the study such as specialized knowledge of the subject matter of the study, as well as the both capacity and willingness of the respondent

to participate. The researcher is also informed by participants' likelihood of providing appropriate, deep and relevant data. In this context the ministry officials in charge of divisions (Dagoreti, Kibera and Embakasi) where the schools are located were interviewed as well as the person in charge of SFP in Nairobi under WFP.

### **3.5 Data collection instruments**

The study used semi-structured questionnaire to collect data. It also used key informant Interview schedule. Semi-structured questionnaires are definite set (s) of questions with clearly defined and restricted alternatives that combine with open-ended ones that capture textual responses. A questionnaire according to Creswell is convenient when collecting a wide range of standardized data from a large number of respondents anonymously (Creswell, 2013). The questionnaire contained both open and closed ended questions to capture both qualitative and quantitative data. It was divided into various parts that gathered general and demographic information.

A Key Informant Interview was employed in soliciting qualitative information from respondents on the four issues under investigation and how quality primary education of public primary schools is affected by these issues. The four issues are frequency of SFPs, timing of SFPs, SFPs diet and the SFPs food features. As per Farooq (2013), an interview schedule is a set of directives used when during a structured interview. Additionally, the questions must be posed in the set order and form without any alteration.

### **3.6 Validity of research instruments**

Content Validity according to Kothari (2004) is the effectiveness a measuring instrument in covering the topic under study. Additionally, professional expertise in the particular field of study is key in enhancing the validity of an instrument (Mugenda & Mugenda, 2012). Researchers have to ensure that the selected instruments are effective in measuring what they are purported to (Nachmias & Nachmias, 2005, p. 74). This study established validity of the research instruments by opinions that was sought from expertise of lecturers who work in the department of political science and public administration, University of Nairobi. Their views on the instruments were used to enhance that they measure what they purport to measure. The final instruments incorporated sentiments and experts views.



### **3.7 Reliability of the research instruments**

Stability over time of a research instrument is regarded as its reliability (Borg & Gall, 2003). Reliability of an instrument refers to its ability to consistently yield expected results in reference to given data upon repeated trials (Mugenda and Mugenda, 2012). The instruments reliability was determined through a pilot study in neighboring Kiambu County and was subjected to the Cronbach alpha test. The questionnaires were administered using a test re-test method among head teachers in 7 schools that run SFP twice with a two-week interval and to the same category of respondents. The findings from this pilot study were excluded in the main analysis and reporting. Cronbach's Alpha, which ranges from 0-1 is a coefficient of reliability test that was done on the obtained data to proof reliability. This helped proof reliability of the questionnaire through measuring of the internal consistency. Cooper and Schindler (2008) proffers that 0.7 is an acceptable reliability coefficient. For this study the questions with a value of  $> 0.7$  were accepted.

### **3.8 Piloting**

Pretesting of the questionnaires was done through a pilot study in the neighboring Kiambu County through a test-retest method, which involved repeating the measurement process on similar subjects and conditions and comparing the observations with the aim of estimating a their measurement error.

### **3.9 Data collection procedure**

Procedures of data collection involved the administration of a semi-structured questionnaire that was given to the respondents for assisted self-response. A standard questionnaire, which was the primary instruments of collecting data, was used to extract raw and primary data from the respondents. Only one questionnaire stayed administered to each target respondent. After formulating the data instruments the researcher instituted quality control for the instruments through editing and piloting. These procedures will be necessary as they will help the researcher to achieve the data that provided suitable information. Collecting data exercise was done to come up with raw data that could invaluablely prove how SFP affects education value in public primary schools in Nairobi City County, Kenya. Primary data sources were the only focus for this study.

### **3.10 Data analysis**

Completed questionnaires were edited to ensure that responses are satisfactorily complete and consistent before coding and processing. Processing involved coding all relevant data into quantifiable forms during the design of the questionnaire followed by the systematic assembly and which allowed for quantitative methodology in data analysis. Statistical Package for Social Science (SPSS), a computer package for statistical analysis, was used for analyzing the data. Analysis generated measures of dispersion and measures of central tendency. Quantitative techniques using descriptive statistics were applied in order to generate percentages and frequencies of both independent and dependent variables which were presented in tables. Used questionnaires generated qualitative responses too, which, together with responses obtained through key informant interviews were interpreted along the objectives of the study. The results of analyzing qualitative responses were crucial in enriching the interpretation of quantitative data.

### **3.11 Ethical considerations**

Ethical considerations in this study involved regarding the expectations for the participants, establishing informed consent and assuring confidentiality. An introductory obtained from the Department of Political Science and Public Administration of University of Nairobi, was subsequently submitted to National Commission for Science, Innovation and Technology (NACOSTI) in order to obtain a research permit. The permit was used to obtain authorization from the County Director of Education, Nairobi City County before the research. Thereafter, the researcher collected data from the respondents ensuring the highest degree of respondents' confidentiality. In addition, the researcher has ensured respondents' private information is held with utmost secrecy and proof of any third party. Most importantly, all the respondents' information and identity are exclusively used for the purposes of the study. During collection of data, informed consent was enhanced from the respondents by clarifying to them the nature of the study before issuing the questionnaires as well as allowing them to participate in the study at freewill (that is without influence). To avoid plagiarism, the researcher ensured careful acknowledgement of all cited literature.

## **CHAPTER FOUR**

### **DATA PRESENTATION AND DISCUSSION OF FINDINGS**

#### **4:1 Introduction**

This chapter contains findings of analysis. It has data that was found during the research. The research was carried out in Nairobi City County from the head teachers in public primary schools whose schools have adopted school feeding program out of 225 public primary schools in Nairobi. The chapter has analyzed results on rate of response, background information, frequency of SFPs, the effect of timing of SFPs and SFPs food features and how these issues impact the quality of education in public primary schools targeted in the study. It also discusses inferential statistics (Correlation, ANOVA and regression analysis).

#### **4.2 Response Rate**

In the study 64 respondents out of 72 targeted who were able to respond, this is an 88.9% response rate. A response rate above 70% threshold is a good (Doherty, 1994). This was therefore accepted.

#### **4.3 Background Information**

Data on the background of the respondents was obtained that touched on the gender and the length of time the respondents had served in the current school. The results obtained are presented in Table 4:1 and shows that on gender, males made up 53.1% of the respondents and females made up 46.9%. This means there were more primary schools headed by male teachers than by female teachers. However, the findings further imply that there is fair representation of both genders in the SFP and in accordance Kenya's constitution. It corroborates Sibanyoni, Tshabalala and Tabit (2017) in their study done in South Africa that showed that in SFPs in Mpumalanga, South Africa Most food handlers were female high school graduates older than 36 years of age.

The study further revealed that majority at 43.8% had been in their current school for between 6-10 years followed by those who had been in the schools for more than 10years at 39.1%. The lengthy period of time was important to show that views given by respondents were from substantial experience and thus regarded as being accurate.

**Table 4:1 Background Information**

<b>Parameter</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	Male	34	53.1
	Female	30	46.9
<b>Length of Time One has Been in School</b>	Below 5 years	11	17.2
	Between 6-10 years	28	43.8
	Above 10 years	25	39.1

### **4.3 Descriptive Analysis**

The study obtained quantitative data which was analyzed for frequencies and percentages. The results are presented in the section that follows.

#### **4.3.1 Frequency of School Feeding Programs**

Data on the frequency of SFPs was collected during the study, analyzed and presented as per table 4:2. The aim was to assess how this affects quality of education in the targeted public primary schools in the study area.

Data was obtained on whether there is regular feeding program in our school majority at 48.4% agree followed by 23.4% who disagreed. Cumulatively, 62.5% agreed (agree 48.4% and strongly agree 14.1%) compared to 35.9% of those that cumulatively disagreed (23.4% disagreed and 12.5% strongly disagreed). This implies that feeding program is a regular activity in the targeted schools. This corroborated views from Key Informant I (KI1) from the WFP who said that their organization had supported the program for several decades. Key Informant 2 (KI2) from the Ministry of Education (MOE) offered similar views that the Government has been active in supporting the vulnerable children in the country to access food. This is happening in the ASAL and in informal settlements. This corroborates a study in Greece done by (Petralias, et al., 2016) that showed that participation in a SFP aid program could lower and mitigate food insecurity among vulnerable families in a developed country especially when there is economic adversity. This signifies that SFP is filling an important gap in food security.

On whether Pupils only eat their lunch meals majority (46.9%) cumulatively agree when compared to 15.6% who cumulatively disagreed. Those not sure were 37.5%. This implies in most of the cases pupils are only served lunch. Based on Table 4:2, 60.9 % of the respondents disagreed with views that pupils receive their meals throughout the term compared to 39.1% of those who differed. This implies that in most of schools pupils do not receive meals throughout the term. The study revealed majority (62.5%) of the respondents agreed (53.1% agreed and 9.4% strongly agreed) cumulatively that there are days when pupils miss out food. This contrasted with those who cumulatively disagreed (37.5%) of which 26.6% disagreed and 10.9% strongly disagreed. This implies that there is a high possibility that there are days when pupils miss food. A study by Otieno (2014) concluded that frequency of feeding highly contributes to academic performance. Furthermore, a study by Sally, Susan and Susan (2014) has shown that cognitive functions in school are improved on the provision of breakfast to students at school especially among highly malnourished children. Contrastingly, missing meals could have negative implications on the academic performance of learners. However, views from KI1 and KI showed that at times supply of meals may fail though this could be as a result of logistics. This could also be associated with management concerns but they are not that significant as to affect the flow of the programme in the benefiting schools.

The study asked the respondents to respond to the question whether when food misses it is never more than by a week. Majority (57.8%) agreed against 35.9% who cumulatively disagreed (strongly Disagree, 15.6%, 20.3% Disagreed). This implies that though food can go missing it can never be by more than 1 week. These findings are in agreement with views from the KI1 and KI2. The study sought data on whether schools could be having food but all of a sudden it stops. Cumulatively 57.8% disagreed compared to 42.2 % (39.1% agreed and 3.1% agreed) of those who cumulatively Agreed. This shows that though food provision in the programme may stop suddenly, it is most cases but not in all cases. The study further sought to determine whether schools can at times go for a month without food. Majority (85.9%) disagreed (of which 10.9% strongly disagree and 75.0% disagreed) compared to 10.9% of those who agreed. This implies there is a regular supply of food. The study obtained data on whether respondents were certain next term we will be having food for our pupils 76.6% Disagreed (of which 50% strongly disagreed and 26.6% disagreed) compared to 23.4% of those that agreed. This implies there is substantial uncertainty on constant supply of food. The study further determined whether there is an

annual plan of how food will be supplied of which 37.5% disagreed compared to 31.3% Agreed. This implies that there is a slightly higher chance that planning is not done on an annual basis compared to instances that it is done. According to KI1 and KI2 food is always supplied and apart from rare logistical hiccups, the programme is able to ensure food is available for the part of a term. Adapting a School Meals Planner Package under SFP that was analyzed in Ghana over the 2014/2015 school year. Within the context of its environmental reality, this study revealed that the tool is helpful and implementers could use it to deliver nourishing and locally-available meals to schoolchildren (Meenakshi, et al., 2016). This implies that schools should have a meals planner that is adhered to in order to achieve the required impact of SFP.

**Table 4:2 Frequency of School Feeding Programs**

<b>Measure</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative (%)</b>
There is regular feeding program in our school	Strongly Disagree	8	12.5	35.9% Disagreed
	Disagree	15	23.4	
	Not Sure	1	1.6	
	Agree	31	48.4	62.5% Agreed
	Strongly Agree	9	14.1	
Pupils only eat their lunch meals	Disagree	10	15.6	15.6% Disagree
	Not Sure	24	37.5	
	Agree	30	46.9	46.9% Agreed
Pupils receive their meals throughout the term	Strongly Disagree	7	10.9	60.9% Disagreed
	Disagree	32	50.0	
	Agree	25	39.1	39.1% Agreed
There are days when pupils miss out food	Strongly Disagree	7	10.9	37.5% Disagreed
	Disagree	17	26.6	
	Agree	34	53.1	62.5% Agreed
	Strongly Agree	6	9.4	
When food misses it is never more than by a week	Strongly Disagree	10	15.6	35.9% Disagreed
	Disagree	13	20.3	
	Not Sure	4	6.3	
	Agree	37	57.8	57.8% Agreed
	Disagree	37	57.8	57. % Disagreed
We can have food but all of a sudden it stops	Agree	25	39.1	
	Strongly Agree	2	3.1	42.2% Agreed
At times we go for a month without food	Strongly Disagree	7	10.9	85.9% Disagreed
	Disagree	48	75.0	
	Not Sure	2	3.1	
	Agree	7	10.9	10.9% Agreed
I am certain next term we will be having food for our pupils	Strongly Disagree	32	50.0	76.6% Disagreed
	Disagree	17	26.6	
	Agree	15	23.4	23.4% Agreed
There is an annual plan of how food will be supplied	Disagree	24	37.5	37.5% Disagreed
	Not Sure	20	31.3	
	Agree	20	31.3	31.3% Agreed

### **4.3.2 Timing of School Feeding Programs**

The research project intended to examine the outcome of timing of SFPs on education quality in targeted public primary schools which was its second objective. Obtained data was presented in the table 4:3.

The study obtained data on whether food is always prepared in time in our school of which 51.6% disagreed and 48.4% agreed. This shows that in majority of schools food is not prepared time. The study further sought to determine whether eating time is clearly defined in the school timetable. While 15.6% disagreed, 84.4% accumulatively agreed (81.3% Agree and 3.1% strongly Agree). This implies that meal time is allocated in the time table in majority of the schools. The study further sought data on whether food is rarely served late to the pupils in our school. Results in Table 4:3 shows that that 87.5% disagreed (15.6% strongly Disagreed and 71.9% disagreed) against 12.5% of those that agreed. This implies that in most schools even, when food is available, it is served late often. Serving food in the right time and in the right length has been shown to influence the activity levels and preferences of children (Health-24, 2017: Masters, 2016). This means therefore that the schools should ensure SFP is served with allocated meal time.

The study further sought data on whether there is random eating time for pupils in our school. The study revealed that 46.9% disagreed against 39.1% of those that agreed. This implies that in most schools, eating time is defined and likely to be predictable. Data on whether there is regular pattern of eating in our school was obtained and results presented in Table 4:3. The study showed that while most 35.9% disagreed, 17.2% (14.1% Agreed, 3.1% strongly Agreed) were in agreement. This implies that in most schools there is no regular pattern of eating food.



**Table 4:3 Timing of School Feeding Programs**

<b>Parameter</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>	<b>Combined</b>
<b>Food is always prepared in time in our school.</b>	Disagree	33	51.6	51.6 Disagreed
	Agree	31	48.4	48.4 agreed
<b>Eating Time Is Clearly Defined In The School Timetable</b>	Disagree	10	15.6	15.6 disagreed
	Agree	52	81.3	84.4 agreed
	Strongly Agree	2	3.1	
<b>Food is Rarely Served Late to The Pupils in Our School.</b>	Strongly Disagree	10	15.6	87.5 Disagreed
	Disagree	46	71.9	
	Agree	8	12.5	12.5 agreed
<b>There is Random Eating Time For Pupils in Our School</b>	Disagree	30	46.9	46.9 disagreed
	Not Sure	9	14.1	
	Agree	25	39.1	39.1 agreed
<b>There is Regular Pattern of Eating in Our School</b>	Disagree	23	35.9	35.9
	Not Sure	30	46.9	
	Agree	9	14.1	
	Strongly Agree	2	3.1	17.2

#### **4.3.3. School Feeding Programs' Food Features**

The third objective was to investigate the effect of SFPs food features on quality of education in public primary schools. The results are presented in table 4:4.

The study determined to whether pupils receive enough quantity of food. Obtained data show that 57.8% disagree (Disagree 46.9% and 10.9% strongly disagreed) compared to 28.1% of those that agreed. This implies that quantity of food is regarded to be less than enough in most of the schools under investigation. As proffered by the Government of Australia, (2017) size of portion is important in determining the effect of food in the body. While small portions reduce satiation, larger portions could lead to over-eating and subsequent gaining of too much weight. This could as well as upset the digestive system and result to bloating or belching. This therefore means serving the right portion size should be a focus of the schools concerned.

The study further obtained data on whether Food is served in the right temperature (not too hot nor too cold). Majority 57.8% disagreed (34.4% strongly disagree and 23.4%

disagreed) compared to 39% of those that agreed (28.1% agreed and 10.9% strongly agree). This implies that often food is not served in the right temperatures (thus it could either too hot or too cold). The study sought to determine whether respondents experience cases of under cooked food occasionally. Data collected showed that majority (60.9%) agreed compared to 39.1% of those that disagreed. This implies that food is served under cooked in most of the schools investigated. The study also sought to know whether Pupils are occasionally forced to eat semi-cooked food. Study revealed that 75% cumulatively disagreed (16.6% strongly disagreed and 59.4% disagreed) on the statement that pupils are occasionally forced to feed on undercooked food compared to 25% of those that agreed. This shows that in most of the schools, pupils are not forced to eat semi-cooked food. By comparing with results above, the study reveals that despite the finding of the study where majority of the respondents agreed that food is served undercooked; the pupils are not forced to eat the food. KI1 and KI2 proffered that food served is culturally sensitive and is served within conditions acceptable in the Kenyan context. This means that though food though occasionally food could be undercooked; this is not always the case and could be in a few schools.

The study also aimed at examining whether food in the schools is served in hygienic conditions. Data showed that 48.4% of the respondents agreed that food is served under hygienic conditions compared to 40.6% who disagreed. This, according to the study shows that food in majority of the schools is served under hygienic conditions. According to KI1 all efforts is done to ensure that food is served within high hygienic conditions. A study done in the United Arab Emirate revealed behaviors among students that could expose them to bacterial food poisoning. Among the respondents 37.5% never washed hands properly after visiting toilets. In addition, 60.3% ate their meals in school playground. Subsequently, microorganisms, *Escherichia coli* and *Staphylococcus aureus* were found on hands of students, food handlers of interest and even teachers were worrying (Abushelaibi, Jobe, Dhanhani, Mansoori, & Shams, 2016).

The study again sought to determine whether those who prepared and served the food in schools wore right clothing. According to data collected, 82.8% of the respondents disagreed that those who prepared food in schools wore the right clothing compared to 3.1% who agreed. It is evident, according to the study findings, that those who prepare food in most schools do not wear the right clothing. According to KI1 and KI2 serving of food is done within acceptable standards of preparation and serving. Sourcing is done

locally according to KI1. This could lead to some lack of control in terms of food quality. However, the qualitative responses showed that efforts are always done to ensure standards are adhered to.

The study sought to examine whether preparation and serving of food in schools was done under known regulatory policies and guidelines. Data analysis outcome showed that 39.1% of the respondents disagreed that preparation of food in schools was done under known regulatory policies and guidelines while 35.1% agreed. This implies that food in schools was not prepared under known regulatory policies and guidelines. It also implies that individuals involved in food preparation and service are not aware of the existing policies. This is in agreement with a research on in South Africa that showed that most food service facilities under SFP in South Africa do not adhere to the Hazard Analysis and Critical Control Points (HACCP) guidelines. In the same light huge majority of the food handlers are not even aware of HACCP, have low knowledge, lack awareness and are of poor attitude towards critical microbial food safety standards (Sibanyoni, Tshabalala, & Tabit, 2017). Qualitative responses from KI2 showed the Government is keen to ensure that food quality is served under known policies and guidelines though there are could be challenges in enforcing the policies.

The study also aimed at examining whether the schools' kitchens were regularly checked by health officials for cleanliness and standards. Data showed that 83% of the respondents disagreed that kitchens were regularly checked by health officials in comparison with 15.6% who agreed. This revealed that in most schools, kitchens were not checked by health officials for cleanliness and standards. This implies that there is a need to refocus on specific operational guidelines in order to boost hygienic conditions.

On whether there is sufficient water for cleanliness in schools, findings showed that 42.2% cumulatively disagreed (15.5% strongly disagreed and 26.6% disagreed) while 57.8% agreed that there is sufficient water for cleanliness in the schools. These findings showed that there is sufficient water for cleanliness in most of the schools that were investigated.

Data on whether food leftovers in schools are served to pupils the following day. Obtained data revealed that 42.2% of the respondents disagreed while 43.8% agreed that food remains were served to pupils the following day. This shows that in most schools under study, food left overs are not disposed but fed to pupils the following day.

The study sought to examine if pupils ate a balanced diet in their school meals. Collected data showed that 50% of the respondents cumulatively disagreed (12.5 % strongly disagreed and 37.5% disagreed) compared to 50% who agreed. These findings reveal that the number of respondents who disagreed that the pupils ate a balanced diet was equal to those who agreed on the same. Responses from KI1 and KI2 showed that concern for balanced diet is a strong consideration in SFP. However, the findings could indicate there is much more that the programme needs to do in addressing food quality. KI2 was of the view that The Government's strategy on school meals is to ensure that children access food that is nourishing and healthy. This will enable them to learn and develop effectively. Among other goals the plan aims at ensure that children throughout the country who are both in pre-primary and primary schools are able receive at least one nutritious meal per school day.

The study obtained data whether there is a nutritionist or nutritionists who inspect what the pupils eat in school. According to data collected, 60.0% cumulatively of the respondents disagreed that food served to pupils in schools is inspected by a nutritionist while 15.6% agreed. This reveals that food served to pupils in most schools under investigation was not inspected by a nutritionist. This reveals a gap in terms in adherence to quality standards and further research could therefore be necessary.

The study also aimed at determining whether those who prepared food for pupils in schools under study have undergone training on nutrition matters. Collected data showed that 93.7% cumulatively disagreed (10.9% strongly disagreed and 82.8% disagreed) in comparison to 3.1% who agreed. These findings showed that in most schools that were investigated; most of those who prepare food for the pupils have not undergone any training on nutrition matters. A Ghanaian study revealed that food handlers in institutional food service exhibited inadequate information and knowledge related to food-safety, on attitudes and in practices. The study further showed significant gaps in their knowledge and awareness on matters to do with safe food thawing as well as proper ways for washing hands after either coughing or sneezing. This implied there was thus a need to consistently train them on food safety (Kunadu, Ofose, Aboagye, & Kwaku, 2016). Founding a food-safety culture is essential as a way of enforcing safe food practices.

The study focused on examining whether the pupils have different meals or are they served the same kind of meal at every specified time. Data collected showed that 15.6%

disagreed on that pupils eat the same kind of meal at every specified time while 71.9% agreed. These findings showed that in most schools that were investigated, the pupils are served the same kind of meal at specified time where a specific meal is served all through for that specific time. Study sought to determine whether pupils in lower primary were served the same food as those in upper primary. Data collected revealed that 62.5% disagree with the statement that pupils in lower primary ate the same food as those in upper primary compared to 37.5% of the respondents who agreed. This revealed that in most schools under study pupils in lower primary ate a different meal from those in upper primary. Pupils in lower primary did not eat the same food as those in upper primary. This was supported by qualitative data that showed that those in pre-unit classes are given porridge as opposed to those in middle and upper primary. This was according to KI1. This that the argument that as an extra matter of concern, the SFP should strive to serve food while considering the age of the children. This is because the digestive system of children is still maturing and its features are different from those of an adult.

The study aimed at examining if there have been cases of malnutrition in schools under investigation. Obtained data showed that 26.67% disagreed that there has been cases of malnutrition in the investigated schools while 43.8% agreed. This showed that there have been cases of malnutrition reported among pupils in the schools under study. According to KI1 and KI2 the programme is conscious about the need of balanced diet. However, the outcome of malnutrition need to further investigated. It could be due to several factors including inadequacy of provided meals. This corroborates Lawson (2012) in literature review study that revealed SFPs has an impact on micronutrient level of children who benefit from it. However, when evaluated by anthropometric measurements the research revealed a not very strong but modest as well as mixed outcome of SFPs' effect on health outcomes and thus calling for further studies.

The study was also determined to examine whether there has been cases of anemia among pupils in schools. 25% cumulative disagreed compared to 32.8% who agreed that there has been cases of anemia among pupils. These findings reveal that there have been cases of anemia reported among the pupils from the schools that were investigated. While the data outcome is not conclusive, the findings suggest there is need to boost intake of iron so as to improve the health of the pupils. This further underscores the importance of including nutritionists in the programme.

#### **Table 4:4 School Feeding Programs' Food Features**

<b>Parameter</b>	<b>Response</b>	<b>Frequenc y</b>	<b>Percen t</b>
<b>Pupils Receive Enough Quantity of Food</b>	Strongly Disagree	7	10.9
	Disagree	30	46.9
	Not Sure	9	14.1
	Agree	18	28.1
<b>Food is Served in the Right Temperature (Not Too Hot Nor Too Cold)</b>	Strongly Disagree	22	34.4
	Disagree	15	23.4
	Not Sure	2	3.1
	Agree	18	28.1
<b>We Experience Cases of Under Cooked Food Occasionally</b>	Strongly Agree	7	10.9
	Disagree	25	39.1
	Agree	39	60.9
<b>Pupils are Occasionally Forced to Eat Semi-Cooked Food</b>	Strongly Disagree	10	15.6
	Disagree	38	59.4
	Agree	16	25.0
	Disagree	26	40.6
<b>Food is Served in Hygienic Conditions</b>	Not Sure	7	10.9
	Agree	31	48.4
	Strongly Disagree	2	3.1
<b>Those Who Prepared Food Wear Right Clothing</b>	Disagree	53	82.8
	Not Sure	7	10.9
	Agree	2	3.1
	Disagree	25	39.1
<b>The Preparation and Serving of Food is Done Under Known Regulatory Policies and Guidelines</b>	Not Sure	16	25.0
	Agree	23	35.9
	Disagree	52	81.3
<b>Our School's Kitchen is Regularly Checked By the Health Officials for Cleanliness And Standards</b>	Not Sure	2	3.1
	Agree	10	15.6
	Strongly Disagree	10	15.6
<b>There is Sufficient Water for Cleanliness</b>	Disagree	17	26.6
	Agree	37	57.8
	Disagree	27	42.2
<b>Food Leftovers are Served the Following Day</b>	Not Sure	9	14.1
	Agree	28	43.8
	Strongly Disagree	8	12.5
<b>Pupils Eat Balanced Diet in Their Meals in this School</b>	Disagree	24	37.5
	Agree	32	50.0
	Strongly Disagree	8	12.5
<b>There is a Nutritionist Who Inspects What the Pupils Eat.</b>	Disagree	31	48.4
	Not Sure	15	23.4
	Agree	10	15.6
<b>Those Who Prepare Food Have Undergone Training On Nutrition Matters.</b>	Strongly Disagree	7	10.9
	Disagree	53	82.8
	Not Sure	2	3.1

	Agree	2	3.1
<b>Pupils Eat the Same Kind Of Meal at Every Specified Time.</b>	Disagree	10	15.6
	Not Sure	8	12.5
	Agree	46	71.9
<b>Pupils in the Lower Primary Eat The Same Food as Those In The Upper Primary.</b>	Disagree	40	62.5
	Agree	24	37.5
<b>There Have Been Cases Of Malnutrition In Our School</b>	Disagree	17	26.6
	Not Sure	19	29.7
	Agree	28	43.8
<b>There Have Been Cases Of Anemia Among Pupils In Our School.</b>	Strongly Disagree	6	9.4
	Disagree	10	15.6
	Not Sure	27	42.2
	Agree	21	32.8

#### 4.3.4 Education Quality in Public Primary Schools

The study evaluated the dependent variable, education quality in targeted public primary schools in the area and presented results in Table 4:5

The study sought to examine whether teachers and learners have adequate contact time in the schools under study. Data collected showed that 39.06% of the respondents disagreed compared to 48.44% who agreed that in these schools, learners and teachers have adequate contact time. Findings showed that learners and teachers from schools being investigated spend more time together. This agrees with KI1 that the programme that focuses on helping vulnerable children from impoverished urban areas to get food is instrumental in enabling more schooling hours. KI1 and KI2 observed that in Nairobi, the programme that is supported by the WFP and the Government of Kenya is reaching close to 150,000 children who probably are not able to find any other meal and are ravaged by natural issues including the emergency of COVID- 19 in 2020.

On whether the schools had adequate teaching and learning materials, data showed that 37.5% cumulatively disagreed (9.4% strongly disagreed and 28.1% disagreed) while 40.6% agreed. These findings disclosed that in most schools under study, there were adequate teaching and learning resources. According to KI2 schools are able to get support for Government-supported learning materials under the Free Primary Education (FPE). This means that learning materials is not a big challenge for schools that are under SFP.

Study obtained data on whether the facilities available met the needs of the schools under study. According to the data collected 62.5% of the respondents disagreed while 26.6% agreed. This reveals that the resources available in most of the public primary schools are not able to meet the needs of the schools. The study implies that the available learning spaces are stressed and overcrowding is a common feature. According to KI2 this is as a result of increased enrolment which can be attributed to the SFP and FPE

The study asked respondents whether they were satisfied with their KCPE results of their schools for year 2020. While 48.4% of the respondents disagreed, that they were not satisfied, 35.9% of them agreed that they were satisfied. This showed that most of the respondents were not pleased by the results attained by the public primary schools under study. This could be attributed to high teacher-pupil ratio occasioned by high population of pupils in the study location. As the programme keeps attracting more learners, the need to expand the facilities within the schools is important and the Government should focus on this aspect. This corroborates Chakraborty and Jayaraman (2018) in a study done in India that examined how School feeding affected learning achievement and which gathered the evidence from midday meal program offered in the country. This showed that continued exposure to lunchtime meals has a robust positive impact on education achievement.

The study also sought to examine whether the learners in the public primary schools are healthy. Data revealed that 37.5% cumulatively of the respondents disagreed (3.1% strongly disagreed and 34.4% disagreed) compared to 46.9% who agreed that the learners were healthy. Findings revealed that most learners in public primary schools under study were healthy.

The study also required to examine whether the enrollment rate in the public primary schools under study was satisfying. Data showed that 39.1% disagreed compared to 60.9% who agreed. This revealed that most of the respondents were contented with the enrollment rate in the public primary schools under study. This concurred with views from KI2 that showed the SFP encouraged high enrollment in the slum areas. KI1 views showed that enrolment has been reported to increase by over 25% in some areas where SFP is in place compared to where it is absent.



**Table 4:5 Education Quality in Public Primary Schools**

Parameter	Response	Frequency	Percent
Teacher/Learners Contact Time In This School Is Adequate	Disagree	25	39.06
	Not Sure	8	12.50
	Agree	31	48.44
The School Has Adequate Teaching And Learning Resources	Strongly Disagree	6	9.4
	Disagree	18	28.1
	Not Sure	14	21.9
	Agree	26	40.6
	Strongly Agree	6	9.4
The School Facilities Are Able To Meet The Needs Of The School	Disagree	40	62.5
	Not Sure	7	10.9
	Agree	17	26.6
I Am Satisfied With Our KCPE Results Of 2020	Disagree	31	48.4
	Not Sure	10	15.6
	Agree	23	35.9
	Strongly Disagree	2	3.1
	Strongly Agree	4	6.2
Learners In Our School Are Healthy	Disagree	22	34.4
	Not Sure	12	18.8
	Agree	28	43.8
The Enrollment Rate In Our School Is Comparatively Satisfying	Disagree	25	39.1
	Agree	39	60.9

#### 4.4. Inferential Statistics

Inferential statistics were conducted to explain the relationship between the variables. This was meant to enable drawing of conclusions based on extrapolations.

##### 4.4.1 Correlations

Bivariate correlation analysis between the variables on the dependent variable gave results represented in next table.

According to Table 4:6 the study shows a negative Pearson value of -0.047 (weak) between frequency of SFPs and quality of education in public primary schools. By interpretation, this means that as frequency of SFPs increases quality of education decreases marginally. Correlation analysis showed a value between timing of SFPs and quality of education in public primary schools was .219, which means that as timing of SFPs increases with better quality of education. The study also revealed a positive correlation between SFP's food features and quality of education in public primary schools with a Pearson Correlation value of .242. This implied that as better SFP's food features has a positive effect on education quality.

**Table 4:6 Correlations**

	Statistical Test	Frequency of School Feeding Programs	Timing of School Feeding Programs	School Feeding Programs' Food Features	Education Quality in Public Primary Schools
Frequency of School Feeding Programs	Pearson Correlation	1	.310*	-.126	-.047
	Sig. (2-tailed)		.013	.323	.710
	N	64	64	64	64
Timing of School Feeding Programs	Pearson Correlation	.310*	1	.217	.219*
	Sig. (2-tailed)	.013		.084	.047
	N	64	64	64	64
School Feeding Programs' Food Features	Pearson Correlation	-.126	.217	1	.242*
	Sig. (2-tailed)	.323	.084		.049
	N	64	64	64	64

\*. Correlation is significant at the 0.05 level (2-tailed).

#### 4.4.2. Regression

The study did a regression analysis on the data,

##### Model Summary

Overall model showed R and R-square in table 4:7. R Square shows the simple variability of variables on the dependent variable. In this case, it shows that v SFP food features, Frequency of SFPs, timing of SFP can explain quality of education in the primary schools by 28.4%. The findings implications show there are other factors that impact the quality of education in the primary schools and which calls for broader research. R-squared that modifies the statistic based on the sum of the independent variables in the model which are three in this case has a value of 9.4% which is more accurate measure of property of a goodness-of-fit statistic on the combined effect of the three variables and the extent they explain the dependent variable.

**Table 4:7 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.284 <sup>a</sup>	.094	-.015	.39745

a. Predictors: (Constant), SFP food features, Frequency of SFPs, timing of SFP

## ANOVA

In order to test whether the study results were significant, analysis of variance (ANOVA) was done. Results are presented in the table 4:8. The results show the statistical implication of the regression model used. Overall regression model forecasts the result variables considerably. An F statistic of 61.614 showed that the model was significant. This was reinforced by a probability value of less than 0.049 that was below 0.05, and indicated that generally, the model used could considerably predict the result variables.

**Table 4:8 ANOVA<sup>a</sup>**

<b>Model1</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	.330	3	.110	61.614	.049 <sup>b</sup>
Residual	9.478	60	.158		
Total	9.809	63			

a. Dependent Variable: Quality of Education

b. Predictors: (Constant), SFP food features, Frequency of SFPs, , timing of SFP

## Multiple Regression Coefficients

The study conducted multiple regressions and presented the coefficients results in the table 4:9: This was conducted to examine Frequency of SFPs, timing of SFP and effect of SFP food features on quality of education in targeted schools in unplanned settlements in Nairobi City County, Kenya. The multiple regression equation for predicting the relationship was

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where:

$\alpha$ : is a constant term,

$\beta_n$ : coefficients to be determined

Y: the dependent variable (quality of education-QoE)

X1: Frequency of SFPs (FSFP)

X2: timing of SFP (TSFP)

X3: SFP food features (SFPFF)

E= Error

$$Y (\text{QoE}) = 2.181 - .122 (\text{FSFP}) + .124 (\text{TSFP}) + .241 (\text{SFPFF}) + \epsilon$$

It was supported by a probability value as follows;

Frequency of SFPs probability value of .710 showing that the variable was not a statistically significant factor into the model. Timing of SFP probability value of .047 (below 0.05) demonstrating that the variable was an important factor into the model, SFP food features probability value of 0.049 (below 0.05) demonstrating that the variable was an important contributor in the model,

The multiple regression equation was interpreted as shown below:

A unit increase in Frequency of SFPs will decrease Quality of Education marginally by a value of -0.125. This contrasts study by Sally, Susan and Susan (2014) that showed improved cognitive functions where more meals are provided and especially among highly malnourished children.

A unit increase in timing of SFP will increase Quality of Education by a value of 0.218 which is marginal. This corroborates several reports that shows that individuals including children are able to consistently display positive results when they eat regular meals, in the right timing and within appropriate length of inter-meal break which leads to overall healthier lifestyle (Tru Health Medicine, 2018, Health-24, 2017).

A unit increase in SFP food features will increase Quality of Education by a value of 0.241 This is in agreement with a study done in UK that showed that test scores for standard deviations increased from 0.03 to 0.05 after contracting improved healthy school meals. This represented an arguably cost effective way of improving test scores (Anderson, Gallagher, & Ritchiea, 2018). The constant was 2.181

**Table 4:9 Multiple Regression Coefficients<sup>a</sup>**

Model 1	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.181	1.048		2.080	.042
Frequency of SFPs	-.125	.239	-.069	-.509	.713
timing of SFP	.218	.148	.117	.840	.049

SFP food features	.241	.285	.112	.846	.041
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a. Dependent Variable: Quality of Education

The study makes the following conclusions regarding the hypotheses

The first null hypothesis (**H<sub>01</sub>**) stated ‘there is no statistically significant impact of frequency of SFPs on quality of education in public primary schools’. Statistical test showed that the relationship is not statistically significant therefore this null hypothesis is true and accepted.

The second null hypothesis (**H<sub>02</sub>**) stated, ‘there is no statistically significant impact of timing of SFPs on quality of education in public primary schools’. Statistical test showed that the relationship is statistically significant therefore this null hypothesis is false and therefore rejected.

The third null hypothesis (**H<sub>03</sub>**) stated, ‘there is no statistically significant impact of SFPs food features on quality of education in public primary schools’. Statistical test showed that the relationship is statistically significant therefore this null hypothesis is false and therefore rejected.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1. Introduction**

This chapter has summarized discussions, drawn conclusions and recommendations made from the findings grounded on the objectives of the study, and with regard to the main variables in the study that is SFP and quality of education (dependent variable)

#### **5.2 Summary**

The study assessed the impact of SFP on the education quality for pupils in public primary schools in unplanned settlement in Nairobi City County, Kenya. The research was carried out in Nairobi City County from the head teachers in public primary schools whose schools have adopted school feeding program out of 225 public primary schools in Nairobi. Data on the background of the respondents was obtained that touched on the gender and the length of time the respondents had been in their current work station. The results showed that there were more male respondents than females. This means there were more primary schools headed by male teachers than by female teachers. Majority had been in their current school for between 6-10 years while there were those who were in their current schools for more than 10 years.

The first objective of the study sought to investigate the effect of frequency of feeding program in the public primary schools on quality of education. Findings showed there is regular feeding program in the schools which could have a positive effect on quality of education. Another factor revealed by the data that could positively affect quality of education included findings on whether there is regular feeding program in the schools which revealed that feeding program is a regular activity in the targeted schools. In the same light, data on whether pupils only ate their lunch meals showed that in most of the schools pupils were only served lunch. In most of schools pupils did not receive meals throughout the term. Therefore, there is a high possibility that there are days when pupils miss food, a situation that could affect quality of education negatively. The study also showed that food can go missing but it can never be by more than 1 week. Missing food even for a day could have a negative effect and which implies therefore this aspect could negatively affect quality of education. Furthermore, food provision in the programme may stop suddenly, in most cases but not in all cases showing there is irregular supply of food.

This could affect quality of education negatively. The study also revealed that there is substantial uncertainty on constant supply of food and that there is a slightly higher chance that planning on food supply is not done on an annual basis compared to instances that it is done. These scenarios could further exacerbate the negative effect of SFP on quality of education.

Regarding the second objective where the study sort to examine the effects of timing of the feeding program on the quality of education in the public primary schools, the study began by identifying whether food in the schools was served in time. The study revealed that in most of the schools, food was not served in time, a factor that could lead to a negative effect on quality of education. However, though meal time is allocated in the time table in majority of the schools in most schools, even when food is available, it is often served late, a situation that could impact quality of education negatively. The study revealed that in most schools, eating time is defined and likely to be predictable, a situation that could positively impact quality of education. In most schools there is no regular pattern of eating food. Lack of a regular pattern could impact quality of education negatively.

The third objective of the study was to investigate the effect of school feeding programs' food features on quality of education in public primary schools. The study showed that quantity of food is regarded to be less than enough in most of the schools under investigation. This could have a negative effect on quality of education. Other issues that could negatively effect on quality of education is that often food is not served in the right temperatures (thus it could either be too hot or too cold), and the findings that to majority of the respondents food is served under cooked though in most of the schools, pupils are not forced to eat semi-cooked food. The study also revealed that food in most of the schools is not served under hygienic conditions. This could as well impact quality of education negatively. The study revealed that that those who prepare food in most schools do not wear the right clothing. This could negatively affect quality of education due to transmission of pathogens from their clothes to foods, subsequently causing ill health of the pupils. In addition, data showed that food in schools was not prepared under known regulatory policies and guidelines, and which could further implicate quality of education negatively.

The study revealed that in most schools, kitchens were not checked by health officials for cleanliness and standards, which could affect quality of education negatively. The study

further revealed that that there is sufficient water for cleanliness in most of the schools that were investigated, a factor that could have a positive effect on quality of education. In addition, obtained data revealed that in most schools under study, food left overs are not disposed but fed to pupils the following day. Due to the risk of disease as a result of contaminated food, this habit could negatively affect quality of education. Collected data showed that the number of respondents who disagreed that the pupils ate a balanced diet was equal to those who agreed on the same meaning it was inconclusive. This implies that the effect of balanced diet on quality of education is inconclusive. The study further revealed that food served to pupils in most schools under investigation was not inspected by a nutritionist, an issue that could affect quality of education negatively. Analysis of obtained data showed that in most investigated schools those who prepare food for the pupils have not undergone any training on nutrition matters. This reality could mean that individuals who prepare food could affect quality of education negatively. Findings showed that in most investigated schools, the pupils are served the same kind of meal at specified time. This means a specific meal is served all through for that specific time. In most schools under study pupils in lower primary ate a different meal from those in upper primary. The effect of these issues on quality of education is inconclusive and more investigation is needed. Furthermore, obtained data reported low cases of malnutrition and anemia among pupils in the investigated schools. This implies that the current status of SFP do not have a negative effect on quality of education.

### **5.3 Conclusions**

The study made the following conclusions based on the objectives. With regard to the first objective which sought to investigate frequency of feeding program within public primary schools, the study revealed several issues that implicate quality of education negatively. These include regularity of feeding program which though they had a traceable feeding pattern, they only provided lunch meal. This is further because, though feeding program is a regular activity in the targeted schools, it mostly offered lunch and this does not happen throughout the term. Pupils miss food but often by less than a week. These are thus issues that impacts quality of education negatively. This is further exacerbated by the facts that, food provision in the programme can stop suddenly. There is also substantial uncertainty on constant supply of food and chances that planning on food supply is not done on an annual basis, issues that further compromise quality of education. The findings are



corroborates several past studies including that by Petralias, *et al.*, (2016), Otieno (2014) and Meenakshi, *et al.* (2016).

On the second objective that aimed at examining the effects of timing of the feeding program and its effect on the quality of education, the study concludes that in most of the schools, food was not served in time but late though meal time is allocated in the time table in majority of the schools. This is a factor that negatively affects quality of education. Furthermore, in most schools, even when food is available, it is often served late a factor that affects quality of education negatively. Eating time is defined and predictable but not always actualized. There is no regular pattern of eating food in the examined study. These are issues that affect quality of education negatively. The findings were supported by past studies done by Health-24, (2017) and Masters (2016).

The third objective investigated the effect of SFPs food features on quality of education in public primary schools. The study revealed several issues that affect quality of education negatively. These include the fact that quantity of food is not always enough in most of the schools and often food is not served in the right temperatures. In addition, the fact that food is often served under-cooked in most of the schools could affect quality of education negatively. Food in most of the schools is often prepared or served without requisite hygienic conditions or under known regulatory policies and guidelines, while those who serve do not always wear the right clothing. These are issues that further affect quality of education negatively, in addition to the fact that kitchens are not checked by health officials for cleanliness and standards. The fact that food left overs are never disposed but are fed to pupils the following day could also have a negative effect on quality of education as well as the fact that served food was not inspected by a nutritionist. Similar effect is experienced in that those who prepare food for the pupils have not undergone any training on nutrition matters. However, availability of sufficient water for cleanliness has a positive effect on quality education. Study is inconclusive on whether the balancing of diet has an effect on quality of education. Furthermore, the findings are inconclusive on whether pupils being served the same kind of meal has an effect on quality of education. There are low cases of malnutrition and anemia among pupils implying that SFP has an effect on the health of pupils. The findings were supported by past studies from (Abushelaibi, *et al.* (2016), Sibanyoni, Tshabalala, and Tabit, (2017) and Chakraborty and Jayaraman (2018).

## **5.4 Recommendations**

The following are recommendations based on the conclusions: to increase the impact of SFP on quality of education, stakeholders and sponsors of the SFP should ensure food is supplied throughout the term and throughout the year in a predictable and consistent manner. To increase the teacher-learner contact time and for better performance, school administrators should also ensure that food is always served in time according to the time it is allocated in the time table and there is a regular pattern of eating food.

For better impact on quality of education, SFP sponsors and stakeholders should ensure that more food served to reach more learners and in a higher number of schools. The study recommends that school administrators and SFP handlers should always ensure that food is prepared and served within requisite hygienic conditions in order to protect against food related ailments that can cause ailments and thus compromise academic performance of learners. This will promote learners' health and lead to better academic performance.

For better impact on education quality, school administrators and health officials should always ensure kitchens are checked for cleanliness and standards while SFP sponsors should hire and ensure there are nutritionists who assess status of served food in terms of balanced diet with right variations and combinations. The study further recommends that school administrators should ensure that those who interact with the food preparation process have undergone necessary training.

## **5.5. Suggestions for Further Research**

The researcher suggests further study into other factors affecting contribution of SFP on provision of education in public primary schools in other parts of Kenya. The study also recommends an investigative study into determinants of food quality supplied under SFP as well as the role of standards and guidelines policies on the food quality supplied under SFP

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## APPENDIX I: QUESTIONNAIRES.

The questionnaire below is designed to have you views on the impacts of feeding program on education quality in public primary schools in your school. Please consider the statements in each section and respond appropriately. The questionnaire will be strictly used for academic research. Please do not write your name anywhere in this questionnaire.

### SECTION A: Background Information

This section is meant to capture your personal details related to the impact of school feeding program on education quality in public primary schools in Kenya, please tick where appropriate.

1. What is your gender? Male, ( ), Female ( )
2. For how long have you been in this school: below 5 years ( ), between (6 -10 years) above 10 years ( ).

### Section B: Frequency of school feeding programs

The following statement seeks to obtain your opinions on the frequency of the school feeding program in your institution. Please respond indicating by what extent you either agree or disagree.

1= strongly disagree, 2= Disagree 3= Not sure, 4=, Agree 5=. Strongly agree

Statement	1	2	3	4	5
There is regular feeding program in our school.					
Pupils only eat their lunch meals.					
Pupils receive their meals throughout the term.					
There are days when pupils miss out food					
When food misses it never more than by a week					
We can have food but all of a sudden it stops					
At times we go for a month without food					

I am certain next term we will be having food for our pupils					
There is an annual plan of how food will be supplied					

**Section: C Timing of school feeding programs**

The following statements are meant to obtain your views on the effects of timing of school feeding programs on the quality of education in public schools. Please indicate by what extent you either agree or disagree.

1= Strongly disagree, 2= Disagree 3= Not sure, 4=, Agree 5=. Strongly agree

Statement	1	2	3	4	5
Food is always prepared in time in our school.					
Eating time is clearly defined in the school timetable					
Food is Rarely Served Late to The Pupils in Our School.					
There is Random Eating Time For Pupils in Our School					
There is Regular Pattern of Eating in Our School					

Are there some meals that are prone to delay?

Yes [    ]

No [    ]

If yes which of the following meals are prone to delay?

Morning (10 o'clock) meal/uji/tea [    ]

Lunch [    ]

4 o'clock [    ]

Any other (Please specify) \_\_\_\_\_

**Section E: SCHOOL FEEDING PROGRAMS' FOOD FEATURES**

The following statements are meant to obtain your views on the effects of school feeding program's food features on the quality of education in public primary schools. Kindly feel free to indicate by what extend you either agree or disagree.

Statement.	1	2	3	4	5
There is Enough Food for Our Pupils					
Pupils Receive Enough Quantity of Food.					
Pupils Receive Enough Quantity of Food.					
Food is Served in the Right Temperature (Not Too Hot Nor Too Cold)					
Those Who Prepare Food Ensure Food Is Properly Cooked Before Serving It					
We Experience Cases of Under Cooked Food Occasionally					
Pupils are Occasionally Forced to Eat Semi-Cooked Food					
Food is Served in Hygienic Conditions					
Those Who Prepared Food Wear Right Clothing					
The Preparation and Serving of Food is Done Under Known Regulatory Policies and Guidelines					
Our School's Kitchen is Regularly Checked By the Health Officials for Cleanliness And Standards					
There is Sufficient Water for Cleanliness					

Food Leftovers are Served the Following Day					
Pupils Eat Balanced Diet in Their Meals in this School					
There is a Nutritionist Who Inspects What the Pupils Eat.					
Cooks are Always Conscious of Giving a Balanced Diet					
Those Who Prepare Food Have Undergone Training On Nutrition Matters.					
Pupils Eat the Same Kind Of Meal at Every Specified Time.					
Pupils in the Lower Primary Eat The Same Food as Those In The Upper Primary.					
There Have Been Cases Of Malnutrition In Our School					
There Have Been Cases Of Anemia Among Pupils In Our School.					
Pupils Have Fruits In Their Diet.					

2. Are there specific issues on features of food that is supplied under SPF in schools that you would want addressed? Please respond here below.

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3. Do you have suggestions on how food and its handling and storage could be improved in order to enhance its contribution to provision of quality education in the informal settlements and in the country at large?

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**Section F: EDUCATION QUALITY IN PUBLIC PRIMARY SCHOOLS**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Teacher/Learners Contact Time In This School Is Adequate					
The School Has Adequate Teaching And Learning Resources					
The School Facilities Are Able To Meet The Needs Of The School					
I Am Satisfied With Our KCPE Results Of 2018					
Learners In Our School Are Healthy					
The Enrollment Rate In Our School Is Comparatively Satisfying					

2. Please express your views on how SFP affects quality education in your school

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**Thank you so much for taking time to fill this questionnaire. Your views are very important**

## **APPENDIX II: INTERVIEWS SCHEDULE FOR THE KEY INFORMANTS**

This interview schedule is meant to obtain information about the feeding program in the public primary schools in Nairobi County. Please feel free to respond to the questions appropriately.

1. What role have you played in ensuring that there is a regular feeding program in the public primary schools in Nairobi County?
2. The government has an objective of ensuring, increase intake and awareness of adequate, culturally appropriate nutritious meals amongst school age children. In your opinions which challenges does this plan encounter and how can it be addressed?
3. There has been increased enrolment to the public primary schools in Nairobi County especially in the unplanned settlements. What measures have you put in place to ensure that all the pupils receive adequate quality food?
4. Nutrition is the point of concern especially among the young pupils in public schools in Kenya. What strategies have your organization/ ministry put in place to supply and encourage consumption of quality food to the public primary schools in Nairobi County?
5. In your opinion can SFP be attributed to provision of quality education in Nairobi County and what could be done to make it better?

Thank you for your time