

# Feeding Practices and Morbidity of Adolescent Street Children in Nairobi City, Kenya: A Cross Sectional Analytic Study

Jomo Sofia Machocho<sup>1</sup>, Elizabeth Nafula Kuria<sup>2</sup>, Judith Kimiywe<sup>3</sup>

<sup>1,2,3</sup>Department of Food Nutrition and Dietetics, School of Health Sciences, Kenyatta University, Nairobi, Kenya

Corresponding Author: Sofia Machocho Jomo

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## ABSTRACT

Regardless of the fact that there are many street children in the streets of low- and middle-income countries, limited research has been done to determine their feeding practices and morbidity, yet street inhabitants live in poor conditions that may prevent them from having acceptable feeding practices, and that increase their risk of contracting diseases. Thus, the purpose of this study was to determine the feeding practices and morbidity of adolescent street children in Nairobi City, Kenya. An analytic cross-sectional study was conducted on 248 adolescent street children who were sampled through cluster sampling. Interviewer-administered questionnaires, which included the Food Insecurity Experience Scale (FIES), and focus group discussions were used to collect data. Quantitative data was analysed using the 25<sup>th</sup> 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 diet of the participants was not diverse. All the respondents were severely food insecure. Majority (75.8%) of the respondents had been sick in the past one month before the data collection. Over half (54.8%) of the respondents had experienced gastrointestinal (GIT) infection (abdominal pain/constipation/diarrhea/vomiting). Other common diseases were fatigue, fever, and cough.

**Keywords:** Feeding Practices, Morbidity, Adolescent Street Children

## INTRODUCTION

Feeding practices and morbidity are key determinants of an individual's nutrition status. Feeding practices are determined by the availability, accessibility, and sustainability of an adequate and nutritious diet. Therefore, lack of food availability, accessibility, and sustainability can lead to unacceptable/poor feeding practices, and this can further increase the risk of morbidity in an individual. Children and adolescents are among the age groups that are vulnerable to malnutrition because their nutrient requirements are high due to the fact that they are going through rapid growth and development (1). While street children are defined as inhabitants of the streets who are under the age of 18 years, adolescents are

defined as individuals who are between 10 to 19 years old (2, 3). Thus, adolescent street children, in this study, are street inhabitants who qualify to be both children and adolescents, that is, those who are 10-17 years old. The vulnerability of adolescent street children to malnutrition may be higher than that of children and adolescents living at home because adolescent street children may not have parents or guardians who provide food for them, and they live in unhealthy environment (4). These living conditions increase the chances of having unacceptable feeding practices and the risk of morbidity in adolescent street children.

Acceptable feeding practices in adolescence include eating three healthy meals daily, as well as consuming healthy snacks in between

the meals. The meals ought to be balanced and varied so as to cater for all macro and micro nutrient requirements (1). According to the World Health Organization (WHO), a healthy diet is a varied diet which is comprised of whole grains, nuts, legumes, animal products, fruits, and vegetables (5). The adolescence period offers a second window of opportunity for rapid growth and development, and is, therefore, a critical period in the life stage. Unhealthy diets during this stage have long-term undesirable consequences on the physical, mental, and economic growth of an individual (1). Unfortunately, adolescent street children are at a high risk of having unacceptable feeding practices because of having poor quality diets and inadequate food (3). Adolescent street children tend to be food insecure because it is hard for them to access food that is both adequate and nutritious mainly because they struggle to get food since they mostly get food through begging and eating spoiled food from the garbage (6). In fact, lack of access to nutritious and adequate food is among the main threats that street children in Nairobi face (6, 7). Similarly, adolescent street children are at a high risk of contracting diseases because of the environment that they live in. Street inhabitants sleep outside in the cold, they live in dirty areas, and mostly consume food that is unhygienic since they may eat from the garbage or they may eat with dirty hands (8).

Therefore, the objectives of this study were to determine the:

- Feeding practices of adolescent street children in Nairobi City, Kenya.
- Morbidity of adolescent street children in Nairobi City, Kenya.

## **MATERIALS & METHODS**

This study used an analytical cross-sectional study design. The study was conducted in the capital city of Kenya, Nairobi City. The sample size for this study was determined using Fisher formula, and the sample size was slightly reduced using the finite population correction formula. The

participants of the study were chosen through the cluster sampling technique. Since street inhabitants live in large groups, known as bases, each base was considered a cluster. After random selection of the clusters, individuals who met the inclusion criteria of the study (those between the age of 10-17 years, and those who permanently reside in the streets) in the selected clusters participated in the study voluntarily. The study had a total of 248 participants. Interviewer-administered questionnaires were used to determine the feeding practices and morbidity of the participants. The questionnaire included the Food Insecurity Experience Scale (FIES), adopted from Food and Agriculture Organization (FAO), which was used to assess the food security status of the sample. The questionnaire also had other 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 one month and the frequency of falling sick). A focus group discussion guide was also used to guide the focus group discussions (FGDs) whose main purpose was to corroborate the information obtained from the questionnaire.

## **STATISTICAL ANALYSIS**

The 25<sup>th</sup> version of the Statistical Package for Social Science (SPSS) computer software programme was used for analysing quantitative data. The qualitative data from the FGDs was analysed using NVivo 1.0 software. The level of precision was 95% confidence level.

## **RESULT**

### **The Feeding Practices of Participants**

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 1: Number of meals eaten per day by adolescent street children in Nairobi City.

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.

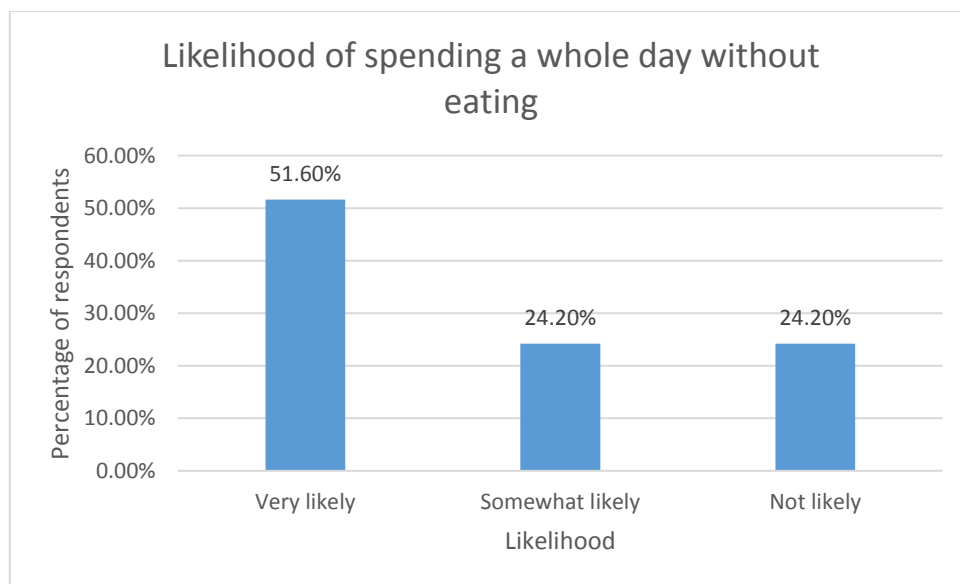


Figure 2: Likelihood of adolescent street children in Nairobi City spending a whole day without eating

While 132 (53.2%) of the respondents noted that they mostly purchase the food they eat through the money they get from informal jobs, 92 (37.1%) noted that they mostly beg for food, and 24 (9.7%) mostly get their food through scavenging. The street children get food through all the aforementioned ways (purchasing, begging, and scavenging), but the frequencies show the main methods they each use to get food.

Table 1: The Common Source of Food for Adolescent Street Children 10-17 Years in Nairobi CBD.

	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 freely bring them food occasionally. For instance, one of the

adolescent street children in the focus group discussions noted that there is a group of well-wishers who give them a meal on Wednesdays, while another (from a different base) noted that another group of well-wishers usually give them lunch on Fridays. Another member of the FGD also said, “*The food we eat is sometimes not enough to satisfy our hunger*” (3/3/2022). This shows that they do not have enough food. The street children also revealed that they mostly consume tea, bread, *ugali* (starchy dish made from maize flour), rice, and beans, day in, day out. 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*” (3/3/2022). This shows that they lack dietary diversity. The food eaten by the street children is also not always hygienic or safe for human consumption as one of the

FGD members said, “*We can eat food that other people have thrown away*” (3/3/2022). Besides that, all the adolescent street children above 15 years (N = 208) answered the 8-item Food Insecurity Experience Scale (FIES), since it is recommended to be answered by people who are 15 years and above. All of the 208 (100%) adolescent street children who answered the FIES said yes to the first 7 questions of the FIES (Table 2). On the other hand, 158 (76%) participants said yes to the last question of the FIES (Table 2) while 50 (24%) participants said no. Since the FIES is an 8-item scale each yes to each question is scored as 1, and the responses are then added to get the total raw score. Food secure or mild food insecurity, moderate food insecurity, and severe food insecurity is indicated by raw scores of 0-3, 4-6, and 7-8, respectively (9). Therefore, in this study, all the respondents are experiencing severe food insecurity as 158 (76%) scored 8, and 50 (24%) scored 7.

**Table 2: The FIES Questions**

The FIES Questions	
	<b>During the last 12 MONTHS, was there a time when because of a lack of money or other resources? (YES/NO)</b>
Q1	You were worried you would not have enough food to eat
Q2	You were unable to eat healthy and nutritious food
Q3	You ate only a few kinds of foods
Q4	You had to skip a meal
Q5	You ate less than you thought you should
Q6	You ran out of food
Q7	You were hungry but did not eat
Q8	You went without eating for a whole day

### The Morbidity of Participants

188 (75.8%) of the respondents had been sick in the past one month before the data collection, while 60 (24.2%) had not experienced any illness in that month. 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 fall ill sometimes and often, respectively.

**Table 3: The Morbidity of Adolescent Street Children 10-17 Years in Nairobi CBD within the past one month prior to the study**

	Frequency	Percent
<i>Presence of Morbidity</i>		
Morbidity	188	75.8
<i>Type of illness</i>		
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

## DISCUSSION

### The Feeding Practices of Adolescent Street Children in Nairobi City.

In this study, 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. This finding is dissimilar to that of another study which revealed that 63.75% of the street children under study were able to eat thrice daily, while the rest ate twice daily (4). Most (40.3%) of the respondents in this present study ate only twice daily, while 38.7% usually only had one meal per day. This shows that the feeding practises of most adolescent street children are not acceptable since the ideal recommended number of meals for adolescents is three meals per day and two snacks (10).

Additionally, 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. The fact that a majority (51.6%) of the adolescent street children in this study said that they have a very high likelihood of spending a whole day without eating further shows that their feeding practices are poor. This is unacceptable since, after infancy, adolescence is the second stage in life where body growth and development occur fast, and so, adolescents have high nutrient requirement to facilitate this growth spurt (1). Poor feeding practices in adolescence can lead to nutritional deficiencies that may result to loss of adult height and may delay sexual maturation (11). Moreover, stunted adolescents have a high likelihood of getting hypertension later in life (12).

While 132 (53.2%) of the respondents in this study noted that they mostly purchase the food they eat from the money they get from informal jobs, 92 (37.1) noted that they mostly beg for food, while 24 (9.7%) mostly

get their food through scavenging. However, the street children get food using all the means (purchasing, begging, and scavenging), but the frequencies show the main methods they each use to get food. For this reason, the fact that they can beg for food or scavenge to get food shows that not only are they food insecure, but they may also consume spoilt food which may cause them to experience diarrhoea and vomiting, and 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 freely bring them food occasionally. "There are some people who usually give us lunch every Wednesday" (4/3/2022, said one of the members of the FGD, while another street child from another base said that some well-wishers bring them food on Fridays. Nevertheless, since the food they receive from well-wishers is only enough to be eaten for one meal, and it is usually brought once per week, on average, it is not enough to meet their nutrition needs. Therefore, this shows that although they may get food, it is inadequate.

Likewise, the street children revealed that they mostly consume black tea, bread, *ugali* (a starchy dish made from maize flour), rice, and beans, day in, day out. This shows that their diet is not diverse since they mostly consume only one source of protein (beans), and three sources of carbohydrates (*ugali*, rice, and bread). Their meals rarely include fruits, vegetables, and animal protein. Therefore, the study participants are likely not getting all the needed macronutrients and micronutrients needed in adolescence since they lack diversity in their diet, yet a balanced and diverse diet is important in ensuring that all needed macro and micro nutrients are consumed. This finding is in

line with another study that showed street children have a low dietary diversity (3). Besides that, according to the FIES which is used to measure food insecurity, the study respondents are all experiencing severe food insecurity as 158 (76%) participants had a raw score of 8/8, and 50 participants (24%) had a raw score of 7/8. This finding is similar to other studies that have shown street children are generally food insecure since they cannot access food at all times (13). For instance, a study revealed that 70% of the homeless youth in their study were food insecure (14).

### **The Morbidity of Adolescent Street Children in Nairobi City.**

A majority of the respondents 188 (75.8%) had been sick in the past one month prior to the data collection, while 60 (24.2%) had not experienced any illness in that month. This finding is comparable to those of other studies that have shown presence of morbidity in street children. For instance, a study found out that all the sampled street children in the study had suffered some form of morbidity within the last year (15). Similarly, in another study, approximately 61.5% of street children had suffered from sickness in the last three months (4). In this current study, most of the respondents (54.8%) had experienced abdominal pain/constipation/diarrhea/vomiting in the past one month. This can be attributed to eating unhygienic 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 aforementioned illness in the past one month, 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 (8, 15). Additionally, the findings of the current study also showed that although 45.2% of the respondents said that they rarely fell ill, 32.3% and 22.6% of the respondents fell ill sometimes, and often, respectively. This can

be attributed to the fact that they live in unhealthy environments and lack adequate nutrition. Studies have shown that street children usually suffer from recurrent health problems because of poor nutrition and living in unhealthy environments (16).

### **CONCLUSION**

In conclusion, this study showed that a majority of the study participants had unacceptable/poor feeding practices and over half of the participants had suffered from some form of illness in the month before the data collection. Thus, this shows that adolescent street children are at a high risk of having unacceptable/poor feeding practices and a high risk of contracting diseases, and these increases their risk of malnutrition. Acceptable feeding practises promote good nutrition, and presence of diseases negatively affects one's nutrition status. Therefore, relevant stakeholders, like non-governmental and governmental organizations, should develop programmes that aim to ensure street children get adequate, safe, and nutritious food so as to improve their feeding practices. Additionally, community health workers should make health services easily accessible to street children so that they can get treatment from diseases to minimise the duration of illness, and preventive services to minimise occurrence of diseases. Health services can be made accessible to street children through community outreach programs.

### ***Declaration by Authors***

**Ethical Approval:** Approved by Kenyatta University Ethical Review Committee approval number PKU/2374/11511. Research permit was obtained from National Council of Science, Technology and Innovation (NACOSTI) Reference number NACOSTI/P/21/14466. The participation was voluntary. The researcher got assent from the adolescent street children who lived alone in the streets without their parents, and consent from the parents/guardians of adolescent street children who lived on the streets with their parents/guardians.

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**Conflict of Interest:** The authors declare no conflict of interest.

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