



Comparison of Nutritional Status of Under-Five Children between Two Different Socio-Economic Areas of Lusaka District-Chipata and Matero Compounds

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Abstract

According to the World Health Organization, over three million children under the age of five die each year from environment-related conditions, such as malnutrition, lack of access to clean water, and the risk of infections. To better understand this issue, a cross-sectional study was conducted to compare the nutritional status of under five children in two different socio-economic areas of Lusaka: Chipata and Matero compounds. The study aimed to assess the nutritional status of under five children, the socio-economic level of the parents, and the dietary history of the children.

Data was collected using a questionnaire and anthropometric measurements for 50 children, whose mothers/caregivers were also interviewed. The results showed that 16% of under five children in Chipata had severe acute malnutrition, while only 4% in Matero had this condition. On the other hand, 64% of children in Matero were well-nourished, compared to 48% in Chipata. Additionally, 64% of children in Chipata were stunted (16% severely stunted, 12% moderately stunted, and 36% mildly stunted), while 56% of children in Matero were stunted (28% severely stunted and 28% mildly stunted). The dietary history of the children revealed that Matero had a higher proportion of children who ate more than four meals a day (60%) compared to Chipata (36%).

The study also looked at the socio-economic status of the parents. Out of 50 mothers, 42% in Matero had completed a high level of education (36% college and 8% university), while 88% in Chipata had completed a low level of education (36% primary and 52% secondary). Moreover, Matero had a higher proportion of employed mothers (48%) and those who received a high monthly income (24%) compared to Chipata, which had only 16% employed mothers and 12% who received a high monthly income.

The study clearly indicates a strong relationship between the socio-economic status of the parents, the dietary history, and the nutritional status of the children. The findings highlight the urgent need to address the issue of malnutrition in under five children in these areas, particularly in Chipata where a higher proportion of children suffer from severe acute malnutrition and stunting. Targeted interventions should focus on improving access to clean water, nutritious food, and healthcare services, as well as addressing the underlying socio-economic factors that contribute to malnutrition. These efforts could save millions of lives and improve the overall health and well-being of children in these communities.

Keywords: Socio-economic status, Nutritional status, under five children.

Introduction

Children below the age of five experience a crucial phase of golden growth and development. Nonetheless, ensuring their optimal growth and development requires the presence of excellent nutritional support. It is imperative to pay particular focus to the nutritional status of children under five. The initial stride towards identifying the elements influencing the nutritional status of such children in a given area involves obtaining an outline of their nutritional condition (Nafi'a, Z. I., 2021). According to Mitsunaga and Yamauchi (2020), the nutrition status of children is an indicator of the level of development and future potential of the community. Despite some progress made over the last decade in child health and nutrition, Zambia still faces significant challenges in this area, with a large proportion of the population living below the poverty line and suffering from various deprivations such as lack of access to nutrition, education, health, water, sanitation, and adequate housing.

To address this issue, this study aims to determine the nutritional status of under-five children in two socio-economic areas of Lusaka and compare the results. Anthropometry is an easy tool for assessing nutritional status in individuals and communities and offers the advantages of objective evidence with relatively low technology. Malnutrition in children is a complex problem that involves biological, cultural, and socio-economic factors. Therefore, assessing the under-five nutritional status not only serves as a means for evaluating the health condition and survival of children but also provides an indirect measurement of the quality of life of an entire population.

Malnutrition is a global problem, which contributes to high levels of morbidity and mortality, especially in developing countries. Malnutrition is synonymous with protein-energy-malnutrition (PEM), signifying an imbalance between the supply of protein and energy and the body's demand for them to ensure optimal growth and function (Fanzo & Davis, 2021). The relationship between malnutrition and malaria is unclear, and under-nutrition is widely believed to be protective for malaria. However, both malnutrition and malaria are highly prevalent in young children of Sub-Saharan Africa, and the association between PEM and malaria continues to be controversial (Stephenson et al., 2000). Nutritional status is considered to be one of the major determinants of host resistance to infection, and malnutrition is estimated to cause about half of the world's 12 million annual deaths in children less than 5 years of age as well as substantial proportions of infectious disease morbidity (Katona & Katona-Apte, 2008).

Overall, this study is crucial for understanding the nutritional status of under-five children in Zambia and the factors that contribute to malnutrition. The findings will provide valuable insights into designing effective interventions to improve the health and well-being of this vulnerable population.

Review of Literature

Malnutrition remains a critical global problem, particularly in developing countries, where it contributes to high levels of morbidity and mortality. The issue of malnutrition is a significant public health concern, as it can affect the development and future potential of a community, especially the nutritional status of infants and children under five years of age (Black et al., 2013). According to Bahtia *et al.*, (2021), the nutritional status of children is a crucial indicator of a community's level of development and future potential. Malnutrition can lead to long-term physical growth and development deficiencies, resulting in high levels of illness and disability in adult life. Furthermore, a high prevalence of malnutrition can jeopardize future economic growth by reducing the intellectual and physical potential of an entire population (Niseteo&Hojsak, 2019).

It is therefore essential to understand the causes and effects of malnutrition to develop effective interventions that can mitigate the negative impact on individuals and communities. This literature review seeks to explore current research on malnutrition, including the different forms, causes, and consequences of malnutrition. The review will also examine current interventions aimed at addressing malnutrition, their effectiveness, and limitations.

In Zambia, malnutrition remains a significant issue, with 40% of children under five suffering from chronic malnutrition (either wasting or low weight-for-age) and 15% under five suffering from acute malnutrition (either wasting or low weight-for-height), according to the most recent demographic and health survey. Malnutrition in children has far-reaching consequences for human capital, economic productivity, and national development overall. The adverse consequences of malnutrition should be a significant concern for policymakers.

The statistics on malnutrition in Zambia are alarming. In terms of stunting rates, Zambia's malnutrition levels are among the highest in the world at 40%, with 5% wasted and 15% underweight. What's more, the rates of undernourishment have barely changed despite agricultural growth in the country during the last decade. Proper nutrition is a basic requirement for any life and plays an important role in promoting health as well as preventing undernutrition and malnutrition in human beings. Although this requirement is vital, Zambia continues to be one of 22 African countries with the highest burden of under-nutrition in children under the age of five

Malnutrition is a significant global health issue that affects both children and adults. According to Walker *et al.*, (2007b), Poverty and associated health, nutrition, and social factors prevent at least 200 million children in developing countries from attaining their developmental potential. Stunting, a condition characterized by reduced growth and development due to poor feeding and repeated infections, affects many under-five children globally. Estimated about 149 million children under the age of five are stunted globally (Putriet *et al.*, 2020).

Improved feeding practices, such as exclusive breastfeeding for the first six months and appropriate complementary feeding practices thereafter, have been shown to improve the nutritional status of children (Rodríguez-Cano *et al.*, 2020). Breastfeeding remains the healthiest and least expensive method of feeding infants, and it is associated with health benefits for both mother and child (Louis-Jacques & Stuebe, 2020).

Inadequate feeding practices during the weaning period are the major cause of malnutrition. Delayed supplementation is common in cultures where breastfeeding is the norm, leading to increased morbidity and mortality from diarrhea and pneumonia (Kramer *et al.*, 2001).

Research Objectives

General Objective

- To compare the nutritional status of under 5 children between two different socio-economic areas of Lusaka province, namely Chipata and Matero Compounds.

Specific Objectives

- To assess the nutritional status of under 5 children in Chipata and Matero Compounds.
- To assess the socio-economic status of the parents of the under 5 children in the two mentioned areas.
- To assess the dietary history of the under 5 children in Chipata and Matero Compounds.
- To compare the nutritional status of the under 5 children between Chipata and Matero Compounds, and determine any significant differences in malnutrition prevalence rates between the two areas.

Research Methodology

1. Research Design

This study utilized a cross-sectional research design, conducted over a two-month period from June 15 to August 15, 2019. The objective of the study was to assess the nutritional status of under-five children and their mothers/caregivers. Anthropometric measurements were taken, and a questionnaire was used to collect data. The data was then analyzed using SPSS v22 and Microsoft Excel to generate tables and charts.

2. Study Area

The study was conducted in the Matero and Chipata compounds.

3. Source of data

Data was collected from mothers/caregivers who brought their children to the under-five clinic at Matero and Chipata 1st level hospitals.

4. Sampling procedure

A simple random sampling method was employed to select 50 under-five children and their mothers/caregivers. Twenty-five children were selected from each of the two study areas, with children selected on the 5th count.

5. Sampling size

The sample size consisted of 50 under-five children and their mothers/caregivers.

6. Methods of Data collection

Data was collected using a questionnaire to gather qualitative information from the mothers/caregivers. Anthropometric measurements, such as weight for height, height for age, weight for age, and mid-upper arm circumference, were used to assess the nutritional status of the children. A 24-hour diet recall was also used to assess the dietary history of the children.

Equipment used for data collection included a Seca scale, MUAC tape, and a height or length board.

7. Tools for data analysis

Data was analyzed using Microsoft Excel 2016 to generate frequency tables and cross tabulations. The collected data was checked for uniformity, consistency, and accuracy. Content analysis was used to summarize qualitative data, while the limited quantitative data collected was manually coded for analysis. A laptop with the appropriate software was used to facilitate the data analysis process.

8. Ethical considerations

The study obtained ethical approval from the university and adhered to all ethical guidelines. Permission was sought from the respondents before conducting the interviews, and the privacy and confidentiality of their responses were ensured. Participation in the interviews was voluntary, and respondents were not coerced into providing information they were uncomfortable sharing. The rights of the respondents were respected throughout the study.

Data Analysis

1. Child's sex for Chipata and Matero

48%(12) female from matero 56%(14) from chipata and 52%(13)male from matero 44%(11) from Chipata.

2. Child's Age for Chipata and Matero

32%(8) were between 6-9 months from matero 20%(5) from chipata, 28%(7) were between 10-19 months from matero 40%(10) from chipata, 24%(6) were between 20-32 months from matero 36%(9) from chipata and 16%(4) were between 33-52 months from matero 4%(1) from chipata.

3. Age of mother/caregiver for matero and chipata

44%(11) were between 15-30yrs from matero 48%(12) from chipata, 56%(14) were between 31-45yrs from matero 48%(12) from Chipata and 4%(1) was between 46-60yrs from Chipata.

4. child's weight for Matero and Chipata

92%(23) weighed between 5-10kg from matero 92%(23) from Chipata, 8%(2) weighed between 11-29kg from Matero 4%(1) from Chipata and 4%(1) weighed more than 20kg from chipata.

5. Child's Height for Matero and Chipata shows

32%(8) had height between 40 -50cm, 48%(12) between 70-80cm, 20%(5) between 80-90cm from matero, 4%(1) between 40-50cm, 40%(10) between 70-80cm, 48%(12) between 80-90cm and 8%(2) from 90-100cm from chipata.

6. Marital status of mother/caregiver for Matero and Chipata

68%(17) were married from matero 60%(15) from chipata 32%(8) were single from matero 32%(8) from chipata and 8%(2) were divorced from chipata

7. Education level of mother/caregiver for Matero and Chipata

16%(4) only completed primary of education from matero 36%(9) from Chipata, 40%(10) only completed secondary level of education from matero 52%(13) from chipata, 36%(9) completed college level of education from matero 8%(2) from Chipata, 8%(2) completed university level of education from matero 4%(1) from chipata.

8. family size for matero and chipata

36%(2) were 2 in household from matero 52%(13) from chipata, 24%(6) were 3 in household from matero 12%(3) from chipata, 20%(5) were 5 in household from matero 20%(5) from chipata, 12%(3) were 5 in household from matero 16%(4) from chipata and 16%(4) were 6 in household from matero 8% from chipata.

9. Height for age for Matero and Chipata

28%(7) were mildly stunted from matero 12%(3) from chipata, 28%(7) were moderately stunted from matero 36%(9) from chipata, 44%(11) were not stunted from matero 28%(7) from chipata, 16%(4) were severely stunted from chipata and 8%(2) were slightly taller.

10. Weight for height Matero and Chipata

4%(1) had severe acute malnutrition from matero 16%(4) from chipata, 16%(4) had moderately acute malnutrition from matero 20%(5) from chipata, 64%(16) had a normal nutrition status from matero 52%(13) from chipata and 16%(4) were overweight from matero 8% from chipata, 4% were obese from Chipata.

11. MUAC for Matero and Chipata

4%(1) were severely malnourished from matero 16%(4) from chipata, 16% were moderately malnourished from matero 24%(6) from chipata, 64%(16) were well nourished from matero 48%(12) from Chipata and 16% were overweight from matero 12%(3) from chipata.

12. Occupation for matero and chipata

44%(11) were self-employed from matero 56%(14) from chipata, 48%(12) were employees from matero 16%(4) from chipata and 8%(2) were neither self-employed nor employees from matero 28%(7) from Chipata.

13. Monthly income for Matero and Chipata

4%(1) received <k1000 per month from matero 16%(4) from chipata, 44%(11) received between k1000-k3000 from matero 48%(12) from chipata, 24%(6) received between k3000-k5000 from matero 24%(6) from chipata, 24%(6) received between k5000-k10,000 from matero 12%(3) from chipata and 4%(1) received more than k10,000 from Chipata.

14. meal frequency for Matero and Chipata

40%(10) ate 3 times a day from matero 64 % (15) from chipata, 60 % (16) ate 4 or more times a day from matero 36%(9) from chipata.

15. Breakfast for Matero and Chipata

36%(9) ate porridge with groundnuts in the morning from matero 60%(15) from chipata, 24%(6) ate tea with bread from matero 20%(5) from Chipata , 24%(6) ate porridge with peanut butter from matero 8%(2) from chipata, 4%(1) ate rice with sugar from matero 8%(2) from chipata, 12%(3) ate porridge + breast milk from matero 8%(2) from Chipata.

16. Lunch for matero and chipata

32%(8) ate Nshima with relish and vegetables in the afternoon from matero 84%(21) from Chipata, 36%(9) ate porridge with groundnuts from matero 4%(1) from Chipata, 16%(4) eat rice with soup from matero 4%(1) from chipata, 4%(1) from ate tea with bread and 12%(3) eat porridge + breast milk from matero 8%(2) from Chipata.

17. Supper for matero and chipata

4%(1) ate tea with bread in the evening from matero 12%(3) from chipata, 16% ate Nshima with relish + vegetables from matero 24%(6) from chipata, 40% ate porridge with groundnuts from matero 40%(10) from chipata, 28% ate rice with soup from matero 16%(4) from chipata and 12% ate porridge + breast milk from matero 8%(2) from chipata.

18. Snacks for matero and chipata

36%(9) from matero 20%(5) from chipata, 16%(4) ate sour from matero 20%(5) from chipata and 36%(9) ate biscuits, sour and a fruit from matero 28%(7) from chipata.

19. source of drinking water

76%(19) used piped water from matero 92%(23) from chipata, 24%(6) from matero used water from the borehole/well on site 8%(2) from chipata.

20. water treatment for matero and chipata

88%(22) treated their water for drinking all the time from matero 48%(12) from chipata, 8%(2) only treated sometimes from matero 16%(4) from chipata and 4%(1) didn't treat their water from matero 36%(9) from chipata.

21. Method of water treatment

45%(11) boiled their water for drinking from matero 50%(9) from chipata, 50%(13) used chemicals from matero 38%(7) from chipata and 4%(1) didn't treat their water from matero 11%(2) from chipata.

Discussion of Findings

The study findings revealed that there was a difference in the nutrition status of children in Matero and Chipata compounds. Matero had a higher proportion of children who were not stunted compared to Chipata, while Chipata had a higher proportion of stunted children. This difference may be attributed to the low monthly income of parents in Chipata, resulting in most children having only 2-3 meals a day. This finding highlights the need for programs to improve the nutrition status of children in Chipata.

Furthermore, the study found that Matero had a higher proportion of children with a normal nutrition status (64%) compared to Chipata (53%). In contrast, Chipata had a higher proportion of children with severe acute malnutrition (16%) compared to Matero (4%). The poor feeding patterns in Chipata, where children eat imbalanced meals, may be responsible for this finding. Thus, there is a need for maternal counseling on the importance of a balanced diet for children.

Moreover, the study found that Chipata had a higher proportion of underweight children (16%) compared to Matero (4%), while Matero had a higher proportion of well-nourished children (64%) compared to Chipata (48%). The low meal frequency in Chipata may be responsible for this finding. Hence, mothers should be encouraged to provide more meals to their children, with a focus on high protein, energy, fruits, and vegetables. Chipata 1st level hospital can also ensure that all underweight children receive High Energy Protein Supplement (HEPS).

The results also indicated that the education level of parents had an effect on the nutrition status of children. Most of the stunted children had parents with low education levels, highlighting the importance of health facilities and hospitals in providing counseling in a language that the mother or the person being spoken to can understand. The provision of visual aids can also improve understanding.

Furthermore, the study found a strong relationship between weight for height and monthly income. Most of the children with severe acute malnutrition had parents with low income, while

the majority of well-nourished children had parents with higher monthly income. From the data analyzed, only 6% received an income between K5000-K10,000 in Chipata compared to 24% in Matero. This finding reinforces the need for programs that address the economic situation of families in Chipata.

Finally, marital status was found to have an effect on the nutrition status of children. Most of the single mothers had malnourished children, while most of the married mothers had well-nourished children. This finding suggests that children may benefit from support provided by both parents.

Conclusion

In conclusion, this study has highlighted the importance of factors such as monthly income, education level, marital status, and meal frequency in determining the nutrition status of under five children. The findings showed that there is a relationship between these factors and the nutrition status of children in the study area. Specifically, Chipata compound had a higher prevalence of malnutrition among under five children, and this was attributed to factors such as low monthly income, low education level of parents, and low meal frequency. On the other hand, Matero had a higher proportion of well-nourished children, which was attributed to factors such as high monthly income, high education level of parents, and high meal frequency.

Overall, this study highlights the need for a multi-sectoral approach to addressing malnutrition in under five children, with a focus on addressing the underlying social determinants of health such as income, education, and marital status. By taking a holistic approach to improving the nutrition status of under five children, we can ensure that every child has the opportunity to reach their full potential.

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