



(RESEARCH ARTICLE)



Nutritional assessment of parent-packed school lunches in selected private pre - schools in Kalingalinga, Lusaka Zambia

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Abstract

Background: The nutritional quality of parent-packed school lunches is crucial for the health and academic performance of children. In Lusaka's Kalingalinga area, there is limited data on the factors influencing these packed lunches, especially in private schools. This study explores the nutritional content of school lunches packed by parents, assesses their knowledge and attitudes towards nutrition, and identifies key factors influencing their food choices. **Methodology:** A quantitative and qualitative research design was employed, with data collected through structured questionnaires from 303 parents and guardians of children attending private schools in Kalingalinga, Lusaka. The demographic characteristics, knowledge of nutrition, and factors influencing food choices were analyzed using descriptive statistics, a 24-hour food frequency questionnaire (FFQ), and Chi-square tests. SPSS version 23.0 was used for data analysis. **Results:** The majority of respondents were female (67.0%) and within the 18-25 age group (39.3%). Most had completed secondary education (57.4%) and were employed full-time (67.3%). Despite 95.7% acknowledging the importance of nutrition, 78.2% lacked knowledge of the nutritional content of the foods they packed. Sugary drinks (54.5%) and processed foods (51.2%) were frequently packed, while balanced meals and fruits were less consistent. The main factors influencing food choices were cost (53.1%) and peer pressure (25.4%), with only 7.3% considering nutritional value. Chi-square tests showed that occupation had a marginal relationship with adherence to nutritional guidelines ($p=0.053$), while age and education had no significant association. **Conclusion and Recommendations:** The findings reveal a gap in parents' knowledge regarding nutrition, impacting the quality of school lunches. Targeted nutritional education and policies promoting healthier eating are recommended to improve children's health in Kalingalinga, Lusaka

Keywords: Nutritional quality; Parent-packed lunches; Food choices; Knowledge of nutrition

1. Introduction

According to a report by the World Health Organization (WHO 2020), good nutrition was essential for children's growth and development, and it played a significant role in their academic performance (WHO, 2020). Children spent a significant portion of their day in school, and research showed that children who consumed a nutritious diet were more likely to have better academic performance and cognitive function than those who did not (Florence et al., 2008).

Research has shown that children who ate school meals had better nutrient intakes than those who brought their lunch from home (Fox et al., 2009). Furthermore, children who brought their lunch from home tended to consume more calories, fat, and sodium than those who ate school meals (CDC, 2014). Therefore, while many parents chose to pack their children's lunches to ensure they ate a healthy and balanced meal during the day, the nutritional quality of parent-

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packed school lunches was unknown and might not have provided the necessary nutrients required for optimal health to achieve academic success.

Nutritional analysis of packed school lunches for children involves evaluating the nutritional value of meals provided to students in schools and ensuring that the lunches were healthy and balanced. This process involves analyzing the food content and determining whether the meal provided has adequate balance of protein, carbohydrates, fats, vitamins, and minerals (USDA, 2015).

Providing nutritious school lunches was critical, as it could impact the physical and mental health of children, as well as their academic performance. Schools might have provided packed lunches to students as an alternative to purchasing meals from the cafeteria, which allowed for greater control over the nutritional quality of the meals (Institute of Medicine, 2010). When preparing packed lunches, it was important to ensure that they were healthy and met the recommended dietary guidelines. This could involve a variety of fruits, vegetables, whole grains, lean proteins, and healthy fats (National PTA, 2019). Some schools might have provided nutritional analysis services to evaluate the nutrient content of packed lunches brought from home (CDC, 2018).

The purpose of this research proposal was to conduct a nutritional analysis of parent-packed school lunches in selected private schools in Lusaka Kalingalinga compound. The study was conducted in private schools because the schools generally had a diverse student population, and they had different lunch policies compared to public schools. This study aimed to evaluate the nutritional quality of the lunches and identify any gaps where improvements could be made to ensure that children were consuming a healthy and balanced meal.

1.1. Statement of the problem

Parent-packed school lunches have the potential to provide children with a healthy and balanced meal, but they could also be a significant source of unhealthy food choices (Hetherington *et al.*, 2015). A similar study was conducted by Evans *et al.* (2010) in the United Kingdom and found that packed lunches were less likely to meet national nutritional standards compared to school-provided lunches.

There is a growing concern about the nutritional quality of parent-packed school lunches, especially in private schools, where parents often had more control over what their children ate. This was supported by Erin *et al.* (2019), who conducted a study in Australia and found that private school students were more likely to have packed lunches that did not meet national nutrition standards compared to public school students.

This issue is critical, especially in Lusaka, where the prevalence of obesity and other diet-related health issues are increasing (WHO, 2013). The study conducted by the World Health Organization found that the prevalence of overweight and obesity among children under 5 years in Zambia increased from 5.6% in 2003 to 7.3% in 2013. This was probably caused by a lack of knowledge about the content of the packed lunches for school-going children. The current study would highlight and give a critical analysis of the packed lunch for children in private schools.

Lack of information prevented parents, schools, and policymakers from making informed decisions about the nutritional quality of these lunches. This study was aimed at investigating the nutritional quality of parent-packed school lunches in private schools of Lusaka's Kalingalinga compound, Zambia.

1.2. General objective

To assess the nutritional quality of parent-packed school lunches in selected private schools in Kalinga-linga, Lusaka, Zambia.

1.5 specific objectives

The specific objectives of this study were:

- To identify the factors that influences the nutritional quality of parent-packed school lunches in private schools in Kalinga-linga, Lusaka.
- To determine the nutritional content of parent-packed school lunches in selected private schools in Kalinga-linga, Lusaka.
- To compare the nutritional content of parent-packed school lunches across different private schools in Kalinga-linga, Lusaka.

2. Methodology

A cross-sectional study design with a quantitative approach was adopted in this study. The study was conducted in Kalingalinga compound, Lusaka, Zambia in selected private schools.

The target population were parents and/or guardians with school-aged children who attended these private schools in Kalingalinga and potentially other areas with similar demographic settings. The total population size was 1,317 children in 10 schools from which 307 were sampled using Slovin's formula for sample size calculation.

To determine how many children were to be sampled in each school, the study used a proportional allocation. This meant allocating the sample size to each school proportionally to the size of the school. The larger the school, the more children were sampled from that school. This approach helped to ensure that the sample was representative of the population in terms of the size of each school. Multi-stage sampling technique was used to sample the 307 children from the population. Parents/guardian of those children were then also sampled.

Data was collected using a food frequency questionnaire (FFQ) and 24-hour recall. A food frequency questionnaire is a tool used to assess the frequency and quantity of food intake over a specific period (Cade et al., 2004). The FFQ was used to gather information on the types of foods and drinks included in the packed lunches and how often they were consumed. This information was useful in determining the overall dietary pattern of the students and the adequacy of the nutrients provided in their lunches. The questionnaire asked participants to indicate how often they consumed various food items in a typical week, and responses were recorded on a five-point scale ranging from "never" to "three or more times per day." The data collected from the questionnaire could be used to assess the overall dietary pattern of an individual or a population and could help identify areas where dietary improvements might be needed.

A 24-hour dietary recall is a method used to assess dietary intake by asking participants to recall everything they ate and drank in the previous 24 hours (Thompson & Subar, 2013). This method was used to gather detailed information on the specific foods and drinks consumed by the students in their packed lunches. This information was used to calculate the nutrient content of the packed lunches and compare it with the recommended dietary allowances for children of their age and gender.

Raw data generated from the questionnaires was coded and then entered into Microsoft Excel for data entry, storage, processing. The cleaned data was then exported to statistical package for social sciences (SPSS version 23) for further analysis.

The proposal for this study was reviewed and approved by the Chreso University Ethics and Research Committee before the commencement of data collection. Prior to the research, the University produced a clearance letter. All participants were informed of the purpose of the study and what it involved through the informed consent form that was affixed to the questionnaire. In this form, participants were given the option to opt out of completing the questionnaire if they felt uncomfortable. The investigator undertook to treat the information provided during the study with the utmost confidentiality. The identities of the participants were not captured, and only a code supplied by the participant was used as an identifier. This ensured that the researcher kept his promises and avoided negligence in handling the information during the research.

3. Results

3.1. Demographic characteristics

The Demographic characteristics considered in this study included; age, gender, occupation level and whether they were guardians or parents to the child.

In Table 1, the demographic analysis reveals that the majority of respondents fall within the 18-25, [(119) 39.3%] of the total sample. Gender distribution, sample consisted of 203 (67.0 %) female and 100 (33.0%) male participants. Most respondents have completed secondary education, with 174 (57.4%) holding this level of education. In terms of occupation, a significant portion of respondents are employed full-time representing 204 (67.3%) of the sample. A majority of respondents, 227 (74.9%), indicated that they are parents or guardians.

The distribution of respondents across different schools shows that the majority are from Terethe School, which accounts for 38.9 of the total sample. Following this, firm land school has the second highest number of respondents, representing 15.5% of the participants.

Table 1 Demographic Characteristic of the respondents

| Variable | Category | Frequency | Percent |
|-----------------|-----------------|-----------|---------|
| Age Group | 18-25 | 119 | 39.3 |
| | 26-35 | 105 | 34.7 |
| | 36-45 | 77 | 25.4 |
| | 46-55 | 2 | 0.7 |
| | Total | 303 | 100.0 |
| Gender | Female | 203 | 67.0 |
| | Male | 100 | 33.0 |
| | Total | 303 | 100.0 |
| Education Level | Primary | 37 | 12.2 |
| | Secondary | 174 | 57.4 |
| | Tertiary | 92 | 30.4 |
| | Total | 303 | 100.0 |
| Occupation | Full-time | 204 | 67.3 |
| | Part-time | 2 | 0.7 |
| | Self-employed | 96 | 31.7 |
| | Unemployed | 1 | 0.3 |
| | Total | 303 | 100.0 |
| Parent/Guardian | No | 76 | 25.1 |
| | Yes | 227 | 74.9 |
| | Total | 303 | 100.0 |
| School | Chilayo | 11 | 3.6 |
| | Cyber | 11 | 3.6 |
| | Terethe | 118 | 38.9 |
| | Anna | 6 | 2.0 |
| | Glory of Christ | 41 | 13.5 |
| | Jopacame | 25 | 8.3 |
| | Golden Ground | 40 | 13.2 |
| | Firm Land | 47 | 15.5 |
| | Kalabalika | 4 | 1.3 |
| | Total | 303 | 100.0 |

Regarding what they packed as lunch for their children and whether they followed any guidelines, the following were the responses.

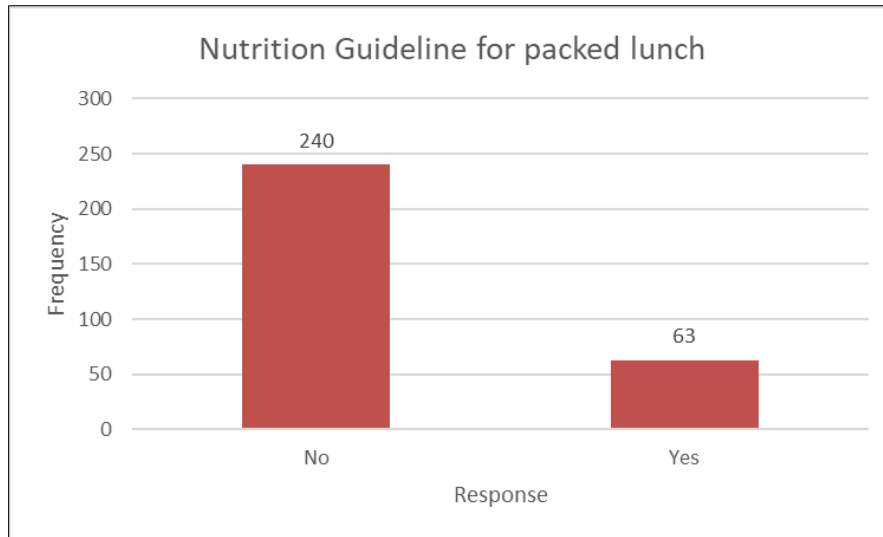


Figure 1 Detailed description of nutrition Guideline for packed lunch

The sample consisted of the majority of respondent with 240 who don't have nutrition guideline. In contrast, a smaller segment of the respondents, numbering 63, reported that they do follow nutritional guidelines.

Table 2 Frequency of Sugary Drinks and Balanced Diet in Children Packed Lunch

| Variable | Response | | | | | | | | | |
|----------------|----------|-----|-------|----|-------|------|--------|------|-----------|------|
| | Always | | Never | | Often | | Rarely | | Sometimes | |
| | n | % | n | % | n | % | n | % | n | % |
| Drinks | 17 | 5.6 | 1 | .3 | 165 | 54.5 | 40 | 13.2 | 80 | 26.4 |
| Balanced Meals | 10.0 | 3.3 | 1 | .3 | 33.0 | 10.9 | 54.0 | 17.8 | 205.0 | 67.7 |

The sample consisted of the majority of respondents with 165 (54.5%) who indicated that sugary drinks are often included. Regarding balanced meals, the sample consisted of 10 (3.3%) of parents indicating 'always' ensure that their children's lunches include a balanced meal, while a majority 205 (67.7%) reported "sometimes" including a balanced meal.

3.1.1. Frequency of fruits packed in children's school lunches

The sample consisted of a majority of parents, with 193 (63.7%) stating they 'sometimes' include fruits in their children's lunch. 'Often' was selected by 61 (20.1%) respondents, while 46 (15.2%) reported 'rarely' including fruits. Only 2 (0.7%) indicated 'never,' and just 1 (0.3%) respondent said they 'always' pack fruits. (N=303)

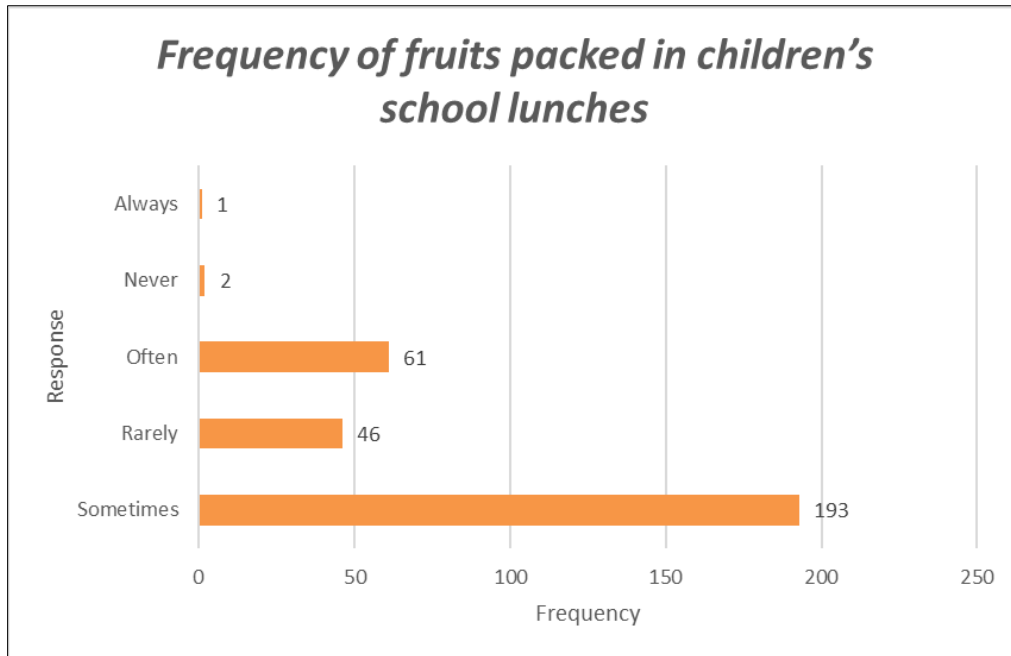


Figure 2 Frequency of fruits packed in the children's school lunch

3.1.2. Frequency of processed foods packed in children's school lunches

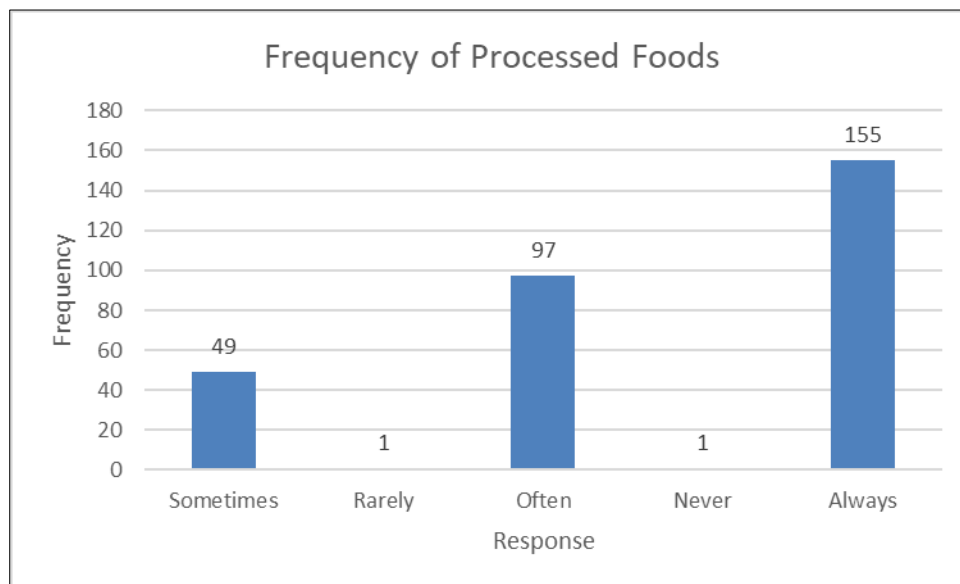


Figure 3 Frequency of processed foods in packed lunches

The sample showed that a majority of children, 155 (51.2%), 'always' have processed foods in their packed lunches. 'Often' was the choice of 97 (32.0%) respondents, while 49 (16.2%) indicated 'sometimes.' Only 1 (0.3%) child reported 'rarely' having processed foods. (N=303).

3.1.3. Frequency of meat pies packed in children’s school lunches

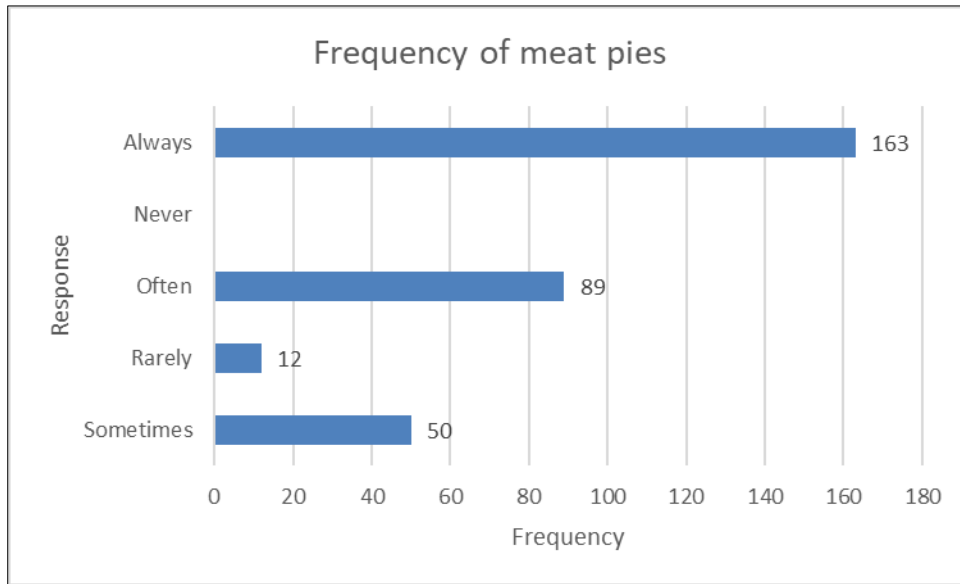


Figure 4 Frequency of meat pies packed in the children’s school lunch

The sample consisted of 163 (53.8%) children who 'always' have meat pies in their packed lunches, making it the most common frequency. 'Often' was selected by 89 (25.7%) respondents, while 50 (16.5%) indicated 'sometimes.' A smaller group, 12 (4.0%), reported 'rarely' including meat pies. (N=303) (Figure 4)

3.1.4. 24- hour recall of whether what was packed in children’s lunch box yesterday was enough

The sample consisted of 302 (99.7%) respondents who indicated that the lunch packed for their child the previous day was not enough. Only 1 (0.3%) respondent reported that the lunch was more than enough. (N=303).

Table 3 Frequency of whether what was packed in Children Lunch was enough

| Question | Response | Frequency | Percent |
|---|------------|-----------|---------|
| Did the child pack enough lunch yesterday | A lot | 1 | .3 |
| | Not Enough | 302 | 99.7 |
| | Total | 303 | 100.0 |

In response to the question, "Did the child pack enough lunch yesterday?" table 3 shows that only 0.3% of the respondents (1 individual) reported that their child had packed "a lot" of lunch, while an overwhelming 99.7% (302 respondents) indicated that their child did not pack enough lunch.

3.1.5. Parents/Guardians knowledge on Nutrition content of the foods packed in child’s lunch box yesterday

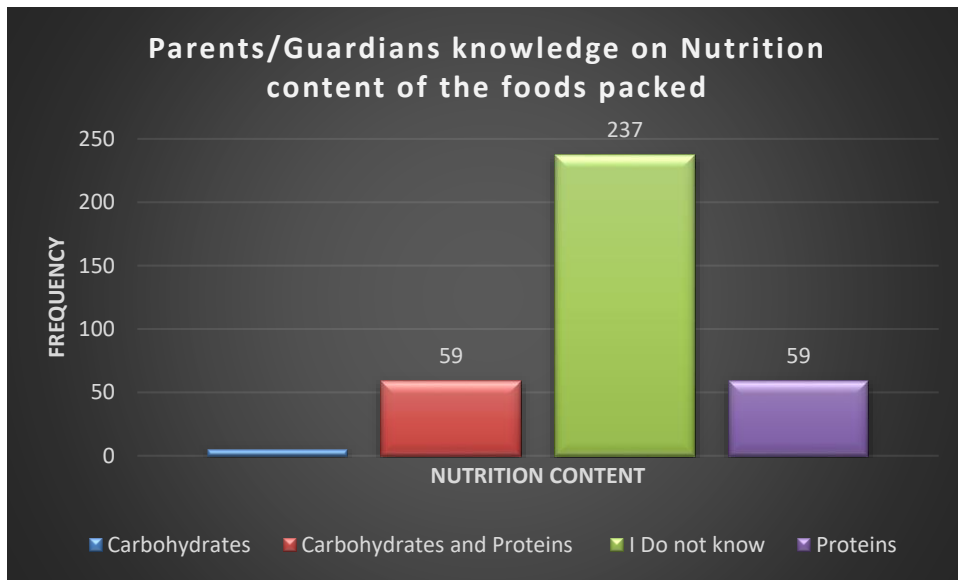


Figure 5 The frequency parents/guardians’ knowledge on nutrition content of the food packed in the children’s school lunch

The sample consisted of 237 (78.2%) parents/guardians who stated they 'don't know' the nutrition content of their child's packed lunch. Additionally, 59 (19.5%) said proteins, 5 (1.7%) mentioned carbohydrates, and 2 (0.7%) indicated both carbohydrates and proteins. (N=303).

3.1.6. Sources of information about Nutrition

Table 4 Frequency of the sources of the nutritional information

| Nutrition Information Source | Frequency | Percent |
|---------------------------------|-----------|---------|
| Asking Healthcare Professionals | 1 | .3 |
| My own understanding | 221 | 72.9 |
| Reading labels | 3 | 1.0 |
| Online resources | 78 | 25.7 |
| Total | 303 | 100.0 |

The sample consisted of 221 (72.9%) parents or guardians who rely on their own understanding as their main source of information. Online resources were the second most popular source, used by 78 (25.7%) respondents. Additionally, 3 (1.0%) respondents use food labels for information, while only 1 (0.3%) consults healthcare professional. (N=303)

3.1.7. Knowledge on nutrition requirements for school-going children

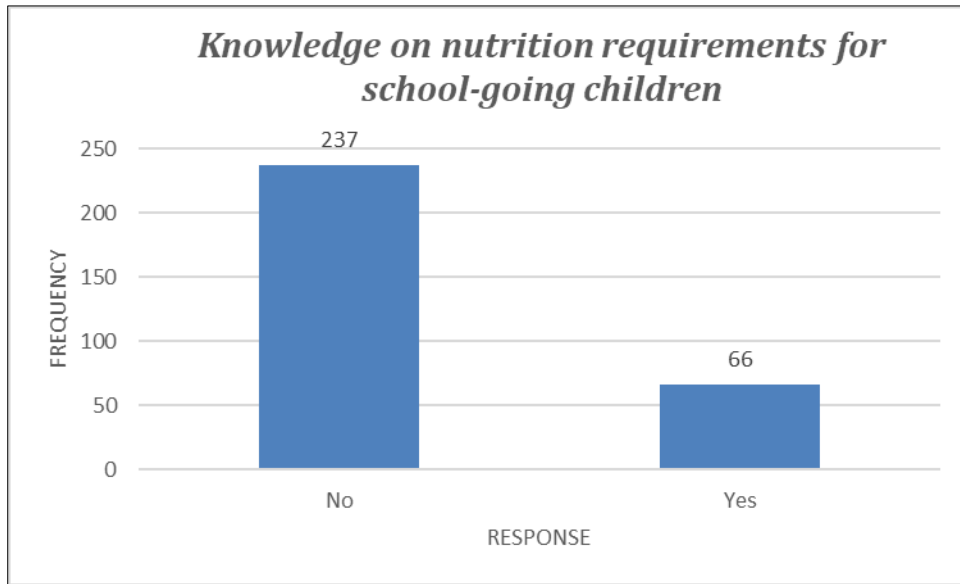


Figure 6 Frequency of knowledge on the nutrition requirements for school-going children

The sample consisted of 237 (78.2%) respondents who indicated that they do not have knowledge of nutrition requirements for school children, while 66 (21.8%) respondents stated that they do. (N=303)

3.1.8. Considerations on the nutrition content of the food packed

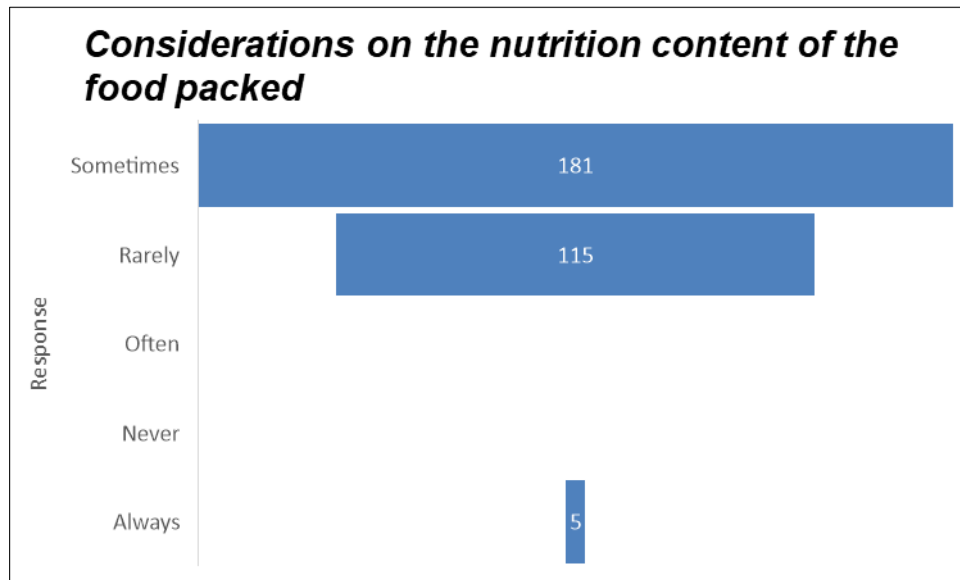


Figure 7 Frequency of the Considerations on the nutrition content of the food packed

The sample consisted of 181 (59.7%) respondents who 'sometimes' consider the nutrition content of the food packed, followed by 115 (38.0%) who 'rarely' do. Additionally, 5 (1.7%) respondents said they 'always' consider it, while none (0%) reported 'never' considering the nutrition content. (N=303).

3.2. Factors influencing food choices for school children packed lunch

The sample consisted of 161 (53.1%) respondents who identified cost as the predominant influence on food choices. Peer pressure was the next most influential factor, affecting 77 (25.4%) respondents. Additionally, 43 (14.2%)

respondents cited taste preference, while nutritional value was the least considered factor, indicated by 22 (7.3%) respondents. (N=303).

Table 5 Frequency of the Factors influencing food choices for school children packed lunch

| Factor | Frequency | Percent |
|-------------------|-----------|---------|
| Cost | 161 | 53.1 |
| Nutritional Value | 22 | 7.3 |
| Peer Pressure | 77 | 25.4 |
| Taste Preference | 43 | 14.2 |
| Total | 303 | 100.0 |

The data presented in Table 5 reveals that cost was the most influential factor for food choices, with 161 respondents (53.1%) indicating that the affordability of food played a major role in deciding what to pack for their child's lunch. Peer pressure was the second most common factor, influencing 77 respondents (25.4%), followed by taste preference, which was considered by 43 respondents (14.2%). Notably, only 22 respondents (7.3%) prioritized nutritional value when packing their child's lunch, highlighting a significant gap in the focus on healthy eating.

3.3. Types of food usually packed for lunch

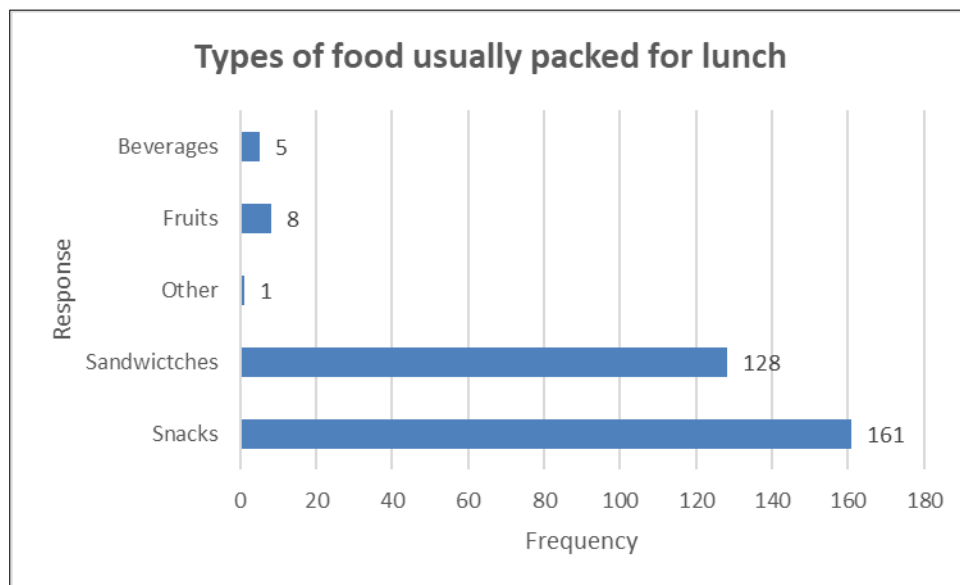


Figure 8 Frequency of the Types of food usually packed for lunch

The sample consisted of 161 (53.1%) respondents who usually pack snacks for lunch, followed by 128 (42.2%) who pack sandwiches. Additionally, 8 (2.6%) respondents pack fruits, 5 (1.7%) pack beverages, and 1 (0.3%) packs other types of food. (N=303).

3.4. Packing food based on child's preference

The sample consisted of 142 (46.9%) respondents who 'always' pack food based on their child's preference. 'Sometimes' was selected by 111 (36.6%) respondents, while 49 (16.2%) indicated they 'rarely' do. Only 1 (0.3%) respondent reported 'often' packing food based on their child's preference. (N=303)

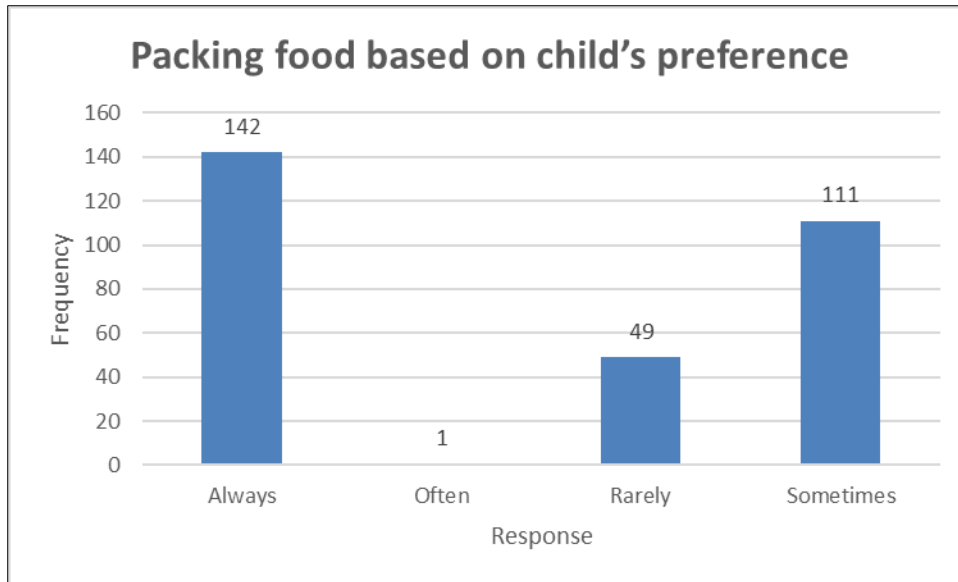


Figure 9 Frequency of the food packages based on child's preference

3.5. Awareness on Policies and guidelines on school feeding

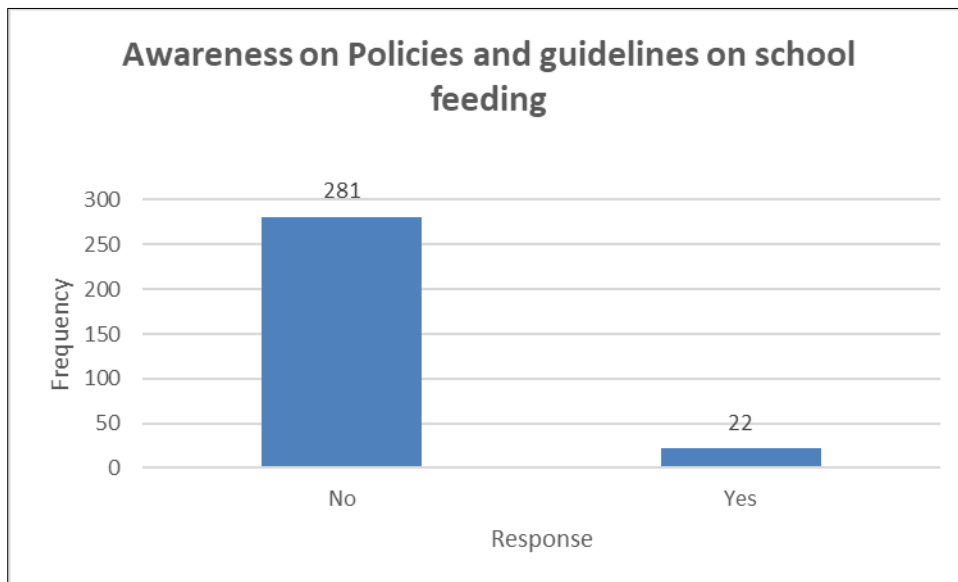


Figure 10 Policies and guidelines on school feeding

The sample consisted of 281 (92.7%) respondents who indicated that there are no policies and guidelines on school feeding, while 22 (7.3%) respondents said there are. (N=303)

The sample consisted of 261 (86.1%) respondents who indicated that the policies and guidelines on school feeding are not effective, while 42 (13.9%) respondents said they are effective. (N=303).

3.6. Education in nutrition

The sample consisted of 224 (74.0%) respondents who indicated that they have not received education in nutrition, while 79 (26.0%) respondents said they have. (N=303).

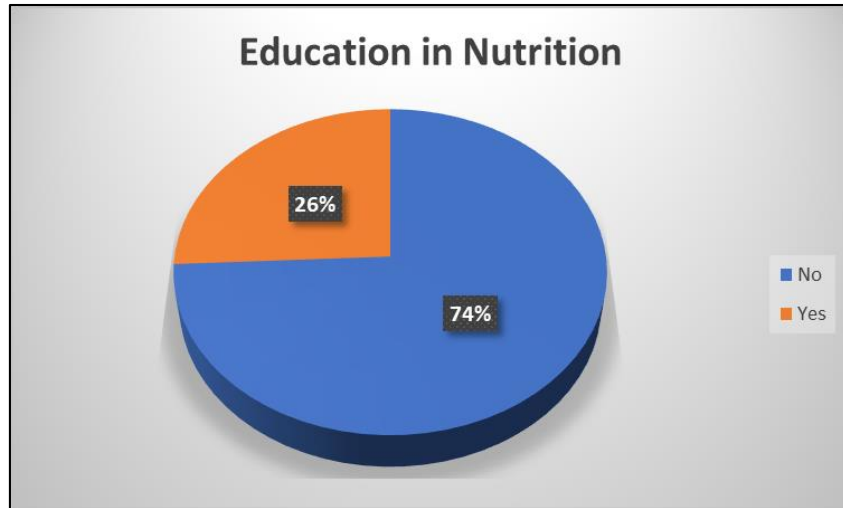


Figure 11 Education in nutrition

3.7. Other factors influencing content of pre-packed lunch for school-going children

Table 6 Other factors influencing content of pre-packed lunch for school-going children

| Factor | Frequency | Percent |
|-----------------------------|-----------|---------|
| Lack Knowledge on Nutrition | 232 | 76.6 |
| Limited Time for Meal | 71 | 23.4 |
| Total | 303 | 100.0 |

The sample consisted of 232 (76.6%) respondents who identified a lack of knowledge about nutrition as a key factor influencing the content of pre-packed lunches for school-going children. Limited time for meal preparation was noted by 71 (23.4%) respondents as another influencing factor. (N=303)

3.8. 24-hours Dietary Recall: description of the food items packed in your child's lunch yesterday

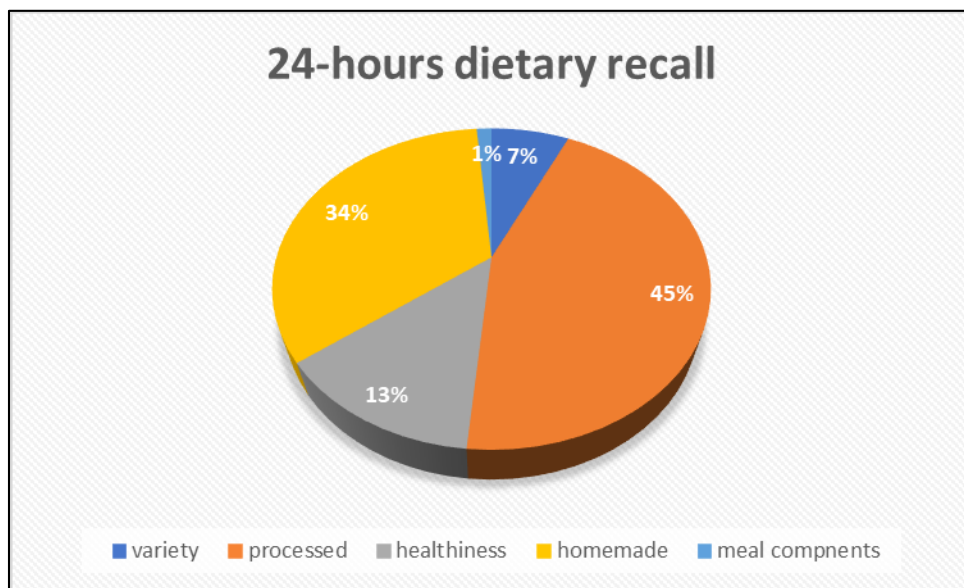


Figure 12 24-hour's dietary recall

The sample consisted of respondents who provided a detailed description of the food items packed in their child's lunch yesterday. A variety of food items was reported by 7.0% of the respondents, suggesting that these lunches included a diverse range of foods. A significant portion, 45.0%, reported that processed foods were included in their child's lunch, indicating a prevalent use of prepackaged or convenience foods. Additionally, 13.0% of respondents described the food as healthy, reflecting that a smaller percentage of the lunches were perceived as nutritionally beneficial. Homemade food items were noted by 34.0% of the respondents, demonstrating a considerable number of parents making an effort to prepare meals at home. Lastly, only 1.0% of respondents mentioned meal components, indicating that there was minimal emphasis on the specific parts of the meal. (N=303)

3.9. Relationship between knowledge on nutrition guidelines on packed lunches and demographic factors

Table 7 Relationship between knowledge on nutrition guidelines on packed lunches and demographic factors

| Variable | Category | Guidelines | | Total | P-value |
|-----------------|---------------|------------|-----|-------|---------|
| | | No | Yes | | |
| Age Group | 18-25 | 93 | 26 | 119 | 0.591 |
| | 26-35 | 82 | 23 | 105 | |
| | 36-45 | 64 | 13 | 77 | |
| | 46-55 | 1 | 1 | 2 | |
| Total | | 240 | 63 | 303 | |
| Gender | Female | 165 | 38 | 203 | 0.205 |
| | Male | 75 | 25 | 100 | |
| Total | | 240 | 63 | 303 | |
| Education Level | Primary | 33 | 4 | 37 | 0.246 |
| | Secondary | 137 | 37 | 174 | |
| | Tertiary | 70 | 22 | 92 | |
| Total | | 240 | 63 | 303 | |
| Occupation | Full-time | 168 | 36 | 204 | 0.053* |
| | Part-time | 1 | 1 | 2 | |
| | Self-employed | 71 | 25 | 96 | |
| | Unemployed | 0 | 1 | 1 | |
| Total | | 240 | 63 | 303 | |

The table above shows that apart from occupation which showed marginal relationship with the guidelines (**p=0.053**), all other demographic variables were not related to knowledge on guidelines

3.10. Relationship between nutrition content of food and demographic factors

The study found that age group significantly impacts knowledge of nutrition content in packed lunches, with a strong statistical association (**p=0.00**). In contrast, gender, education level, and occupation showed no significant relationship with nutrition knowledge, indicating that these factors do not greatly influence parents' or guardians' understanding of the nutritional content in the lunches they pack. Age is the only demographic factor that significantly affects this knowledge.

Table 8 Relationship between nutrition content of food and demographic factors

| Variable | Category | Knowledge on Nutrition Content | | | | Total | P-value |
|-----------------|---------------|--------------------------------|----------------------------|--------------|----------|-------|---------|
| | | Carbohydrates | Carbohydrates and Proteins | I don't know | Proteins | | |
| Age Group | 18-25 | 1 | 1 | 93 | 24 | 119 | 0.00 |
| | 26-35 | 1 | 0 | 82 | 22 | 105 | |
| | 36-45 | 2 | 1 | 62 | 12 | 77 | |
| | 46-55 | 1 | 0 | 0 | 1 | 2 | |
| Total | | 5 | 2 | 237 | 59 | 303 | |
| Gender | Female | 3 | 1 | 160 | 39 | 203 | 0.936 |
| | Male | 2 | 1 | 77 | 20 | 100 | |
| Total | | 5 | 2 | 237 | 59 | 303 | |
| Education Level | Primary | 0 | 0 | 34 | 3 | 37 | 0.435 |
| | Secondary | 3 | 1 | 136 | 34 | 174 | |
| | Tertiary | 2 | 1 | 67 | 22 | 92 | |
| Occupation | Full-time | 3 | 1 | 161 | 39 | 204 | 0.997 |
| | Part-time | 0 | 0 | 2 | 0 | 2 | |
| | Self-employed | 2 | 1 | 73 | 20 | 96 | |
| | Unemployed | 0 | 0 | 1 | 0 | 1 | |
| Total | | 5 | 2 | 237 | 59 | 303 | |

4. Discussion

The data highlights a varied pattern of sugary drink consumption among students in different schools. Some schools report a significantly higher frequency, with up to 64 students regularly consuming sugary drinks, while others show much lower rates. These findings are consistent with global concerns about increasing sugary drink consumption in children, reflected in studies conducted between 2014 and 2024. For example, a study by Smith et al. (2018) in South African urban schools found that over 60% of students consumed sugary drinks regularly, a trend linked to the increasing availability and marketing of such products. Likewise, Nguyen et al. (2020) observed a rise in sugary drink consumption in Southeast Asia, which has been associated with elevated risks of childhood obesity and diabetes.

In terms of balanced meal consumption, some schools also stand out, with a notable proportion of students reporting that they sometimes consume balanced meals. In one school, for instance, 83 out of 118 students indicated this behavior. However, the overall data shows that most students across all schools either rarely or occasionally eat balanced meals, revealing a gap in nutritional adequacy. This pattern reflects findings from other regions. For instance, Gibson et al. (2016) found that only 30% of packed lunches in UK schools met nutritional standards, with many lacking vegetables and whole grains. Similarly, Olson & Roberts (2019) observed that less than 25% of packed lunches in Canadian schools offered adequate nutrition based on national dietary guidelines.

Fruit consumption appears inconsistent as well, with many students occasionally including fruit in their lunches. In some schools, up to 74 students reported sometimes bringing fruit, while others had just one student doing so. This trend aligns with global findings of low fruit intake among school-aged children. For example, Wang et al. (2017) reported that less than 20% of Chinese children consumed the recommended daily servings of fruit, often replacing them with processed snacks. Similarly, Jones et al. (2021) highlighted a sharp decline in fruit consumption among U.S. schoolchildren between 2014 and 2024, with socioeconomic factors playing a role in dietary choices.

Processed food consumption, particularly meat pies, is frequent in many schools. Some institutions reported as many as 62 students always including meat pies in their lunches, reflecting a wider trend of reliance on processed foods. Murphy et al. (2015) found that processed meat-based snacks were prevalent in Irish school lunches, mainly due to convenience and taste preferences. Similar findings were reported by Adams & Brown (2023) in Australia, who emphasized the importance of parental education in promoting healthier food choices.

The frequency of processed food consumption also varies significantly across schools. One school recorded nearly half of its students (49.2%) packing processed foods regularly, while other schools had much lower figures, with only two or three students reporting regular processed food consumption. This disparity in packed lunch quality mirrors trends seen globally. For instance, Evans et al. (2016) reported that nearly 60% of packed lunches in the UK contained processed foods, contributing to higher intakes of unhealthy fats and sugars. Likewise, Smith et al. (2018) noted similar concerns in Australia regarding the high prevalence of processed items in school lunches.

Developing countries also face comparable challenges. Faber et al. (2017) found that processed foods were common in urban South African children's packed lunches, driven by parental preferences for convenience. In Kenya, Muthuri et al. (2019) observed a high prevalence of processed foods in school lunches in Nairobi. However, schools with active nutritional education programs reported reduced processed food inclusion. For example, Jones et al. (2020) found that Canadian schools with such programs saw a significant decrease in processed foods, suggesting that school policies and increased parental awareness can improve nutritional outcomes.

The high consumption of processed foods and sugary drinks, combined with inadequate fruit and balanced meal intake, raises concerns about the long-term health of students. These patterns reflect a global challenge in promoting healthier eating habits among school-aged children, underscoring the need for targeted interventions to improve the nutritional quality of school lunches (WHO, 2016). Addressing these dietary issues is essential for fostering healthier habits and reducing the risk of obesity and related health problems in the future.

Key factors influencing the nutritional quality of school lunches include parental knowledge of nutrition and time constraints. According to the data, 76.6% of parents admitted that their lack of nutritional knowledge affected the quality of the meals they packed. This is consistent with Johnson et al. (2016), who found that over 70% of South African parents lacked basic knowledge about balanced diets, leading to the frequent inclusion of processed foods. Similarly, Smith et al. (2020) highlighted that many urban Zambian parents often failed to include fruits and vegetables in their children's lunches, instead relying on high-carbohydrate and high-fat foods.

Time constraints also play a significant role, particularly for parents in urban areas juggling work and household responsibilities. Davis et al. (2018) found that limited time for meal preparation often led Nairobi parents to rely on convenience foods high in fats and sugars. This finding was echoed by Mbulo et al. (2022) in Lusaka, who reported that working parents were more likely to include processed foods in their children's lunches due to time pressures.

The nutritional quality of lunches varies across different schools, with some showing higher percentages of processed food inclusion due to both a lack of parental knowledge and time constraints. On the other hand, schools where processed food consumption was lower may have benefited from educational programs or different socioeconomic factors. Williams et al. (2019) found similar trends in Nigeria, where schools with greater parental engagement in nutritional education saw a reduction in the inclusion of unhealthy foods in lunches. Likewise, Chanda et al. (2023) in Lusaka found that more educated parents made healthier food choices for their children, significantly impacting the nutritional content of packed lunches.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

This research complied with the ethical standards set by the Chreso University Ethics and Research Committee (CUREC: Ref:2039-10-2023).

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