FEEDING PRACTICES, MORBIDITY, AND NUTRITION STATUS OF ADOLESCENT STREET CHILDREN 10-17 YEARS IN NAIROBI CITY COUNTY, KENYA

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this work to my loving parents, Winnie M’kachifu Andiriano and Jomo Musange Nyange, for their support towards me, encouragement, and prayers throughout the pursuit of my education.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACRWC - African Charter on the Rights and Welfare of the Child

BMI - Body Mass Index

CCIs - Charitable Children's Institutions

CSC - Consortium for Street Children

GIT - Gastrointestinal Tract

FAO - Food and Agriculture Organization

FIVIMS - Food Insecurity and Vulnerability Mapping System

FGD - Focus Group Discussion

MUAC - Mid-Upper Arm Circumference

NACOSTI - National Commission for Science Technology and Innovation

NCCS - National Council for Children's Services

OVC - Orphaned and Vulnerable Children

PEM - Protein-Energy Malnutrition

SDG - Sustainable Development Goal

SPSS - Statistical Package for Social Science

UNICEF - United Nations Children's Fund

UNCRC - United Nations Convention on the Rights of the Children

OPERATIONAL DEFINITION OF TERMS

Adolescent Street children – Children between 10-17 years who recognize the streets as their home, they permanently live and sleep in the streets. The street is their home.

Bases – Places where street children sleep as a group outside. They go about their daily business in the streets during the day, but sleep together in groups at different places outside in the streets at night, such as near markets and in public parks.

Base leaders - Street children who lead a group of other street children.

Feeding practices – Common types of food eaten, and number of meals consumed per day.

Morbidity - The common diseases that affected the study population and the frequency of falling sick in the study population two weeks prior to the data collection.

Meal – The food consumed on regular times daily, such as, breakfast, lunch, and dinner.

Nutrition Status – In this study, stunting, thinness, and overweight indicated the presence of malnutrition. The absence of malnutrition is considered a good nutrition status, while the presence of malnutrition indicates poor nutrition status

Socio-economic status – Source of income and amount of income earned per day by an adolescent street child.

Streets – Roads, pathways, markets, and other places outside that street children reside.

ABSTRACT

UNICEF approximates that there are millions of street children globally, and a majority of them live in low- and middle-income countries. According to the 2018 National Census of Street Families, 15,347 adolescents are street inhabitants, and approximately 5,046 of live in the streets of Nairobi. Despite this high population, research on the feeding practices, morbidity, and nutrition status of adolescent street children is very limited. The purpose of this study was to determine the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years in Nairobi City County. Analytical cross-sectional design was used for this study. The study had 248 study participants (89 females and 159 males). The sampling was done by cluster sampling. Five clusters were randomly selected; Jeevanjee Gardens, Uhuru Park, Toi Market, Muthurwa Market, and Gikomba Market. Everyone who met the inclusion criteria in the randomly selected clusters took part in the study. Data was collected using anthropometric tools, interviewer-administered questionnaires, and focus group discussions. Anthropometric data was analysed using WHO AnthroPlus software, quantitative data was analysed using the 25th version of Statistical Package for Social Science (SPSS) software, and qualitative data was analysed using NVivo 1.0 software. A majority (40.3%) of the study participants had two meals per day. The participants lacked dietary diversity. Majority (75.8%) of the respondents had been sick in the past two weeks prior to the data collection. Over half (54.8%) of the respondents had experienced gastrointestinal (GIT) infection. A few of the respondents were malnourished as 3.2% had severe thinness, 8.1% had thinness, 4.8% were overweight, 7.7% were stunted, and 2.8% were severely stunted. The rate of thinness in the respondents was more than the acceptable levels of wasting recommended by WHO in developing countries (<2%). The cases of under-nutrition were more in adolescent street males than adolescent street females. The study showed that there is a significant relationship between feeding practices and nutrition status of adolescent street children 10-17 years in Nairobi City. The study also showed that there is a significant relationship between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County. The findings revealed that the nutrition status of street children is influenced by their feeding practices and morbidity. The county government is planning to construct a rehabilitation centre and develop a policy with programmes for the street children. While waiting for the street children to be rehabilitated, the county government should strengthen the implementation of programmes aimed at improving the feeding practices and health status of street children. Specific feeding and treatment programmes for street children should also be included in the proposed street children rehabilitation policy. To determine effective strategies that can be used to improve the nutrition status of adolescent street children, a longitudinal intervention study should be done.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Feeding practices and morbidity are important determinants of nutrition status. Feeding practices are determined by the number of meals consumed per day, dietary diversity, and food availability. On the other hand, morbidity is the presence of diseases. Feeding practices and morbidity are among the significant factors that affect the nutrition status of an individual. The absence of malnutrition is considered a good nutrition status, while the presence of malnutrition indicates poor nutrition status (Huhmann, 2011). An individual's nutrition status is a key factor in determining their health status.

Adolescents and children are part of the age groups that are vulnerable to malnutrition. According to the United Nations Children's Fund (UNICEF), street children can be defined as children below 18 years who identify the streets as their home, and they lack supervision or protection from responsible adults (as cited by Rahman & Hakim, 2016). Additionally, according to the World Health Organization (WHO), adolescents are people within the age bracket of 10 to 19 years (as cited by Daba et al., 2020). Therefore, in this study, adolescent street children are those within the age bracket of 10-17 years.

Children and adolescents are at a risk of malnutrition because their bodies are undergoing growth and development. Therefore, they have high nutrient requirements. The vulnerability increases if these children do not have guardians (who are usually the breadwinners), and if they live in an unhealthy environment that predisposes them to diseases. Both of these are situations under which adolescent street children live in (Rahman & Hakim, 2016).

Globally, the burden of under-nutrition in adolescents is approximately 12.4% and 8.4% for boys and girls, respectively (Christian & Smith, 2018). In Kenya, the prevalence of underweight in children and adolescents is approximately 31.6% and 18.4% for boys and girls, respectively (Mannar et al., 2020). Adolescents who live in the streets are at a high risk of under-nutrition because they consume diets with low diversity and are inadequate. A poor dietary intake during adolescence may cause under-nutrition that can create an intergenerational cycle of malnutrition (Daba et al., 2020). An important foundation of growth and development is laid during childhood and adolescence. Therefore, ensuring adolescents are well-nourished breaks the intergenerational cycle of malnutrition, thus enabling future generations to have a good healthy start.

The exact figure of adolescent street children is not well-known, but UNICEF approximates that, there are millions of street children globally, and a majority of them are in the streets of low- and middle-income countries (UNICEF, 2012). In Kenya, according to the 2018 National Census of Street Families, there are approximately 46,639 people who live on the streets and out of these, 18,766 permanently live on the streets. Of the total (46,639) street population, 15,347 (32.9%) are adolescents. Nairobi County has the highest population of street families since 33% (15,337) of all street persons in Kenya are in Nairobi County (National Census of Street Families, 2018). Therefore, most of the adolescent street children are also in Nairobi County. These children are food insecure since they cannot easily access adequate and nutritious foods because they get their food through challenging means, such as, begging or scavenging. Lack of access to food is one of the major threats facing street children in Nairobi (Doornbos et al., 2017; National Council for Children Services (NCCS), 2015).

Article 24 of the United Nations Convention on the Rights of the Children (UNCRC) states that children have a right to the highest standard of health. This can be achieved by ensuring they have nutritious food (United Nations General Assembly, 1990). Similarly, the United Nations Committee on the Rights of the Child (2016) recognizes the need to implement the rights of children during adolescence since it is a life stage with significant vulnerability. According to the 14th article of the African Charter on the Rights and Welfare of the Child (ACRWC), it is the right of every child to have the best state of health (Organization of African Unity, 1999). Additionally, article 43 (a) of the Constitution of Kenya states that it is the right of everyone to have the highest health standards, enough food whose quality is acceptable, and enough clean water (Kenya, 2010). However, as aforementioned, one of the major threats facing street children in Nairobi is a lack of access to food (Doornbos et al., 2017). Therefore, these street children do not enjoy the right to nutritious food mentioned in UNCRC, the right to good health as mentioned in ACRWC, and the right to have sufficient food that is of high quality as mentioned in the Kenya Constitution (Kenya, 2010).

1.2 Statement of the Problem

The adolescence stage is a critical period for rapid growth and development. Proper nutrition in adolescents is particularly significant to adolescent street children because they are a vulnerable group. Research shows that street children are at risk of death due to lack of shelter, health care, and proper nutrition (Committee on the Rights of the Child, 2017). Poor nutrition in adolescence has lifelong consequences. Malnourished adolescents are likely to develop overweight and obesity later in life and not achieve their full potential of their adult height yet the adolescence stage provides the last opportunity of reversing

stunting. Malnutrition during adolescence may also lead to late sexual maturation and create an inter-generational cycle of malnutrition (Christian & Smith, 2018).

Despite the fact that poor nutrition is life-threatening and it is clear that adolescent street children do not get an adequate and quality diet, research on their feeding practices, morbidity, and nutrition status is very limited. Although some studies have been conducted on street children in Kenya, the focus of most of these studies has not been on the feeding practices, morbidity, and nutrition status.

Knowing the feeding practices, morbidity, and nutrition status of adolescent street children, will contribute to appropriate programming for attainment of the second and third Sustainable Development Goals (SDGs). The aim of the second SDG is to "end hunger, achieve food security, and improved nutrition, and promote sustainable agriculture" while that of the third SDG is to ensure "healthy lives and promote wellbeing for all" (United Nations, 2016).

1.3 Purpose of the Study

The purpose of this study was to determine the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years in Nairobi City County.

1.4 Objectives of the Study

1. To determine the socio-economic and demographic characteristics of adolescent street children 10-17 years in Nairobi City County.
2. To assess the feeding practices of adolescent street children 10-17 years in Nairobi City County.

3. To determine the morbidity of adolescent street children 10-17 years in Nairobi City County.
4. To determine the nutrition status of adolescent street children 10-17 years in Nairobi City County.
5. To establish the relationship between feeding practices and nutrition status of adolescent street children 10-17 years in Nairobi City County.
6. To establish the relationship between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County.

1.5 Hypotheses

H_{O1}: There is no significant difference between feeding practices and nutrition status of adolescent street children 10-17 years in Nairobi City County.

H_{O2}: There is no significant difference between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County.

1.6 Significance of the Study

The findings of this study will contribute to the existing body of knowledge about feeding practices, morbidity, and nutrition status of street children. Additionally, the findings could be used to inform further studies and contribute to inform programmes and policies that will target nutrition and health status of street children.

1.7 Delimitation of the Study

The study focused only on adolescent street children 10-17 years who permanently lived on the streets of Nairobi City and those who were not pregnant at the time of the study.

1.8 Limitation of the Study

Some of the street children were not cooperative while carrying out the study. Therefore, base leaders (other street children who lead the rest) were used to help mobilize the others.

Some of the street children were not able to respond to the questionnaire without assistance because they were young. Therefore, guided interviewer-administered questionnaires were used.

Due to the nature of the living conditions of the street children (living in the streets), it was challenging to get reliable data using certain conventional methods of data collection, such as weighed food records. However, the researcher probed for important details to be given in the questionnaires, and focus group discussions were also done to corroborate the information given in the questionnaires.

1.9 Conceptual Framework

The conceptual framework provided can explain factors that influence the nutrition status of street children.

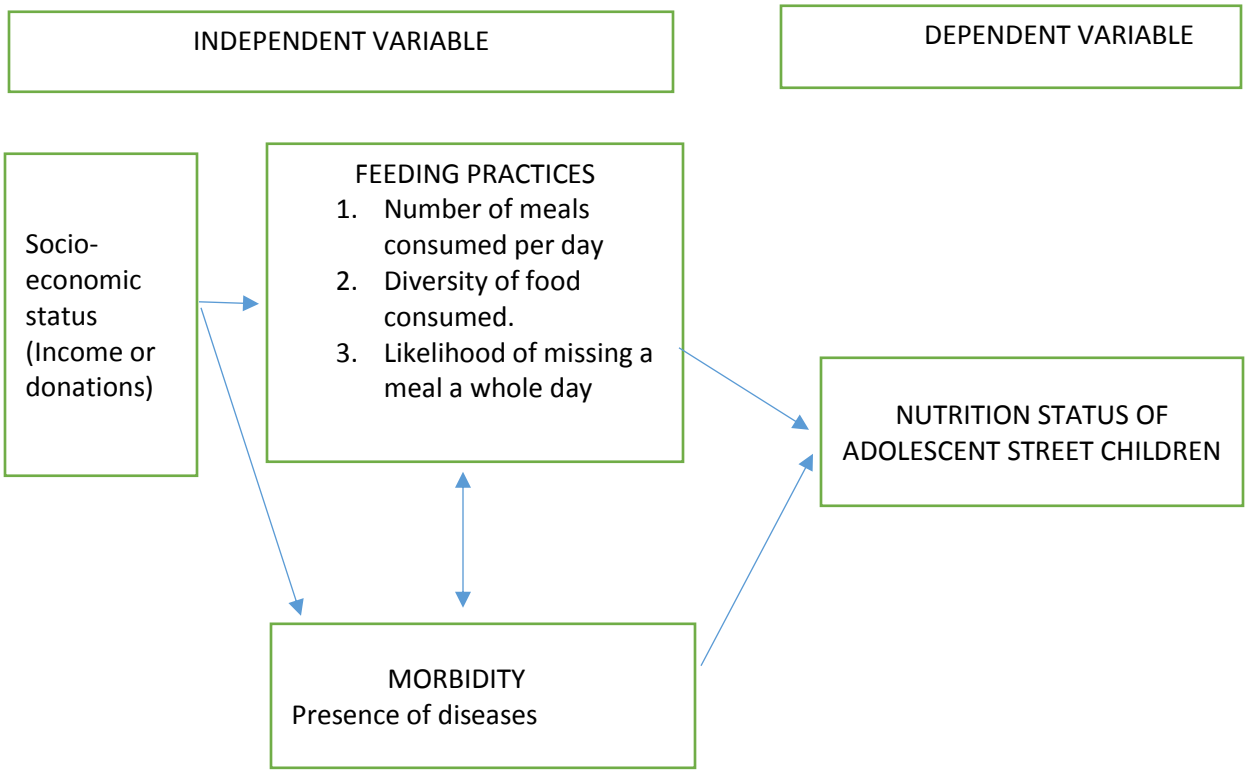


Figure 1.1. Conceptual framework for determining nutrition status of adolescent street children

Adapted from Food and Nutrition Security Conceptual Framework (World Food Programme, 2020).

The nutrition status of street children is influenced by morbidity (the presence of diseases) and feeding practices. Morbidity and feeding practices also influence each other as the presence of diseases can hinder the consumption of food, for instance, as a result of appetite loss. At the same time, inadequate dietary intake may prolong or worsen the disease. Socio-economic status (income or donations) further influences both feeding practices and morbidity since they influence an individual's food purchasing power.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This literature review focused on several sub-themes that emanated from the objectives of this study, and they include the socio-economic and demographic characteristics of street children, the feeding practices of street children, the morbidity of street children, the nutrition status of street children, the relationship between feeding practices and nutrition status of street children, and the relationship between the morbidity and nutrition status of street children. A conclusion that summarized the gaps identified from other studies was also included at the end of this review.

2.2 Socio-economic and demographic characteristics of street children

Both boys and girls form part of the street children community, but most studies have shown that most street children are boys. Studies indicate that, in different locations all over low and middle-income countries, boys form between 50-100% of street children (Braitstein et al., 2013; Hakim & Rahman, 2016; Sehra et al., 2016; Sosanya & Ibrahim, 2014; Woan et al., 2013) while girls are usually less than 30% of the street population (Cumber & Tsoka-gwegweni, 2015). It is more likely for boys to go to the streets when familial conditions are not conducive to staying at home than for girls. Girls are more likely to move in with their relatives, join institutions like children's homes, become commercial sex workers, or start romantic relationships with older men, commonly known as "sugar daddies" (Cumber & Tsoka-gwegweni, 2015; Woan et al., 2013). Conversely, Ayub et al. (2016) gave dissimilar findings as their study had more girls than boys in its street children study population.

Poverty is one of the major reasons that necessitate kids to become street children. Due to poverty, they feel the need to go to the streets to beg or do informal jobs so that they can eat. Other reasons for joining the streets include physical abuse in the family between parents or by guardians/parents, parental negligence, death of a parent that results in remarriage and then their abandonment or discrimination, escaping children's homes, running away from political violence, to seek adventure, and peer encouragement (Ayub et al., 2016; Sosanya & Ibrahim, 2014; Woan et al., 2013).

In the streets, these children generally earn money from either begging, stealing, or doing informal jobs such as garbage collection and recycling, commercial sex work, entertaining people through street performances, shoe shining, and working as parking attendants or petty traders (Sehra et al., 2016; Sosanya & Ibrahim, 2014; Woan et al., 2013). According to Rahman & Hakim (2016), only about 38% of street children work, and 35% of these earn approximately 11-17 USD per month, 28.33% earn approximately 18-23 USD per month, 26.25% earn more than 23 USD per month, and 10.42% earn less than 11 USD per month. Most of the money they earn is used to purchase food and drugs (Woan et al., 2013). Finally, most of the street children are above five years, with the majority of them in the adolescence stage, ranging from about 12-17 years generally, and they commonly reside in dangerous parts of a town or city (Cumber & Tsoka-gwegweni, 2015; Hakim & Rahman, 2016; Woan et al., 2013). In Kenya, according to the National Census of Street Families Report, there are 15,347 adolescent street inhabitants (National Census of Street Families, 2018). Nevertheless, limited studies have been done to determine the socio-economic and demographic characteristics of adolescent street children in Nairobi City. Therefore, one

of the objectives of this study was to fill this gap by determining the socio-economic and demographic characteristics of adolescent street children in Nairobi City County.

2.3 Feeding Practices of Street Children

Street children are generally food insecure. Street children lack *ad libitum* food; this means that they cannot access food at all times, and that is why they usually beg to meet their daily needs (Ganguly & Kadam, 2015). Similarly, Sosanya & Ibrahim (2014) found that approximately two-thirds of street children have inadequate dietary intake manifested in their bodies through malnutrition. What is more, even when they access food, their diet is also not varied. Daba et al., 2020, showed that street children in Ethiopia have low dietary diversity.

Likewise, a study conducted in Australia to assess the food security status of homeless youth who receive support from special homelessness services revealed that 70% of the participants were food insecure, and 40% of these were very food insecure (Crawford et al., 2015). Since these homeless youth were receiving food support from special homelessness services, it would have been expected that they would be more food secure, yet this was not the case. This shows that there is a high likelihood that the food insecurity status of homeless children who do not receive any kind of support is worse.

Moreover, Rahman and Hakim (2016), revealed that 63.75% of the street children under study in Bangladesh were able to eat thrice daily, while the rest ate twice daily. However, about two-thirds of the study population was malnourished. This could indicate that even if they accessed food twice or thrice per day, the food is not adequate to maintain good nutritional status. In contrast, it has been shown that in Kenya, children living in slums do

not have an adequate diet, and they are usually fed either one or two meals a day (Goudet et al., 2016). This is mostly in the morning and the evening, as they often skip lunch (Goudet et al., 2016). Limited research has been done in Kenya to assess the feeding practices of street children. However, this finding further suggests that if children who live in the slums have this level of food insecurity, then those who reside in the streets have a worse situation. Hence, this study aimed to fill this gap by determining the feeding practices of adolescent street children 10-17 years in Nairobi City County.

2.4 Morbidity in Street Children

Due to living in unhealthy environments and lack of adequate nutrition, street children are susceptible to diseases and, therefore, most of them suffer from recurrent health problems (Amoah & Jørgensen, 2014). Studies have shown that it is common for street children to suffer from malaria, pneumonia, and tuberculosis in Africa. Their prevalence of morbidity is worsened by the fact that they do not access health care services because of the cost of receiving treatment, stigma from health workers, and fear of receiving poor quality care since they are a disadvantaged group (Cumber & Tsoka-gwegweni, 2015).

Research done in India reported that all the sampled street children had suffered some morbidity within the last year. The common forms of morbidity were respiratory problems, fever, and gastrointestinal problems (Ayub et al., 2016). Similarly, in Bangladesh, approximately 61.5% of street children had suffered from sickness in the last three months (Rahman & Hakim, 2016). Sosanya & Ibrahim (2014) also reported similar results in their study whereby more than 80% of their respondents reported having experienced vomiting, respiratory tract infections, fatigue, and headache within the past six months, while about

73% had suffered from diarrhoea. Likewise, Sehra et al. (2016) reported that acute respiratory problems were common in most of the respondents. In Kenya, the 2018 National Census of Street Families report revealed that diarrhoea, stomach-ache, chest-related diseases, fever, skin diseases, malaria, HIV/AIDs, and sexually transmitted diseases are the common diseases among street persons (National Census of Street Families, 2018). Nevertheless, there is minimal data on the morbidity of street children in Nairobi. So, this research aimed to fill this gap by determining the morbidity of adolescent street children in Nairobi City County.

2.5 Nutrition Status of Street Children

UNICEF estimates that 63% of street children sleep on an empty stomach, 53% suffer from chronic malnutrition, and about 27 million of them are severely underweight (as cited in Rahman & Hakim, 2016). A study done in Tangail district in Bangladesh revealed that approximately 66.7% or two-thirds of the sampled street children were malnourished. Of these, 60.4% and 6.3% were underweight and overweight, respectively (Rahman & Hakim, 2016). A different study in another district in Bangladesh showed that 65% of the studied street children were underweight, while 35% were of normal nutrition status (Hakim & Rahman, 2016).

On the other hand, in India, similar research pointed out that only 41.5% of street children had normal nutrition status while the rest had protein-energy malnutrition (PEM), ranging from grade I to grade IV (35.5% had grade I PEM, 15.5% had grade II PEM, 6.5% had grade III PEM, and 1% had grade IV PEM). In relation to stunting and wasting, 58% of the children were normal, while 24% had stunting, 17% had wasting, and 1% had both stunting and wasting (Sehra et al., 2016). In this particular study, approximately half of the children

had normal nutrition status. In contrast, the other half had poor nutrition status, unlike other studies where most street children are malnourished than well-nourished. This finding may be because a majority of the street children in this study were living in the streets together with their families and, therefore, the older members of the family would easily look for food for the younger ones and themselves too (Sehra et al., 2016).

In another study in South India, 26% of the street children were wasted (<-2SD), and the wasting was more in those children between 13-18 years old than between 8-12 years old. Stunting levels were higher than wasting, as 48% of the street children were stunted. Among the stunted group, those below 10 years old and above 14 years old were more affected by stunting than those within 10-13 years (Meshram et al., 2015). In contrast, in Nigeria, the prevalence of underweight was higher in street children than stunting. Of the total study population, only 22.9% had normal weight, while the rest were underweight. Specifically, 36.2%, 22.9%, and 18.1% of the study group had mild underweight, moderate underweight, and severe underweight, respectively. With regards to stunting, 65% of the study population had a normal height-for-age, while 24.8% and 13.3% were moderately and severely stunted, in that order (Sosanya & Ibrahim, 2014). The extent of thinness was found to be 29.2% among adolescent street children in Ethiopia, 4.2% for both stunting and thinness and 30.4% for stunting (Daba et al., 2020).

Stunting seems to be common in street children since research done in Uasin Gishu County, Kenya, found that 80% of the street children under study were stunted. According to this research, street children had a 6-times likelihood of being stunted than children in Charitable Children's Institutions (CCIs). However, in contrast to what one would expect, about 15%-20% of the street children and orphaned and vulnerable children (OVC) living

in households had a BMI-for-age that is higher than normal. This is an indicator of overweight and obesity, and this suggests that over-nutrition is increasingly prevalent in developing countries (Braitstein et al., 2013). On the contrary, a review that analysed several studies of street children in Africa noted that obesity is not common in street children in Africa because these children are food insecure. Therefore, they do not over-consume food (Cumber & Tsoka-gwegweni, 2015). The statistic given by Braitstein et al. (2013) indicates that high BMI-for-age in street children is probably higher because it also included OVC living in households.

The cause of malnutrition in street children is attributable to a number of factors, including food and nutrition insecurity, diseases, lack of proper water and sanitation facilities, lack of proper immunization, illiteracy, high exposure to unhealthy (polluted) environment, and lack of access to health care (Hakim & Rahman, 2016; Rahman & Hakim, 2016; Sehra et al., 2016). Limited research has been done in Nairobi to assess the nutritional status of street children. There is a high likelihood that the nutrition status of street children in Nairobi is poor because other studies done in Nairobi slums have shown that children living in slums have poor nutritional status. Studies done by Concern Worldwide (2014), Kimani-Murage et al. (2015), and Olack et al. (2011) have indicated that the level of stunting in children living in Nairobi slums is between 33.5% to 47%, while the rate of global acute malnutrition in this group is 3.5% (as cited in Goudet et al., 2016). Since these statistics represent children living at home in Nairobi slums, the figures could be higher for the children living in the streets of Nairobi. Hence, the aim of this study was to fill this gap by determining the nutrition status of adolescent street children in Nairobi City County.

2.6 Relationship between the Feeding Practices and Nutrition Status of Street Children

Among other reasons for poor nutrition status, such as diseases and exposure to unhealthy environments, an inadequate nutritious diet is one factor contributing to malnutrition in street children (Hakim & Rahman, 2016; Rahman & Hakim, 2016; Sehra et al., 2016) Although studies have suggested malnutrition in street children is due to inadequate diet, limited studies have directly looked into how the two variables (feeding practices and nutrition status of street children) are related. Therefore, one of the objectives of this study was to look at this relationship.

2.7 Relationship between Morbidity and Nutrition Status of Street Children

The presence of diseases negatively affects the nutrition status of street children (Hakim & Rahman, 2016; Rahman & Hakim, 2016; Sehra et al., 2016). However, there is limited research on the association between these two variables in street children. Consequently, the aim of this research was to fill this gap by examining the relationship between morbidity and nutrition status of street children.

2.8 Summary of the literature review

In summary, although some studies have been done to determine the feeding practices, morbidity, and nutrition status of street children, the studies are few. There are limited nutrition-related studies on the street children in Nairobi, in particular, on adolescent street children, yet Nairobi has many street children. Additionally, none of the studies in this review has directly assessed the relationship between feeding practices and nutrition status and the relationship between morbidity and nutrition status. Therefore, the aim of this

research was to fill these gaps and contribute to the existing body of knowledge on nutrition-related aspects of street children.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter provides a discussion of the methods that were used to carry out the study. This includes the research design, the variables, the study area, the target population, the sampling techniques, the sample size, the research instruments, pre-testing, validity and reliability, data collection techniques, data analysis and presentation, and logistical and ethical considerations.

3.2 Research Design

This study used an analytical cross-sectional design. The cross-sectional study design was chosen because it enabled the collection of information on the three variables at a single point in time without purposely influencing the variables. It was also significant for this study as it was able to show the snapshot of the prevalence of malnutrition when determining the nutrition status of street children. A descriptive design was also used for the collection of qualitative data needed to determine the feeding practices and morbidity of adolescent street children.

3.2 Research Variables

3.2.1: Dependent Variable

The dependent variable was the nutrition status of adolescent street children.

3.2.2: Independent Variables

The independent variables were feeding practices and morbidity of the adolescent street children.

3.3 Study Area

The study was done in Nairobi City County in Kenya from February to March 2022. Nairobi is the capital city of Kenya and the largest city in the country. Geographically, it is located at 1009'S 36039'E and 1027'S 3006'E in the southern part of Kenya, close to the Athi River, with an area of 696 km2 (Kenya Central Bureau of Statistics, 2019). Nairobi has a subtropical highland climatic condition whereby most evenings are cool, and daytimes are warm. Generally, it has two climatic seasons: wet season or rainy season, and dry season, where it is mostly warm and sunny. However, there are minimal differences between these two seasons. Nairobi is home to both the affluent (who live in upmarket suburbs) and the economically disadvantaged (who live in the slums). Nairobi was purposely chosen as the study area because it hosts a large population of street children in Kenya (National Census of Street Families, 2018).

3.4 Target Population

According to the 2018 National Census of Street Families Report, there are approximately 46,639 people who reside on the streets of Kenya (National Census of Street Families, 2018). Out of these, 18,766 permanently live on the streets. Of the total (46, 639) street population, 15,347 (32.9%) are adolescents (10-19 years). Nairobi City County has the highest population of street families since 33% (15,337) of all street persons in Kenya are in Nairobi County (National Census of Street Families, 2018). However, the exact figure of adolescent street children 10-17 years in Nairobi is unknown. Nonetheless, since the number of adolescent street inhabitants in Kenya is 32.9% of the total street population according to the 2018 National Census of Street Families, this percentage was used to

estimate the number of adolescent street children in Nairobi for this study. Therefore, using this proportion, there are approximately 5,046 adolescent street children in Nairobi.

3.4.1 Inclusion Criteria

Adolescent street children 10-17 years who lived permanently on the streets of Nairobi City, as evidenced by not going home at night, and assented to participate in the study.

3.4.2 Exclusion Criteria

Those who were pregnant at the time of the study, those who did not permanently live on the streets of Nairobi City, and those who did not assent to participate in the study were excluded from the study.

3.5 Sample Size Determination

The sample size was derived using Fisher *et al.*, 1998 formula.

$n = Z^2pq/d^2$

Where:

n = the desired sample (if the target population is >10,000).

Z = the standard deviation at 95% (1.96) confidence interval.

d = the level of statistical significance (0.05)

p = proportional of the target population estimated to have the characteristics being measured.

25% of children and adolescents in Kenya are underweight (Global Nutrition Report, 2020). Therefore, for this study, P = 0.25

q = 1-p

Therefore,

$$n = \frac{1.96^2 \times 0.25 \times (1-0.25)}{0.05^2} = 289$$

Since the target population was less than 10,000, the formula for an infinite population was applied.

nf = n/(1 + n/N)

Where:

nf = the desire sample size when the population is <10,000.

n = the desired sample when the target population is >10,000.

N = the estimated size of the target population

Therefore,

$$nf = 289 / \left(1 + \frac{289}{5046}\right) = 273$$

To slightly reduce the sample size (n_0), the finite population correction formula was applied.

$$n = \frac{n_0}{1+(n_0-1)/N}$$

Where; n = sample size N = population size

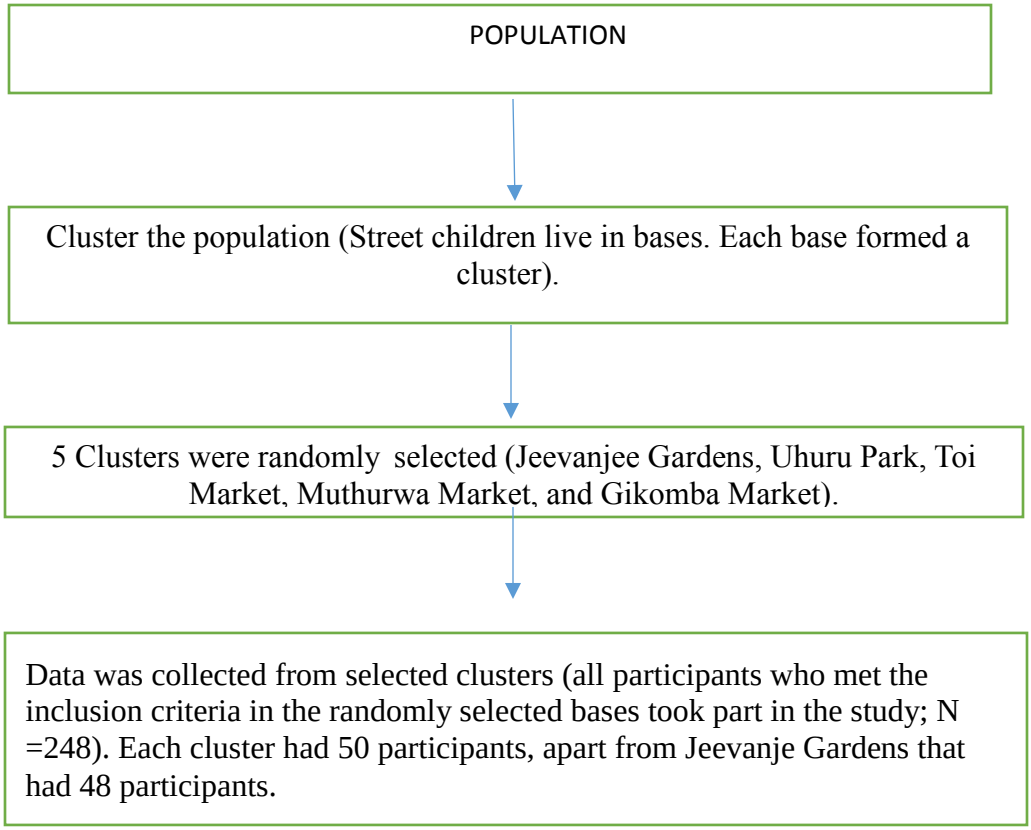
Therefore,

$$n = \frac{273}{1 + \frac{(273 - 1)}{5046}} = 260$$

Thus, the intended sample size for this study was 260. However, only 248 adolescent street children ended up participating in the study.

3.6 Sampling Technique

The cluster sampling technique was used. Street children live in bases. A base is a place in the streets where street children usually sleep together as a group. During the day, they may go about their daily business of roaming the streets, but most of them typically go to sleep as a group in specific locations in the streets. Therefore, each base formed a cluster. Then, five bases (clusters) were randomly selected, and everyone who met the inclusion criteria in the randomly selected bases (clusters) took part in the study. The bases selected for this study were located around Jeevanjee Gardens, Uhuru Park, Toi Market, Muthurwa Market, and Gikomba Market.



3.7 Research Instruments

Anthropometric instruments were used to determine the nutrition status of the study population. They included weighing scales for measuring weight and stadiometers for measuring height. Interviewer-administered questionnaires (Appendix C) were used to determine the feeding practices and morbidity of the participants. The questionnaire had open-ended and closed-ended questions, which were used to get information about the source of food, common types of food eaten, typical daily meal frequency of the study participants, and information about morbidity (the diseases they suffered from in the past two weeks prior to the study and the frequency of falling sick). A focus group discussion

guide (Appendix D) was also used to guide the focus group discussions, whose main purpose was to corroborate the information obtained from the questionnaire.

3.8 Pre-testing

Pre-testing was done on the anthropometric instruments, and the interviewer-administered questionnaires to ensure they had no errors and the questions were well understood, respectively. The pre-test of the instruments was done two weeks before the actual data collection on 26 street children (approximately 10% of the sample size) in Githurai so that these respondents would not be included in the actual study. The weighing scales were the only instruments that needed changes after the pre-test, so new batteries were inserted to ensure the readings were correct.

3.9 Validity and Reliability

Validity is the truthfulness of data, while reliability is the consistency of the results over time. The validity of the research instruments was guaranteed through the training of research assistants and the use of standardised procedures. For instance, there are already standardised procedures for measuring weight and height. On the other hand, reliability was ensured by using the test-retest method. The instruments were used to collect data on a few individuals similar to the study population. After about two weeks, the same data was collected again on the same people. The findings from both times were then analysed using Cronbach's alpha co-efficiency. The alpha co-efficiency was 0.95. This indicated that the instruments had excellent reliability.

3.10 Data Collection Procedures

Ten trained research assistants were involved in the data collection process. The research assistants were undergraduate students and were comprised of five females and five males. They were trained prior to the data collection for one day. The training was about what the research entailed, how to carry out anthropometric measurements, how to administer the questionnaire, assent form, informed consent form, and the need to maintain confidentiality. On the field day, base leaders were identified by the street children themselves. With the help of base leaders, the researcher introduced herself to the study sample and explained what the study entailed. Respondents were then asked for their assent to participate in the study because they were minors (Appendix A). For those who had their parents/guardians in the streets, consent was also sought from the parents/guardians. The details of the study written in the assent and consent forms (Appendix B) were explained to the participants in Swahili so that they would understand.

Anthropometric data was first collected. Then, the interviewers administered the interviewer-administered questionnaires to each participant individually. Each interviewer took approximately 20 minutes with each respondent to allow for time to clarify the responses or probe for additional information. Conducting the interview individually also helped the participants to share information freely. The information obtained from the interviewer-administered questionnaire was then triangulated through five focus group discussions. There were a total of five bases visited, and in each base, an FGD was conducted. Each FGD had 10 adolescent street children that included both females and males as follows: Jeevanjee Gardens (3 females, 7 males), Uhuru Park (3 females, 7 males), Toi market (5 females, 5 males), Muthurwa market (4 females, 6 males), and Gikomba

market (4 females, 6 males). Approximately the entire data collection process took approximately two weeks in February - March 2022.

3.11 Data Analysis and Presentation

During the data collection process, data was checked daily to ensure it was complete so as to minimise errors during analysis. WHO AnthroPlus software was used to analyse anthropometric data using the WHO Reference 2007 for adolescents. The 25th version of the Statistical Package for Social Science (SPSS) computer software programme was used for analysing quantitative data. The qualitative data from the FGD was analysed using NVivo 1.0 software. The level of precision was 95% confidence level. To test the hypotheses, a chi-square test was done. Lastly, data was presented by use of proportions, graphs, pie charts, and tables.

Table 3.1. Summary of Data Collection and Analysis per Objective

Objective	Data collection procedure/tool	Data analysis	Remarks
To determine the socio-economic and demographic characteristics of adolescent street children 10-17 years in Nairobi City County.	Interviewer-administered questionnaire	SPSS v.25	Analysing quantitative data from the questionnaire
To determine the feeding practices of adolescent street children 10-17 years in Nairobi City County.	Interviewer-administered questionnaire containing Food Insecurity Experience Scale (FIES) and other questions, as well as FGDs	SPSS and NVivo 1.0	SPSS analysed quantitative data from the questionnaire while NVivo analysed qualitative data from the FGD
To determine the morbidity of adolescent street children 10-17 years in Nairobi City County.	Interviewer-administered questionnaire and FGDs-	SPSS and NVivo	SPSS analysed quantitative data from the questionnaire while NVivo will analyse qualitative data from the FGD
To determine the nutrition status of street children adolescent 10-17 years in Nairobi City County.	Anthropometric tools (weighing scales and stadiometer)	WHO AnthroPlus	Analysing anthropometric data
To determine the relationship between feeding practices and nutrition status of adolescent street children 10-17	Anthropometric tools and interviewer-administered questionnaires	Chi-square test	Test the hypothesis; There is no significant relationship between feeding practices and

years in Nairobi City County.			nutrition status of street children.
To determine the relationship between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County.	Anthropometric tools and interviewer-administered questionnaires	Chi-square test	Test the hypothesis; There is no significant relationship between morbidity and nutrition status of street children.

3.12 Logistical and Ethical Considerations

Approval of the proposal was sought from the Kenyatta University Ethical Review Committee (KU-ERC). A research permit from the National Commission for Science Technology and Innovation (NACOSTI) was also sought.

The researcher got assent from 228 children who lived alone in the streets without their parents, and consent was also sought from the guardians of 20 children who lived on the streets with their parents/guardians. The details of the study written in the assent and consent form (Appendix A and B) were explained to the participants in Swahili so that they could understand. All the respondents were treated with the utmost respect. Their participation in the study was voluntary. Confidentiality of the information received was ensured by not including the respondents' names on the questionnaires, keeping raw data secure, and using the information solely for the purposes of the research. Additionally, Covid-19 protocols were followed. This included wearing masks, maintaining social distance, and sanitizing. There were no risks involved in participating in the study. The study participants received a free lunch as an incentive for taking part in the study and also

because it was unreasonable not to feed them, yet some of them were hungry because they were street inhabitants. Data was collected in approximately two weeks.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the data findings as per the objectives of the study. The findings are on the socio-economic and demographic characteristics, feeding practices, morbidity, and nutrition status of the street children in Nairobi City County. The relationship between feeding practices and nutrition status, as well as the relationship between morbidity and nutrition status of the respondents, are provided.

4.2 The Socio-Economic and Demographic Characteristics of Adolescent Street Children 10-17 Years in Nairobi City County.

Table 4.1 shows the socio-economic and demographic characteristics of the sample. The sample consisted of 248 adolescent street children. 159 (64.1%) of the street children were males, while 89 (35.9%) were females. The youngest adolescent street children were aged 10 years, while the oldest were aged 17 years old. The mean (SD) age was 15.87±1.822. 40 (16.1%) of the adolescents were aged 10-14 years, while 208 (83.9%) were between the ages of 15-17 years. Additionally, 88 (35.5%) of the respondents begged for money as a source of income, while 160 (64.5%) got money through informal jobs, such as collecting and selling plastics, helping people to carry their luggage, and helping people to park their cars. Also, the majority of the respondents, 128 (51.6%), approximately earned 100-300ksh per day, 72 (29%) earned <100ksh per day, 40 (16.1%) earned 301-500ksh per day, and 8 (3.2%) had no earning at all.

Table 4.1. Socio-Economic and Demographic Characteristics of Adolescent Street Children 10-17 Years in Nairobi City County.

Characteristics	Frequency	Percent
Gender		
Male	159	64.1%
Female	89	35.9%
Age Group		
10-14 Years	40	16.1%
15-17 Years	208	83.9%
	Mean (SD) Age: 15.87±1.822	
Source of Income		
Begging	88	35.5%
Informal Jobs	160	64.5%
Amount of money earned per day		
No earning/Zero	8	3.2%
<100ksh	72	29.0%
101-300ksh	128	51.6%
301-500ksh	40	16.1%

4.3 The Feeding Practices of Adolescent Street Children 10-17 Years in Nairobi City County.

Figure 4.1 shows the number of meals eaten per day by the respondents. The number of meals eaten per day varied among the respondents. Findings indicate that 96 (38.7%) of the respondents only had one meal per day, 100 (40.3%) had two meals per day, and 52 (21%) had three meals per day.

Figure 4.1. Number of meals eaten per day by adolescent street children 10-17 years in Nairobi City County

As shown in Figure 4.2, 128 (51.6%), 60 (24.2%), and 60 (24.2%) of the respondents noted that it was very likely, somewhat likely, and not likely for them to spend a whole day without eating, respectively.

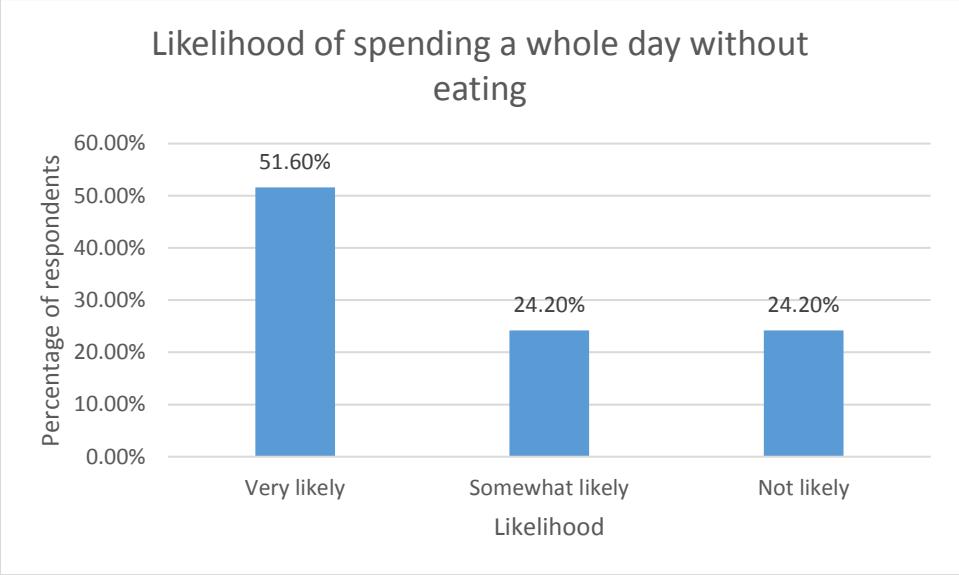


Figure 4.2. Likelihood of adolescent street children 10-17 years in Nairobi City County spending a whole day without eating

Table 4.2 shows the common source of food for the respondents. While 132 (53.2%) of the respondents noted that they mostly purchased the food they ate through the income from informal jobs, 92 (37.1) noted that they mostly begged for food, while 24 (9.7%) mostly got their food through scavenging.

Table 4.2. The Common Source of Food for Adolescent Street Children 10-17 Years in Nairobi City County.

	Frequency	**Percent**
Common source of food		
Purchasing	132	53.2
Begging	92	37.1
Scavenging	24	9.7

The focus group discussions revealed that apart from purchasing, begging, and scavenging for food, the adolescent street children also got food occasionally through well-wishers who brought them food occasionally. For instance, one of the adolescent street child in the focus group discussions noted that there was a group of well-wishers who typically brought them food every Wednesday, while another (from a different base) noted that another group of well-wishers usually gave them lunch on Fridays. Another member of the FGD also said, *"The food we eat is sometimes not enough to satisfy our hunger" (*Muthurwa 20/02/2022). This shows that they did not have enough food. The street children also revealed that they mostly consumed the same types of food. This indicates that they lacked dietary diversity. Similarly, during the FGDs, one said, "*We eat the same foods everyday*

mainly tea, bread, ugali, rice, and beans, since they are affordable in local hotels. We cannot afford to purchase meat. We also don't eat fruits unless someone gives it to us or we get the spoilt ones that have been thrown away in markets" (Uhuru Park 3/3/2022). This further showed that their diet lacked diversity.

4.4 The Morbidity of Adolescent Street Children 10-17 Years in Nairobi City County.

Table 4.3 shows the morbidity of the respondents. The results revealed that 188 (75.8%) of the respondents had been sick in the past two weeks before the data collection, while 60 (24.2%) had not experienced any illness in that period. About 136 (54.8%) of the respondents had experienced gastrointestinal (GIT) infection (abdominal pain/constipation/diarrhea/vomiting), while 28 (11.3%), 20 (8.1%), and 4(1.6%) had experienced fatigue, cough, and fever respectively. The respondents were also asked how often they fell sick with the aforementioned illnesses and 112 (45.2%) said that they rarely fell ill, while 80 (32.3%) and 56 (22.6%) said that they fell ill sometimes and often, respectively.

Table 4.3. The Morbidity of Adolescent Street Children 10-17 Years in Nairobi City County within the past two weeks prior to the study

	Frequency	Percent
Presence of Morbidity		
Morbidity	188	75.8
Type of illness		
GIT infection (Abdominal Pain/Constipation/Diarrhea/Vomiting)	136	54.8
Fatigue	28	11.3
Cough	20	8.1
Fever	4	1.6
None	60	24.2
Frequency of morbidity		
Rarely	112	45.2
Sometimes	80	32.3
Often	56	22.6

4.5 The Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City County.

Figure 4.3 shows the percent distribution of BMI-for-age of the respondents in comparison to the reference population. Compared to the normal distribution curve of BMI-for-age by the 2007 WHO reference standards, the BMI-for-age curve of the study respondents is skewed to the left. This indicates that the study group had more cases of thinness than the reference group.

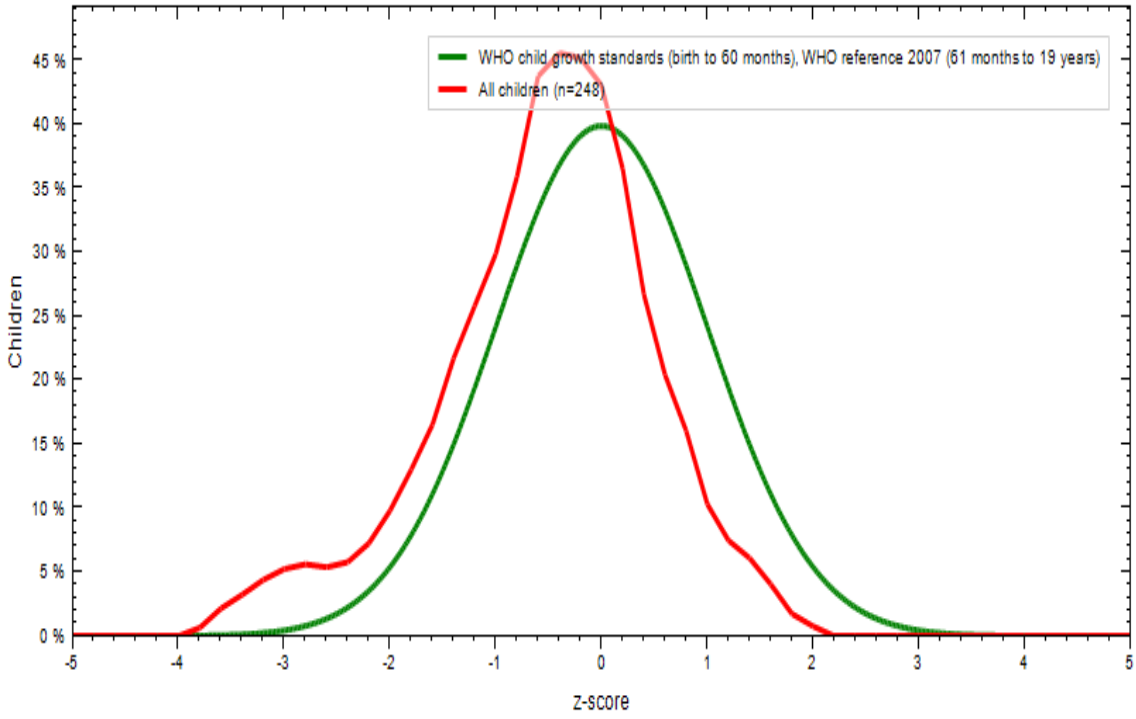


Figure 4.3. Percent distribution of BMI-for-age of the respondents in comparison to the reference population

Figure 4.4 shows the percent distribution of BMI-for-age of the different sexes of the respondents in comparison to the reference population. Compared to the normal distribution curve of BMI-for-age by the 2007 WHO reference standards, the BMI-for-age

curve of males in the respondents is more skewed to the left than that of females. This indicates that the cases of thinness in the study group were more in males than females.

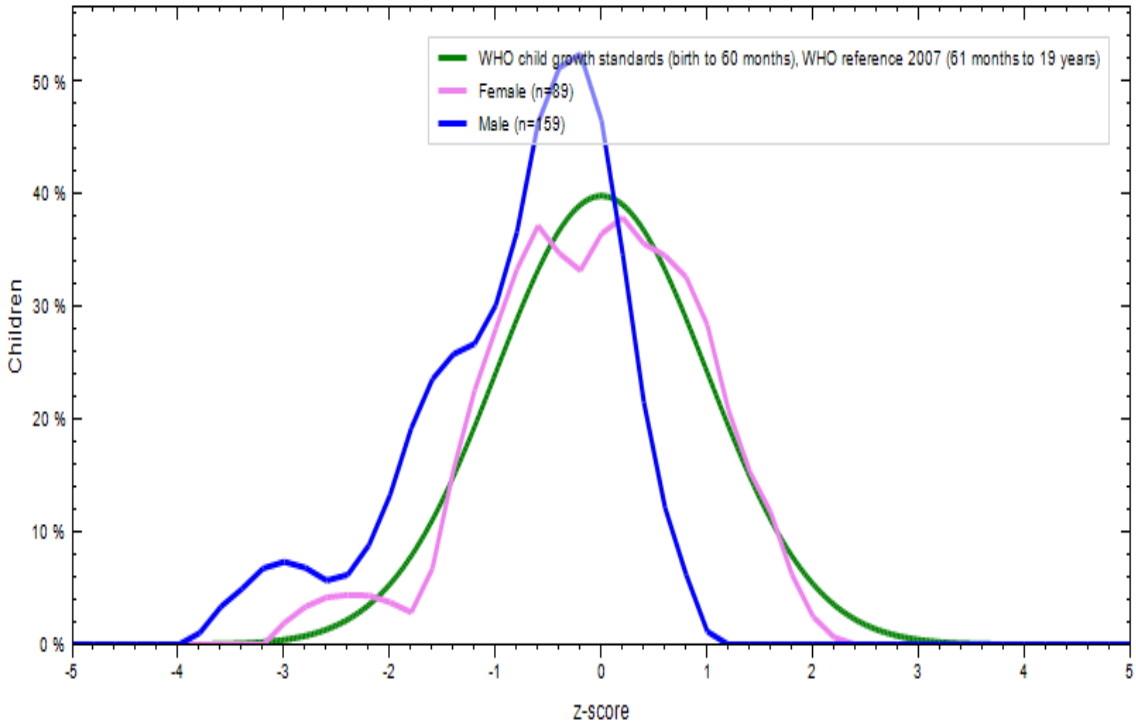


Figure 4.4. Percent distribution of BMI-for-age of the different sexes of the respondents in comparison to the reference population

As shown in table 4.4, while 44 (17.7%) of the respondents were malnourished, 204 (82.3%) had normal nutrition status. Table 4.4 shows that 3.2% of the respondents had severe thinness (<-3SD) and 8.1% had thinness (<-2SD), while 4.8% were overweight (>+1SD) (Table 6). About, 7.7% of the sample were stunted (<-2SD), and of these, 2.8% were severely stunted (<-3SD). None of the adolescents in the age group 10-14 had a BMI-for-age of <-2SD, but 20% of the adolescents in this age group were stunted (<-2SD).

Table 4.4. The Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City

The Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City						
Nutrition Status	**Frequency**	**Percent**				
Normal	204	82.3				
Malnourished	44	17.7				
Age groups	**N**	**BMI-for-age (%)**				
Years		% < -3SD	% < -2SD	% > +1SD	Mean	SD
10-17	248	3.2	8.1	4.8	-0.54	0.98
10-14	40	0	0	0	-0.35	0.59
15-17	208	3.8	9.6	5.8	-0.58	1.04
		Height-for-age (%)				
Years		% < -3SD	% < -2SD	% > +1SD	Mean	SD
10-17	248	2.8	7.7		-0.83	0.94
10-14	40	0	20		-0.97	1.13
15-17	208	3.4	5.3		-0.8	0.89

Table 4.5 shows the nutrition status of male adolescent street children 10-17 years in Nairobi City County. About 5% of the male respondents had severe thinness (<-3SD) and 10.1% had thinness (<-2SD). Additionally, 11.9 % of the male respondents were stunted (<-2SD), and of these, 4.4 % were severely stunted (<-3SD). None of the male adolescents in the age group 10-14 had a BMI-for-age of <-2SD, but 25% of the male adolescents in this age group were stunted (<-2SD).

Table 4.5. The Nutrition Status of Male Adolescent Street Children 10-17 Years in Nairobi City County

The Nutrition Status of Male Adolescent Street Children 10-17 Years in Nairobi City County						
Age groups	**N**	**BMI-for-age (%)**				
Years		% < -3SD	% < -2SD			
10-17	159	5	10.1			
10-14	32	0	0			
15-17	127	6.3	12.6			
		Height-for-age (%)				
Years		% < -3SD	% < -2SD	% > +1SD	Mean	SD
10-17	159	4.4	11.9		-0.98	1.04
10-14	32	0	25		-1.09	1.24
15-17	127	5.5	8.7		-0.95	0.98

Table 4.6 shows the nutrition status of female adolescent street children 10-17 years in Nairobi City County. None of the female respondents had severe thinness (<-3SD), 4.5% had thinness (<-2SD), while 13.5% were overweight (>+1SD) and none of the female respondents were stunted (table 4.6).

Table 4.6. The Nutrition Status of Female Adolescent Street Children 10-17 Years in Nairobi City County

The Nutrition Status of Female Adolescent Street Children 10-17 Years in Nairobi City County				
Age groups	**N**	**BMI-for-age (%)**		
Years		% < -3SD	% < -2SD	% > +1SD
10-17	89	0	4.5	13.5
10-14	8	0	0	0
15-17	81	0	4.9	14.8
		Height-for-age (%)		
Years		% < -3SD	% < -2SD	
10-17	89	0	0	
10-14	8	0	0	
15-17	81	0	0	

4.6 The Relationship between Feeding Practices and Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City County

To carry out the chi-square test, nutrition status was categorized as either normal or malnourished, and feeding practices were categorized as either poor (for those who had only two meals or less per day) or acceptable (for those who had three meals per day). The chi-square test revealed that there is a significant relationship between feeding practices and nutrition status of adolescent street children 10-17 years in Nairobi City County (X^2 = 4.910, p = .027). Therefore, the null hypothesis that there is no relationship between feeding practices and nutrition status was rejected. This means that feeding practices influence the nutrition status of street children; poor feeding practices are associated with malnutrition while acceptable feeding practices are associated with good nutrition status.

4.7 The Relationship between Morbidity and Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City County

The chi-square test revealed that there is a significant relationship between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County (X^2 = 6.652, p = .010). Therefore, the null hypothesis that there is no relationship between morbidity and nutrition status was rejected. This means that morbidity influences the nutrition status of street children; presence of morbidity is associated with malnutrition.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

This chapter presents a discussion of the study findings in relation to other studies in the reviewed literature. The discussion of the study findings in this chapter are as per the objectives of this study, which include the socio-economic and demographic characteristics of adolescent street children 10-17 years in Nairobi City County, the feeding practices of adolescent street children 10-17 years in Nairobi City County, the morbidity of adolescent street children 10-17 years in Nairobi City County, the nutrition status of adolescent street children 10-17 years in Nairobi City County, the relationship between feeding practices and morbidity of adolescent street children 10-17 years in Nairobi City County, and the relationship between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County. This chapter ends with a brief discussion of the plans that the County government of Nairobi has for street children.

5.2 The Socio-Economic and Demographic Characteristics of Adolescent Street Children 10-17 Years in Nairobi City County.

The results of the study revealed that boys made up 64.1% of the street children while girls were 35.9%. This finding is comparable to those of other studies that have shown boys form between 50-100% of street children (Braitstein et al., 2013; Hakim & Rahman, 2016; Sehra et al., 2016; Sosanya & Ibrahim, 2014; Woan et al., 2013) while girls usually make less of the street population (Cumber & Tsoka-gwegweni, 2015). This is because boys are more likely to go to the streets when familial conditions are not conducive to staying at home than girls (Cumber & Tsoka-gwegweni, 2015; Woan et al., 2013). This study showed that children between 15-17 years were more (83.9%) than those between 10-14 years

(16.1%). Other studies have also shown almost similar results as they have found out that the majority of street children are adolescents between 12-17 years, although younger children also form part of the street population (Cumber & Tsoka-gwegweni, 2015; Hakim & Rahman, 2016; Woan et al., 2013).

Additionally, this study found that 35.5% of the respondents begged for money as a source of income, while 64.5% got money through informal jobs. This finding is similar to those of other studies that have shown street children usually earn money from begging, stealing, or doing informal jobs (Sehra et al., 2016; Sosanya & Ibrahim, 2014; Woan et al., 2013). However, unlike Rahman & Hakim (2016), who showed that only about 38% of street children work, the majority of the respondents in this study (64.5%) said that they do informal jobs. The amount of money earned by street children in this study disagrees with that of Rahman & Hakim (2016), who showed that most street children made less than a dollar per day. Although 29% of the respondents in this study made less than a dollar per day (<100ksh), and 3.2% did not make any money at all, the rest made slightly more than a dollar per day. However, the focus group discussion revealed that although they used this money to purchase food, they also used it to buy drugs, similar to other studies that have revealed that most of the money earned by street children is used to purchase food and drugs (Woan et al., 2013).

5.3 The Feeding Practices of Adolescent Street Children 10-17 Years in Nairobi City County.

Contrary to Rahman and Hakim (2016), who revealed that 63.75% of the street children in their study were able to eat thrice daily, while the rest ate twice daily, 40.3% of the respondents in this present study ate only twice daily, while 38.7% only had one meal per

day. This shows that the feeding practices of most adolescent street children in this study were unsatisfactory since the recommended number of meals for adolescents is three meals per day and two snacks.

The fact that a majority (51.6%) of the adolescent street children in this study had a very high likelihood of spending a whole day without eating suggests that their feeding practices are poor. This is not recommended since adolescence is the second stage in life where body growth and development occur fast. Therefore, adolescents have high nutrient requirements to facilitate this growth spurt. Poor feeding practices in adolescence can lead to nutritional deficiencies that may result in loss of adult height and may delay sexual maturation (Christian & Smith, 2018).

The fact that the participants of this study begged for food or scavenged to get food suggests that they were food insecure, and they may consume spoilt food, which may cause them to experience diarrhoea and vomiting. Consequently, this will further increase their chances of nutritional deficiencies.

The FGDs revealed that apart from purchasing, begging, and scavenging for food, the adolescent street children also got food occasionally through well-wishers who brought them food occasionally. Nevertheless, since the food they received from well-wishers was only enough to be eaten for one meal, and it was usually brought once per week, on average, it was inadequate to meet their nutrition needs. Therefore, this shows that although they may get food, it is not always adequate.

The diet of the study participants lacked diversity, yet a diverse diet is important in ensuring that all needed nutrients are consumed. This finding is in line with another study that showed street children have a low dietary diversity (Daba et al., 2020).

5.4 The Morbidity of Adolescent Street Children 10-17 Years in Nairobi City County.

While 75.8% of the study participants had been sick in the past two weeks prior to the data collection, 24.2% had not experienced any illness in that period. This finding is comparable to those of other studies that have shown that there is a presence of morbidity in street children. For instance, Ayub et al. (2016) indicated that all the participants in their study had suffered from some form of morbidity within the year preceding the study. Similarly, in another study, approximately 61.5% of street children had suffered from sickness in the three months prior to the study (Rahman & Hakim, 2016).

In this current study, most of the respondents (54.8%) had experienced abdominal pain/constipation/diarrhoea/vomiting in the past two weeks prior to the study. This can be attributed to eating unfit food. Other illnesses commonly experienced by the sample were fatigue, cough, and fever, since 11.3%, 8.1%, and 1.6% of the respondents had suffered from the illness mentioned above in the past two weeks prior to the study, respectively. These findings are in line with those of other studies that have shown that the common forms of morbidity experienced by street children include respiratory problems, fever, fatigue, headache, and gastrointestinal problems (Ayub et al., 2016; Sosanya & Ibrahim, 2014).

Morbidity can be attributed to the fact that street children live in unhealthy environments and lack adequate nutrition. Studies have shown that street children frequently suffer from

recurrent health problems because of poor nutrition and living in unhealthy environments (Amoah & Jørgensen, 2014).

5.5 The Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City County.

The rate of wasting in this sample (3.2%) was more than the acceptable WHO wasting levels (<2%) for developing countries. Therefore, this is a cause of concern. The co-existence of both under-nutrition and overweight in this study is similar to other studies that have shown the presence of the double burden of malnutrition in street children. For instance, Rahman & Hakim (2016) revealed that 6.3% and 60.4% of street children in their study were overweight and underweight, respectively.

The level of undernutrition in this study was higher in boys than in girls. This finding is dissimilar from that of Daba et al. (2020), which showed that adolescent street females had a higher likelihood of having thinness than adolescent street males. This difference could probably be due to the fact that the well-wishers who occasionally gave the street children food were more likely to sympathize with the females since most of the adolescent street males in this study were unruly.

This study showed that the number of malnourished adolescent street children (17.7%) was less compared to the number of adolescent street children whose nutrition status was normal (82.3%). This finding is similar to another study that showed a majority of the street children (58%) had normal nutrition status than those who were malnourished (42%) (Sehra et al., 2016). However, this finding is in contrast to several other studies that have shown that most street children are malnourished than well-nourished. For instance, in one study, 66.7% or two-thirds of the sampled street children were malnourished, while in

another study, 65% of the studied street children were underweight (Hakim & Rahman, 2016; Rahman & Hakim, 2016). This dissimilar finding may be because, in this present study, the focus group discussions revealed that some of the street children were brought approximately once every week by well-wishers, and also because most of the children in this study (51.6%) made approximately 100-300ksh per day, unlike other studies where street children earned less than a dollar per day (Rahman & Hakim, 2016).

Nevertheless, like in other studies, the presence of stunting and thinness in this study indicates the existence of both acute and chronic malnutrition in street children. In this study, 20% of adolescents aged 10-14 years were stunted (<-2SD). This rate is more than the WHO acceptable levels of stunting (<17%) in developing countries. Stunting seemed to be more common in this age group than in those between 15-17 years since no respondent between 15-17 years was stunted. Other studies have shown that street children have a 6-times likelihood of being stunted than children living in CCIs. Sehra et al. (2016) also revealed that 24% of the street children in their study were stunted.

Additionally, in this present study, the rate of thinness was slightly higher than that of stunting, as 8.1% of the total respondents were thin (<-2SD) while 7.7% of the total respondents were stunted (<-2SD). Other studies have also presented similar results where acute malnutrition is more than chronic malnutrition in street children. For instance, Sosanya & Ibrahim (2014) showed that the rate of underweight among street children in their study was 77.1%, while the rate of stunting was 35%. However, Meshram et al. (2015), revealed that chronic malnutrition was more than acute malnutrition in their study since 48% of the street children in their study were stunted, while 26% were wasted.

5.6 The Relationship between Feeding Practices and Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City County

The chi-square test revealed that there is a significant relationship between feeding practices and nutrition status of adolescent street children 10-17 years in Nairobi City County ($X2$ = 4.910, p = .027). Therefore, the null hypothesis that there was no relationship between feeding practices and nutrition status was rejected. Poor feeding practices contribute to malnutrition, while acceptable feeding practices contribute to good nutrition status. This finding is comparable to other studies that have shown that there is an association between feeding practices and nutrition status. Poor feeding practices mean diets are nutritionally inadequate, and this contributes to malnutrition among street children (Hakim & Rahman, 2016; Rahman & Hakim, 2016; Sehra et al., 2016).

5.7 The Relationship between Morbidity and Nutrition Status of Adolescent Street Children 10-17 Years in Nairobi City County

The chi-square test revealed that there is a significant relationship between morbidity and nutrition status of adolescent street children 10-17 years in Nairobi City County (X^2 = 6.652, p = .010). The presence of morbidity contributes to malnutrition among adolescent street children. Therefore, the null hypothesis that there was no relationship between morbidity and nutrition status was rejected. This finding is comparable to other studies that have indicated that the presence of diseases negatively affects the nutrition status of street children (Hakim & Rahman, 2016; Rahman & Hakim, 2016; Sehra et al., 2016).

5.8 Nairobi County Government's Plan for Street Children

The Nairobi County government intends to "develop a comprehensive policy with programmes for the rehabilitation of street children/families, to solve the issue of homeless

people in the County, and to complete the construction of the Ruai Rehabilitation centre for rehabilitation of street families/children" (Nairobi County Assembly, 2019).

CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of the study findings

This study was an analytical cross-sectional study aimed at determining the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years in Nairobi City City County.

6.1.1 Socioeconomic and Demographic Factors

The findings of this study revealed that a majority of the respondents were males than females, and most of them were between the ages of 15-17 than 10-14. Additionally, although some respondents mostly got money through begging, a majority of them had informal jobs that included collecting and selling plastics and helping people carry their luggage. Also, among the respondents who did informal jobs, those who earned between 100-300ksh per day were slightly higher than those who earned less than 100ksh per day, although only a few respondents earned between 300-500ksh per day. Even though some of this money is used to purchase food, it is also used to purchase drugs, and some street children may prioritize drugs over food since it helps them cope with their harsh living conditions.

6.1.2 Feeding Practices

Besides that, most of the respondents had two meals only per day, and they were slightly followed by those who had only one meal per day. Only a few of the respondents had three meals per day. Also, most of the respondents noted that it was very likely for them to spend a whole day without eating. The FGDs also revealed that sometimes the food they eat is inadequate to satisfy their hunger. Likewise, most of the respondents noted that they purchased food from their earnings, although they also begged for food sometimes or got

it through scavenging. Well-wishers also brought the street children food occasionally. However, the diet of the street children is not diverse since they commonly consume the same types of food regularly.

6.1.3 Morbidity

Most of the respondents had been sick in the past two weeks prior to the data collection, and the illnesses commonly experienced by them included gastrointestinal tract (GIT) infection (abdominal pain/constipation/diarrhoea/vomiting), fatigue, cough, and fever. GIT infection was the most common illness as a result of eating spoiled food. However, the frequency of falling ill was rare for most of the respondents, followed by those who fell ill sometimes and often.

6.1.4 Nutrition Status

Although most of the street children in this sample had normal nutrition status, the rate of wasting in the sample and the rates of stunting among those between 10-14 years were more than the acceptable levels of wasting and stunting set by WHO for developing countries. Few of the respondents were also overweight, indicating the existence of the double burden of malnutrition in developing countries.

6.1.5 Relationship between Feeding Practices, Morbidity, and Nutrition Status

Also, the chi-square test indicated that there is a significant relationship between feeding practices and nutrition status and between morbidity and nutrition status. Therefore, the two null hypotheses - there is no significant relationship between feeding practices and nutrition status, and there is no significant relationship between morbidity and nutrition status – were rejected.

6.2 Conclusion

The following conclusions were made based on the study findings and according to the objectives of the study:

A majority of the adolescent street children in Nairobi City County are older adolescents (15-17 years). This age group of adolescents represents a reproductive age, especially in females. Therefore, this shows the significant need to ensure that they have proper nutrition since malnutrition at this age may lead to an inter-generational cycle of malnutrition if these adolescents bear children.

Most of the respondents had two meals per day, while only a few of the respondents had three meals per day. This shows that the adolescents in this study have poor feeding practices since the meal frequency of a majority of them is below the recommended meal frequency for adolescents. Adolescents should have 3 meals and 2 snacks per day.

A majority of the respondents had been sick in the past two weeks prior to the study. A conclusion is drawn that most of the adolescents suffered from some form of morbidity, and this could be attributed to living in an unhealthy environment.

Based on the findings of the nutrition status of the respondents, there is evidence of the existence of the double burden of malnutrition among adolescent street children since there were both cases of thinness and overweight. However, under-nutrition (indicated by thinness and stunting in this study) was more than over-nutrition. There is also the existence of both acute and chronic malnutrition in the study, as indicated by thinness and stunting, respectively.

Poor feeding practices contribute to a poor nutrition status among street children, as evidenced by a relationship between these variables. The presence of morbidity contributes to poor nutrition status in the street children.

6.3 Recommendations

The following recommendations were made based on the findings of this study.

6.3.1 Recommendations for practise

The county government is planning to construct a rehabilitation centre for the rehabilitation of street children (Nairobi County Assembly, 2019). Thus, it can do the following while waiting for the street children to be rehabilitated;

- Strengthen the implementation of programmes aimed at giving street children adequate, safe, and nutritious food so as to improve their feeding practices
- Support community health workers in making health services easily accessible to street children so that they can get treatment for diseases to minimise the duration of illness and preventive services to minimise the occurrence of diseases. Health services can be made accessible to street children through community outreach programs.

6.3.2 Recommendation for policy

The county government is planning to develop a policy with programmes for the rehabilitation of street children (Nairobi County Assembly, 2019). Thus, the policy should include specific feeding and treatment programmes for street children that will contribute to improving their feeding practices and health status.

6.3.3 Recommendation for further research

A longitudinal intervention study should be done to determine effective strategies that can be used to improve the nutrition status of adolescent street children.

REFERENCES

Amoah, P. A., & Jørgensen, S. H. (2014). Social Capital, Health and Health Care among Street Children : A Case Study of Street Children in Kumasi Metropolitan Area. *Social Capital*, *4*(4), 119–132.

Ayub, T., Kumar, D., & Shora, T. (2016). Psychosocial, demographic, educational and health characteristics of street children - a qualitative study. *International Journal of Medical Science and Public Health*, *5*(8), 1702. https://doi.org/10.5455/ijmsph.2016.09122015290

Braitstein, P., Ayaya, S., Nyandiko, W. M., Kamanda, A., Koech, J., Gisore, P., Ayuku, D. O. (2013). Nutritional Status of Orphaned and Separated Children and Adolescents Living in Community and Institutional Environments in Uasin Gishu County, Kenya. *PLoS One*, *8*(7). https://doi.org/10.1371/journal.pone.0070054

Christian, P., & Smith, E. R. (2018). Adolescent undernutrition: global burden, physiology, and nutritional risks. *Annals of Nutrition and Metabolism*, *72*(4), 316-328.

Committee on the Rights of the Child. (2017). General comment No.21 (2017) on children in street situations. *Convention on the Rights of the Child*, *21*(21), 21. Retrieved from CRC/C/GC/21

Crawford, B., Yamazaki, R., Franke, E., Amanatidis, S., Ravulo, J., & Torvaldsen, S. (2015). Is something better than nothing? Food insecurity and eating patterns of young people experiencing homelessness. *Australian and New Zealand Journal of Public Health*, *39*(4), 350-354. https://doi.org/10.1111/1753-6405.12371

Cumber, S. N., & Tsoka-Gwegweni, J. M. (2015). The health profile of street children in Africa: a literature review. *Journal of public health in Africa*, *6*(2). https://doi.org/10.4081/jphia.2015.566

Daba, D. B., Shaweno, T., Belete, K. T., & Workicho, A. (2020). Magnitude of under nutrition and associated factors among adolescent street children at Jimma Town, South West Ethiopia. *Nutrition and Dietary Supplements*, *12*, 31-39. https://www.tandfonline.com/doi/full/10.2147/NDS.S233393

Doornbos, Hannah Stevenson; Malcolm, E., & Magati, O. B. (2017). Ways of coping: Children growing up on the streets of Nairobi.

Ganguly, B. B., & Kadam, N. N. (2015). Health of the underprivileged children: a close look into a subset of tribal group and street population of India. *Journal of the Pediatrics Association of India*, *4*(3), 156-166. https://journals.lww.com/jpai/_layouts/15/oaks.journals/downloadpdf.aspx?an=02273365-201504030-00005

Goudet, S. M., Kimani-Murage, E. W., Wekesah, F., Wanjohi, M., Griffiths, P. L., Bogin, B., & Madise, N. J. (2016). How does poverty affect children's nutritional status in Nairobi slums? A qualitative study of the root causes of undernutrition. *Public health nutrition*, *20*(4), 608-619. https://doi.org/10.1017/S1368980016002445

Hakim, M. A., & Rahman, A. (2016). Health and nutritional condition of street children of Dhaka city: an empirical study in Bangladesh. *Science Journal of Public Health, 4*(1), 6-9.https://doi.org/10.11648/j.sjph.s.2016040101.12

Huhmann, M. B. (2011). Nutrition Status. *Encyclopedia of Cancer*, 2589-2592. https://doi.org/10.1007/978-3-642-16483-5_4179

Johnston, R. B. (2016). Arsenic and the 2030 Agenda for sustainable development. *Arsenic Research and Global Sustainability - Proceedings of the 6th International Congress on Arsenic in the Environment, AS 2016*, 12–14. https://doi.org/10.1201/b20466-7

Kenya. (2010). The Constitution of Kenya. Retrieved from http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010

Kenya Central Bureau of Statistics. (2019). Kenya Population and Housing Census Volume I. Retrieved from https://www.knbs.or.ke/?wpdmpro=2019-kenya-population-and-housing-census-volume-i-population-by-county-and-sub-county

Mannar, V., Micha, R., Allemandi, L., Afshin, A., Baker, P., Battersby, J., & Schofield, D. (2020). 2020 Global Nutrition Report: Action on Equity to End Malnutrition. 89023.

Meshram, I. I., Stephen, G. L., & Battina, P. R. (2015). Nutritional status and substance abuse among street children in South India. *Indian Journal of Community Health*,

27(1), 52–59. https://www.iapsmupuk.org/journal/index.php/IJCH/article/view/533

National Council for Children Services (NCCS). (2015). National Plan of Action for Children in Kenya 2015-2022.

Nairobi County Assembly. (2019). A policy for rehabilitation of street families/children & construction of proposed rehabilitation centre in Ruai. https://nairobiassembly.go.ke/motion/a-policy-for-rehabilitation-of-street-families-children-construction-of-proposed-rehabilitation-centre-in-ruai/

Oino, P., & Auya, S. (2013). The role of networks of relations among street children in Kenya: evidence from Eldoret Municipality. *International Journal of Science and Research*, *2*(6), 313–319. https://www.researchgate.net/publication/260763336

Organization of African Unity. (1999). African Charter On The Rights And Welfare Of The Child. https://au.int/sites/default/files/documents/30913-doc-acrwc-en.pdf

Rahman, A., & Hakim, M. A. (2016). Malnutrition prevalence and health practices of homeless children: A cross-sectional study in Bangladesh. *Science Journal of Public Health*, *4*(1), 10-15.

Sehra, R., Bairwa, A., Khatri, P., Berwal, P., & Nagaraj, N. (2016). A study of nutritional status and common health problems of street children in Bikaner, Rajasthan, India. *Int J Community Med Public Health*, *3*(11), 3040-3044.

Sosanya, M., & Ibrahim, A. (2014). Sanitary practices, nutritional and health status of street children in Matazu local government area of Katsina State, Nigeria. *3rd International Conference on Nutrition and Food Sciences*, *5*(10), 21. https://doi.org/10.7763/IPCBEE.

National Census of Street Families Report. (2028). 1–26. https://www.socialprotection.go.ke/wp-content/uploads/2020/06/National-Census-of-Street-Families-Report-.pdf

UN Committee on the Rights of the Child (CRC). (6 December 2016). *G*eneral comment No. 20 (2016) on the implementation of the rights of the child during adolescence, CRC/C/GC/20, https://www.refworld.org/docid/589dad3d4.html

United Nations General Assembly. (1990). Convention on the Rights of the Child. https://www.unicef.org/child-rights-convention/convention-text#

Woan, J., D, M., Lin, J., H, M. P., Auerswald, C., & S, M. (2013). The Health Status of Street Children and Youth in Low- and Middle-Income Countries : A Systematic Review of the Literature. *Journal of Adolescent Health*, *53*(3), 314-321.e12. https://doi.org/10.1016/j.jadohealth.2013.03.013

World Food Programme. (2009). Comprehensive Food Security & Vulnerability Analysis Guidelines. https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp203202.pdf

APPENDICES

APPENDIX A: INFORMED VERBAL ASSENT FORM FOR CHILDREN

Project Title: FEEDING PRACTICES, MORBIDITY, AND NUTRITION STATUS OF ADOLESCENT STREET CHILDREN 10-17 YEARS IN NAIROBI CITY COUNTY.

Principal Researcher: JOMO SOFIA MACHOCHO

The researcher named above is doing a research study.

These are the things we want you to know about research studies:

We are asking you to be in a research study. Research is a way to test new ideas. Research helps us learn new things.

Whether or not to be in this research is your choice. You can say Yes or No. Whatever you decide is OK. We will still take good care of you.

What is the study about?

The purpose of this study is to determine the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years in Nairobi City County. We want to know how you feed, how often you get sick, and your nutrition status.

Why am I being asked to be in this research study?

You are being asked to be in the study because we can only get this information from you.

What will happen during this study?

We will measure your height and weight. After that we will request you to kindly help us fill the interviewer-administered questionnaires that have questions about your feeding and morbidity patterns. We expect you to kindly give us true information.

Will the study hurt/risks?

There are no risks involved by taking part in the study.

What are the good things/benefits that might happen?

If you agree to be in this study, you will help us know the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years, and this information will be useful in informing policy and programmes targeted at street children.

Also, you will receive free lunch.

What if I don't want to be in this study?

You do not have to be in this study if you do not want to. Even if you say yes now, you can change your mind later. No one will be mad at you if you don't want to do this.

Before deciding if you want to be in this study, ask any questions you have. You can also ask questions during the time you are in the study.

HAVE YOU UNDERSTOOD WHAT I HAVE SAID AND ARE YOU WILLING TO TAKE PART IN THE STUDY?

End of verbal script.

TO BE COMPLETED BY PERSON OBTAINING VERBAL ASSENT FROM THE CHILD:

Child's response: Yes……. No……

Child's Name ……

Name and Signature of Person Obtaining Consent Date

Name and Signature of Witness Date

APPENDIX B: INFORMED CONSENT FORM

Dear Guardian,

My name is Jomo Sofia Machocho. I am a Master student from Kenyatta University. I am conducting a study titled "Feeding Practices, Morbidity, and Nutrition Status of Adolescent Street Children 10-17 years in Nairobi City County". The information will be used to determine the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years in Nairobi City. This information will be important in informing policy and programmes targeted at street children.

Procedures to be followed

If you give consent for your child to take part in this study, we will measure his/her height and weight and if she is pregnant we will also measure her Mid-Upper Arm Circumference (MUAC). After that we will request you or him/her to kindly help us fill the interviewer-administered questionnaires that have questions about his/her feeding practices and morbidity.

Voluntarism

Please remember the participation in this study is voluntarily. You have the right to refuse your child to participate in this study. You may ask questions related to the study at any time.

Risks

There are no risks involved in allowing your child to take part in this study.

Benefits

If you allow your child to take part in this study, you will help us know the feeding practices, morbidity, and nutrition status of adolescent street children 10-17 years, and this information will be useful in informing policy and programmes targeted at street children.

Also, you and him/her will receive free lunch.

Confidentiality

The information obtained from this study will be used for the purpose of this study only. Your identity will remain confidential, and your name will not be divulged in any report of the results.

Contact Information

If you have any questions about the study you may contact the researcher (JOMO SOFIA MACHOCHO) on 0700339980 or Kenyatta University Ethical Review Committee (KU-ERC) on +254(20)8714388.

Guardian's statement

The above information regarding my child's participation in the study is clear to me. The study has been explained to me, and I have been given a chance to ask questions, and my questions have been answered to my satisfaction. The participation of my child in this study is entirely voluntary. I understand that the information obtained will be kept private.

Name of Guardian…….

Signature or Thumbprint Date

Investigators statement

I, the undersigned, have explained to the guardian in a language s/he understands, the procedures to be followed in the study and benefits involved.

Name of interviewer…….

Signature Date

APPENDIX C: QUESTIONNAIRE

Instructions

- **Do not** write the name of the respondent on the questionnaire.
- Please put a tick in the box next to the answer of choice.
- Kindly translate the questions to Swahili to the respondents for them to understand.

PART A: SOCIO-ECONOMIC AND DEMOGRAPHIC DATA

1. Sex

   Male ☐ Female ☐

2. Age _____

3. How do you mostly get money/source of income?

   a. Begging ☐
   b. Informal jobs (e.g. garbage collection, petty trading, entertaining people through street performance etc.) ☐

4. Approximately, how much money do you usually make/get per day

   a. No earning/money at all/zero ☐
   b. <100ksh ☐
   c. 101-300ksh ☐
   d. 301-500ksh ☐
   e. 500-1000ksh ☐
   f. >1000ksh ☐

PART B: FEEDING PRACTICES

1. How many meals do you usually have in a day?

None ☐

One ☐

Two ☐

Three ☐

More than three ☐

2. How likely is it for you to spend a whole day without eating?

Very likely ☐

Somewhat likely ☐

Not likely ☐

3. What is your common source of food?

Scavenging ☐

Purchasing ☐

Begging ☐

Aid ☐

4. List the common types of food that you usually eat?

_____

PART C: MORBIDITY

1. Have you suffered from any of these illnesses in the past two weeks? Tick where appropriate.

Constipation ☐

Diarrhoea ☐

Vomiting ☐

Abdominal pain ☐

Fatigue ☐

Cough ☐

Fever ☐

None ☐

2. How often do you experience any of the above illnesses?

Never ☐

Rarely ☐

Sometimes ☐

Often ☐

Always ☐

THANK YOU FOR YOUR PARTICIPATION

APPENDIX D: FOCUS GROUP DISCUSSION GUIDE

Welcome to this focus group discussion and thank you for volunteering to be part of it. Your point of view is very important that is why you have been asked to participate.

Introduction: The purpose of this focus group discussion is to assess your thoughts about the feeding practices and morbidity of adolescent street children. The discussion will not take more than one and a half hours. If there are any questions that you do not wish to answer you do not have to do so. However please try to be as involved as possible. Kindly allow me to record the discussion so as to make its recollection easy (if they allow start recording).

Confidentiality: Despite being recorded the information obtained will be kept private and confidential. The recording will be kept safe until it is transcribed and after that it will be destroyed. Kindly refrain from discussing the comments of other group members outside the focus group.

Ground rules

- Only one person should speak at a time.
- When you have something to say, kindly do so.
- You do not have to agree with the views of other people in the group.
- Are there any questions? Let us start.

Warm Up

I kindly request everyone to introduce themselves. Can you tell us your name?

Introductory question

I am going to give you a minute to think about the experience of living in the streets, with regard to food/feeding practices and illnesses/morbidity. Would anyone, kindly share their experience?

Guiding questions

- How many meals do you usually have in a day?
- In most cases, is the food ever enough or do you still feel hungry after eating?
- How do you get your food?
- Which foods do you usually eat?
- In the past month, have you been sick? If yes, what illness were you suffering from? (E.g. diarrhoea).What kind of illnesses are so common here?

Concluding question

Is there anything else anyone would like to add with regard to food/feeding practices and/or illness/morbidity?

Conclusion

Thank you for participating, your opinions are really valuable to this study.

APPENDIX E: BUDGET

ITEM	QUANTITY	UNIT COST	TOTAL COST
Proposal writing			
Printing (55 pages)	1 copy	10	550
Photocopy (55 pages)	4 copies	3	660
Binding set of proposal	5 copies	60	300
Sub total			1510
Communication/permit			
Phone calls			7000
Ethical review &Research permit			10000
Sub total			17000
Research instrument			
Weighing scale	1	1500	1500
Stadiometer	1	1500	1500
Sub total			3000
Pretesting research instruments			
Questionnaire printing (12 pages)	1 copy	10	120
Photocopying questionnaire (12 pages)	250 copies	3	9000
Sub total			9120
Transport			
Preliminary preparation (trip)	2	1000	2000
Data collection (trip)	20	7000	14000
Sub total			16000
Data entry and analysis			
Data entry and analysis			40000
Statistical consultation			30000
Sub total			70000
Thesis writing			
Printing (85 pages)	1 copy	10	850
Photocopying (85 pages)	5 copies	3	1275
Binding (sets)	6 copies	60	360
Sub total			2860
Supplies/ stationery			
Note books (dozens)	2	1000	2000
Biro pens (packets)	1	500	500
Stapler	1	350	350
Stapler pins (packets)	5	200	1000
Foolscaps (reams)	3	1000	3000
Sub total			6850
Contingency (total budget)			12634
GRAND TOTAL			138599

APPENDIX F: APPROVAL OF RESEARCH BY KENYATTA UNIVERSITY

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke
P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704130

Internal Memo

FROM: Dean, Graduate School **DATE:** 3rd September, 2021

TO: **Ms. Jomo Sofia Machocho**
C/o Department of Food, Nutrition & Dietetics **REF:** H60/26312/2019

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting on 25th **August, 2021** approved your Research Proposal for the M.Sc. Degree entitled, **"Nutritional Status, Feeding Practices, and Morbidity of Adolescent Street Children 10-17 Years in Nairobi City Central Business District."**

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation and Ethics Review Committee, Kenyatta University.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The Forms are available at the University's Website under Graduate School webpage downloads.

KENYATTA UNIVERSITY OFFICE OF DEAN 10 SEP 2021 GRADUATE SCHOOL P.O. BOX 43844-00100 NAIROBI

Thank you.

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

CC. Chairman, Food, Nutrition & Dietetics Department

Supervisors:

1. Prof. Elizabeth Kuria
   C/o Department of Food, Nutrition & Dietetics
   Kenyatta University

2. Prof. Judith Kimiywe
   C/o Department of Food, Nutrition & Dietetics
   Kenyatta University

APPENDIX G: RESEARCH AUTHORIZATION

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Our Ref: H60/26312/2019

DATE: 3rd September, 2021

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. JOMO SOFIA MACHOCHO – REG. NO. H60/26312/19

I write to introduce Ms. Jomo Sofia Machocho who is a Postgraduate Student of this University. She is registered for M.Sc. degree programme in the **Department of Food, Nutrition & Dietetics.**

Ms. Jomo intends to conduct research for a M.Sc. thesis Proposal entitled, **"Nutritional Status, Feeding Practices, and Morbidity of Adolescent Street Children 10-17 Years in Nairobi City Central Business District."**

Any assistance given will be highly appreciated.

Yours faithfully,

KENYATTA UNIVERSITY OFFICE OF DEAN 10 SEP 2021 GRADUATE SCHOOL BOX 43844-00100 NAIROBI

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

APPENDIX H: RESEARCH APPROVAL (KU-ERC)

KENYATTA UNIVERSITY
CENTRE FOR RESEARCH ETHICS AND SAFETY

Fax: 8711242/8711575
Email: chairman.kuere@ku.ac.ke
Nairobi, 00100

P. O. Box 43844,

Tel: 8710901/12

Website: www.ku.ac.ke
Our Ref: **KU/ERC/APPROVAL/VOL.1**

Date: 15th /11/2021

Sofia Jomo
P.O BOX 43844-00100
Nairobi.

Dear Madam,

RE: NUTRITION STATUS FEEDING PRACTICES AND MORBIDITY OF ADOLESCENT STREET CHILDREN 10-17 YEARS IN NAIROBI CITY CENTRAL BUSSINESS DISTRICT

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/2374/I1511.** The approval period is **15th /11/2021**

to 15th/11/2022.

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification

APPENDIX I: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **849397**

Date of Issue: **22/November/2021**

RESEARCH LICENSE

This is to Certify that Miss.. Sofia Jomo of Kenyatta University, has been licensed to conduct research in Nairobi on the topic: NUTRITION STATUS, FEEDING PRACTICES, AND MORBIDITY OF ADOLESCENT STREET CHILDREN 10-17 YEARS IN NAIROBI CITY CENTRAL BUSINESS DISTRICT for the period ending : 22/November/2022.

License No: **NACOSTI/P/21/14466**

849397

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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