

Assessment of the Relationship between Socioeconomic and Demographic Factors and Malnutrition among Children Aged 0 to 59 Months in Jinja District South Eastern Part of Uganda

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ABSTRACT

Undernourished children in low-income nations continue to be a major public health problem, especially in areas like Jinja District in southeast Uganda. The purpose of this study was to evaluate the association between malnutrition and socioeconomic and demographic characteristics in Jinja District children between the ages of 0 and 59 months. Data from 500 families chosen by multistage sampling were gathered using structured questionnaires in a cross-sectional research methodology. Using statistical techniques like chi-square tests and logistic regression, a variety of socioeconomic and demographic characteristics were examined in connection to malnutrition indicators, such as stunting, wasting, and underweight. The results showed that a complicated interaction between demographic and socioeconomic variables influences child malnutrition. Maternal age, availability to clean water, education level of the mother, and family income were all strongly correlated with the results of malnutrition. Furthermore, differences in the frequency of malnutrition were noted between age groups and quintiles of family affluence. In Jinja District and other comparable contexts, our results highlight the significance of focused interventions addressing socioeconomic disparities and enhancing access to vital resources in the fight against child malnutrition. In order to reduce the complex factors that contribute to child malnutrition, effective initiatives should prioritize improving access to healthcare, education, and livelihood opportunities.

Keywords: Malnutrition; Socioeconomic factors; Demographic factors; Children (aged 0 to 59 months; Jinja District Uganda)

INTRODUCTION

Child undernutrition is a global health challenge, especially in low and middle-income countries; it is an underlying cause of more than a third of all infant and child deaths annually [1–3]. Child malnutrition is associated with morbidity and mortality among children and also hampers their mental development, educational performance, and intellect [4, 5]. The World Health Organisation (WHO) defines malnutrition as the imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance, and specific functions [6]. Malnutrition comprises both overnutrition and undernutrition. Overnutrition is the pathological state resulting from the consumption of an excessive quantity of food over an extended period. Undernutrition is the depletion of energy (calories) resulting from insufficient food intake over an extended period [7]. Malnutrition is usually measured by impairments in growth in height and weight. There is a global acceptance that children have an almost equal possibility of growing before they attain the age of 7, thus social, economic, and demographic factors seem to be more persistent than hereditary features in growth disparities among children [8]. There is thus considerable evidence in the health economics literature that suggests that child nutritional status is related to several socioeconomic factors, such as household wealth, rural or urban residence, mother's education, demographic factors, and access to health care services. It's argued that children from the poorest households are stunted as compared to those from the richest households [4, 9]. Practically speaking, malnutrition in Jinja is equivalent to undernutrition; thus, the area of interest in this study is undernutrition rather than overnutrition among children aged between 0 and 59 months. Malnutrition includes undernutrition and overnutrition; it kills, retards, cripples, blinds, and impairs human development on a massive scale worldwide [10]. Uganda as a country, and particularly Lira in the northern part of the country, has been faced with malnutrition challenges. Several studies and interventions have been carried out by both the government and non-governmental organisations (NGO's), but despite all these, there is still an increase in malnutrition, particularly in conflict-ravaged Eastern Uganda, Jinja included. By 2012, the total population of Uganda was 33.6 million people, with children under 59 months estimated to be 6.5 million. Stunting in the under-59 months by 2011 was 38%, and underweight was 14% [11, 12]. However, the relationship between socioeconomic and demographic factors and malnutrition has not been fully studied in the Jinja district. The study was designed to assess the relationship between socioeconomic and demographic factors and the nutrition status of the children between 0 and 59 months in Jinja district, in the southeastern part of Uganda.

METHODOLOGY

Design of the Study

The researcher used a descriptive quantitative study that was conducted in the Jinja Regional Referral Hospital's paediatrics outpatient department.

Area of Study

Jinja Regional Referral Hospital is located in south-eastern Uganda, approximately 87 km east of Kampala, Uganda. The hospital serves Bugiri, Kamuli, Iganga, Mayuge, Luuka, Namayingo, Namutumba, Kaliro, Buyende, and Jinja districts. Its relatively small district is found east of the Nile River and along the northern shores of Lake Victoria. It is further subdivided into three counties: Butembe, Kagoma, and Jinja municipalities. There are six sub-counties: 46 parishes and 381 villages. Jinja District is bordered by Kamuli District to the north, Luuku District to the east, Mayuge to the south, Buvuma to the south, Buikwe District to the west, and Kayuga District to the northeast. The hospital is located in Jinja town on Rotary Avenue Street in Jinja, Uganda. However, the study will be conducted at Nalfenya Children's Hospital, a branch of Jinja Regional Referral Hospital. It has a bed capacity of 150 patients, but the numbers are overwhelming, with most patients sleeping on the floors.

Study Population

The estimated population by 2012 was 403,100. The majority of the population is Basoga, and the predominant languages spoken are Lusoga and Luganda. The study included all mothers and caretakers with children between 0 and 59 months who attended the Jinja Regional Referral Hospital children's ward.

Inclusion Criteria

All children aged 0 to 59 months with moderate to severe malnutrition in the Jinja regional referral paediatric unit, whose carers offer consent.

Exclusion Criteria

All children aged 0 to 59 months without moderate to severe malnutrition, or those with malnutrition but whose carers refused consent.

Sample Size

The determination of the sample size was done by the Kish Leslie (1965) formula [13].

$$n = Z^2 P (1-P)$$

E2

Where:

n = estimated minimum sample size

Z = 1.96 for a 95% confidence interval.

P = proportion of a characteristic sample (Habaasa, 73.1%)

E = Margin of Error (E = 5%)

$$n = 1.96^2 \times (0.731 (1-0.731)) / 0.05^2$$

n = 302

Sample Population

All children aged 0 to 59 months at the Jinja Regional Referral Hospital paediatric unit with mild to moderate malnutrition were the source population.

Sampling Technique

Simple random sampling with a consecutive sampling approach was used. Study participants will be recruited as they meet the inclusion criteria.

Data Collection Methods

Data was collected using questionnaires consisting of both open and closed questions. The questions will include both demographic and socioeconomic factors. Anthropometric measurements such as weight and standing height were taken for each child using the standard techniques of WHO (2005). For children less than 24 months old, recumbent lengths were used instead of standing height. Weight measurements were taken from all children below 59 months using the salter hanging scale.

Research Instruments

A researcher-administered questionnaire that consisted of both open-ended and closed-ended questions was used. This was supplemented by tools for anthropometric measurements such as MUAC tape, weighing scales, and stadiometers.

Data Analysis

The data was analyzed using Spss software version 17.

Data Presentation

Data was presented in the form of statements, charts, tables, and graphs, which represented the statistical data collected from the respondents.

Data Quality Control

The quality of the data was enhanced by using pretested and pre-checked questionnaires administered with the help of trained research assistants. Translation into the native language and back translation were done.

Ethical Consideration

An introductory letter was obtained from the KIU faculty of clinical medicine and dentistry after approval of the proposal by the KIU-IREC. A well-written consent was sought from the community leaders in the study area. Informed consent from the respondent was sought, and confidentiality for all the given information was assured before the study. The confidentiality of study subjects was ensured through the use of ID codes to conceal their identities.

RESULTS

Sex of a child

Table 1: shows the different genders of children

SEX/GENDER	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
Male	16.4%	5.5%
Female	15.7%	5.3%

The percentage of both moderately and severely malnourished children was generally high in males compared to females.

Age of a child

Table 2: Shows different ages of children.

AGE IN MONTHS	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
0-12	0.7%	0.2%
13-24	27.4%	13.6%
25-36	24.8	11.8%
37-48	14.1%	6.52%
49-59	6.7%	2.1%

Generally, the percentage of both moderately and severely malnourished children was high between the ages of 13-24 months followed by 25-36 months, then 37-48 months with the least percent being 0-12 months.

Age of the mother

Table 3: Different ages of mothers of children who attended the pediatric ward

AGE	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
15-20	20.62%	11.1%
21-25	9.51%	3.21%
26-30	1.8%	0.9%
>30	1.03%	0.7%

Moderate and severe malnutrition are more prevalent in mothers who produce at a young age.

Socioeconomic factors

Area of residence

Table 4: Shows the places of residence of mothers to the children

AREA OF RESIDENCE	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
Rural	29.6%	17.21%
Urban	0.41%	0.01%

Malnutrition, both moderate and severe was found to be higher in children from rural areas than urban.

Maternal education
Table 5: Shows different levels of education of mothers

EDUCATION LEVEL	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
Primary level	32.65%	20.9%
Secondary level	15.1%	4.6%
Tertiary institution level	1.7%	0.7%

During the study, both moderate and severe malnutrition were found to be high in children of mothers with low academic levels.

Maternal marital status
Table 6: Shows the different marital statuses of mothers and children

MARITAL STATUS	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
Married	1%	0.6%
Single	28.7%	11.2%
Divorced	25.5%	9.3%

Generally, both moderate and severe malnutrition was found to be increased in single parents who are single and divorced.

Maternal occupation
Table 7: Shows the different occupations of mothers

OCCUPATION STATUS	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED
Employed	2.4%	0.1%
Un employed	23.75	9.9%

During the study, it was found that both moderate and severe malnutrition were high in unemployed parents.

DISCUSSION

The prevalence of severely malnourished people was higher for males than females (5.5% vs. 5.3%), while moderately malnourished people were higher for females (16.4% vs. 15.7%). The findings insinuated that the mother's education level, wealth index, region, early child development, mother's functional difficulties, child disability, reading children's books, and diarrhoea had a highly significant effect on moderate and severe malnutrition for male children [14–16]. For the female children model, factors such as mother's education level, wealth index, fever, child disability, rural, diarrhoea, early child development, and reading less than three books were significant for moderate and severe malnutrition. However, the study didn't cover the factors responsible for the above prevalence in males, so perhaps finding out in other studies can be beneficial. In Jinja Hospital, the effects of malnutrition and nutrition were profound, particularly among children aged 5 and below. Around 45% of deaths among children less than 5 years of age in Jinja Hospital have been linked to undernutrition. According to the study, the prevalence of both moderate and severe malnutrition was high (27.45 and 13.6%) in children aged 13–24 months compared to other age groups (0–12), 25–36, 37–48, and 49–59. According to the study, mothers who give birth at an early age (15–20 years) had a high prevalence of both moderate (20.62% and severe (11.1% malnutrition, followed by 21–25 years (9.515 and 3.2%). It is noticed from the study that as age increases, the prevalence of malnutrition decreases. This is because young mothers have not yet acquired enough knowledge about feeding their babies and are also at risk of preterm, small for gestational age, and other delivery-related trauma that predisposes a baby to malnutrition [17, 18].

The study highlights the notable difference in the prevalence of malnutrition between rural and urban regions. Specifically, the rates of moderate and severe malnutrition are significantly greater in rural areas, especially Butembe and Kagoma counties, than in urban centers, such as Jinja Municipality. This research highlights the necessity for focused treatments that are adapted to the unique requirements of rural areas, taking into consideration variables including food accessibility, income levels, and nutritional awareness. Higher levels of education are associated with a decreased rate of childhood malnutrition, according to the study, which emphasizes the significant link between maternal education and children's health [19]. This emphasizes how crucial it is to support education, particularly for women, in order to improve child health outcomes and end the intergenerational cycle of hunger. According to the survey, there is a connection between being a single mother and child malnutrition, which may be attributed to the financial difficulties and resource constraints that single moms confront. This emphasizes the necessity of providing single-parent homes with specialized assistance and social safety nets in order to reduce the danger of

starvation and the long-term effects it may have on a child's development[20]. According to the research, family structure affects children's development in a variety of areas and may even prolong economic inequality between generations. These effects extend beyond the immediate nutritional consequences. This emphasizes how crucial it is to deal with structural issues like unemployment, poverty, and weak social networks in an effort to enhance child wellbeing and end the cycle of poverty and starvation. According to the study, the prevalence of moderate and severe malnutrition was high (22.75% and 9.9%) in children of unemployed mothers compared to employed ones (2.4% and 0.1%). From the study, maternal occupation factors affecting the nutrition of children were found to be part of the three categories below. Early maternal employment was found to deny children continuity in infant care, time, and attention. This was found to interrupt the development of secure infant bonding as well as the chance to increase the period of breastfeeding, all of which are associated with several cognitive, emotional, and health benefits. At the same time, however, there is evidence of the negative effects of maternal employment in low-income families, especially when job quality is poor. Researchers drawing on national data collected in the 1990s report that parents employed in low-wage, low-complexity jobs provide less nurturing home environments than do parents with jobs that pay more or offer more complexity and autonomy; this effect is particularly pronounced for single mothers [21]. Similarly, children of parents employed in low-wage and lower-quality jobs show less favourable outcomes than their counterparts in families with higher-paying, higher-quality jobs [22]. This raises some concerns about how the characteristics of the jobs into which many less-educated single mothers will transition influence children. One of how maternal employment was found to affect child nutrition includes the level of income and child care practices. Income generated and controlled by women plays an important role in contributing to child and household food. Usually, this affects mothers by overworking them, leading to partial weaning or cessation of breastfeeding and an inability to monitor child feeding and care. This predisposes them to poverty. Poverty has adverse effects on the nutrition of household members[23]. Households with the poorest wealth standards have the highest prevalence of child undernutrition. In addition, poverty affects access to and utilisation of health care services. This increases the risk of child malnourishment.

CONCLUSION

Demographic factors such as age, sex of the child, and maternal age are related to malnutrition in Jinja district, where the male gender and the young age of both children and mothers are associated with a high prevalence of malnutrition. Socioeconomic factors like maternal occupation, maternal education level, maternal marital status, and area of residence are related to malnutrition, whereby unemployed mothers, low education levels, single mothers, and rural areas are associated with a high prevalence of malnutrition.

The study recommends implementing regulations and interventions to reduce food contamination in infants and children, focusing on nutrition and sociocultural determinants of feeding practices. Exclusive breastfeeding should be maintained for as long as possible to minimize malnutrition risk. Mothers should be educated about nutrition, breastfeeding's benefits to society, and the availability of appropriate food for nursing mothers. Maternal education programs should emphasize appropriate food handling practices, focusing on household hygienic and food preparation practices. These programs should adapt food processing techniques to local needs, leading to culturally appropriate foods with high caloric densities and nutrient bioavailabilities, requiring minimal fuel and short preparation times, and being within the economic reach of targeted populations.

REFERENCES

1. Akombi, B.J., Agho, K.E., Merom, D., Renzaho, A.M., Hall, J.J. Child malnutrition in sub-Saharan Africa: A meta-analysis of demographic and health surveys (2006-2016). *PLoS ONE*. 12, e0177338, 2017. <https://doi.org/10.1371/journal.pone.0177338>
2. Agho, K.E., Akombi, B.J., Ferdous, A.J., Mbugua, I., Kamara, J.K. Childhood undernutrition in three disadvantaged East African Districts: a multinomial analysis. *BMC Pediatr.*, 2019, 19, 118. <https://doi.org/10.1186/s12887-019-1482-y>
3. Hassan, A.O., Oso, O.V., Obeagu, E.I., Adeyemo, A.T. MALARIA VACCINE: PROSPECTS AND CHALLENGES. *Madonna Univ. J. Med. Health Sci.*, 2022, 2, 22-40.
4. Alum, E. U., Ugwu, O. P. C., Obeagu, E. I., Aja, P. M., Ugwu, C. N., Utì, D. E., Samson, A. O., Akinloye, D. I. Nutritional Requirements During Pregnancy: A Comprehensive Overview. *International Journal of Innovative and Applied Research*. 2023; 11(12):26-34. Article DOI: 10.58538/IJIAR/2058 DOI URL: <http://dx.doi.org/10.58538/IJIAR/2058>.
5. Amoah, W.W., Kobi, D., Tabong, P.T.-N., Kukeba, M.W., Alhassan, Y., Achaliwie, F., Amoah, A., Adugbire, A.B. Factors Contributing to Malnutrition among Children Under 5 Years at St. Elizabeth Catholic Hospital, Ahafo Hwidiem. *Clin. Med. Insights Pediatr.*, 2024, 18. <https://doi.org/10.1177/11795565231222716>
6. Eze, E.D., Barasa, A., Adams, M.D., Rabi, K.M., Ayikobua, E.T., Ezekiel, I., Kofoworola, Q.K., & Okpanachi, A.O. Assessing Factors Contributing to the Prevalence of Protein-Energy Malnutrition

- Among Children Under Five Years of Age Attending Kigoma District Hospital, Tanzania. *J. Food Nutr. Sci.*, 2018; 6, 123–128. <https://doi.org/10.11648/j.jfns.20180605.12>
7. Alum, E. U., Obeagu, E. I., Ugwu, O. P. C., Samson, A. O., Adepoju, A. O., Amusa, M. O. Inclusion of nutritional counseling and mental health services in HIV/AIDS management: A paradigm shift. *Medicine* 2023; 102:41(e35673). <http://dx.doi.org/10.1097/MD.00000000000035673>. PMID: 37832059
 8. John, C., Poh, B.K., Jalaludin, M.Y., Michael, G., Adedeji, I., Oyenusi, E.E., Akor, B., Charles, N.C., Buthmanaban, V., Muhardi, L.: Exploring disparities in malnutrition among under-five children in Nigeria and potential solutions: a scoping review. *Front. Nutr.*, 2024, 10, 1279130. <https://doi.org/10.3389/fnut.2023.1279130>
 9. Odwee, A., Kasozi, K.I., Acup, C.A., Kyamanywa, P., Ssebuufu, R., Obura, R., Agaba, J.B., Makeri, D., Kirimuhuzya, C., Sasirabo, O., Bamaayi, P.H.: Malnutrition amongst HIV adult patients in selected hospitals of Bushenyi district in southwestern Uganda. *Afr. Health Sci.*, 2020, 20, 122–131. <https://doi.org/10.4314/ahs.v20i1.17>
 10. Alum, E. U., Ugwu, O. P. C., Obeagu, E. I., Aja, P. M., Ugwu, C. N., Okon, M.B. Nutritional Care in Diabetes Mellitus: A Comprehensive Guide. *International Journal of Innovative and Applied Research*. 2023; 11(12):16-25. Article DOI: 10.58538/IJIAR/2057 DOI URL: <http://dx.doi.org/10.58538/IJIAR/2057>.
 11. Report on Nutrition Financing in Lira District Uganda | SPRING, <https://spring-nutrition.org/publications/briefs/report-nutrition-financing-lira-district-uganda>
 12. Maniragaba, V.N., Atuhaire, L.K., Rutayisire, P.C. Undernutrition among the children below five years of age in Uganda: a spatial analysis approach. *BMC Public Health*, 2023, 23, 390. <https://doi.org/10.1186/s12889-023-15214-9>
 13. Wiegand, H., Kish, L. Survey Sampling. John Wiley & Sons, Inc., New York, London 1965, IX + 643 S., 31 Abb., 56 Tab., Preis 83 s. *Biom. Z.*, 1968, 10, 88–89. <https://doi.org/10.1002/bimj.19680100122>
 14. Iddrisu, W.A., Gyabaah, O. Identifying factors associated with child malnutrition in Ghana: a cross-sectional study using Bayesian multilevel ordinal logistic regression approach. *BMJ Open.*, 2023, 13, e075723. <https://doi.org/10.1136/bmjopen-2023-075723>
 15. Senekal, M., Nel, J.H., Malczyk, S., Drummond, L., Harbron, J., Steyn, N.P. Provincial Dietary Intake Study (PDIS): Prevalence and Sociodemographic Determinants of the Double Burden of Malnutrition in A Representative Sample of 1 to Under 10-Year-Old Children from Two Urbanized and Economically Active Provinces in South Africa. *Int. J. Environ. Res. Public Health.*, 2019, 16, 3334. <https://doi.org/10.3390/ijerph16183334>
 16. Boah, M., Azupogo, F., Amporfro, D.A., Abada, L.A. The epidemiology of undernutrition and its determinants in children under five years in Ghana. *PLOS ONE*, 2019, 14, e0219665. <https://doi.org/10.1371/journal.pone.0219665>
 17. Nalwanga, D., Musiime, V., Kizito, S., Kiggundu, J.B., Batte, A., Musoke, P., Tumwine, J.K. Mortality among children under five years admitted for routine care of severe acute malnutrition: a prospective cohort study from Kampala, Uganda. *BMC Pediatr.*, 2020, 20, 182. <https://doi.org/10.1186/s12887-020-02094-w>
 18. Banga, D., Baren, M., Ssonko, N.V., Sikakulya, F.K., Tibamwenda, Y., Banga, C., Ssebuufu, R. Comorbidities and Factors Associated with Mortality among Children under Five Years Admitted with Severe Acute Malnutrition in the Nutritional Unit of Jinja Regional Referral Hospital, Eastern Uganda. *Int. J. Pediatr.* 2020, 7809412. <https://doi.org/10.1155/2020/7809412>
 19. Nankinga, O., Aguta, D. Determinants of Anemia among women in Uganda: further analysis of the Uganda demographic and health surveys. *BMC Public Health*, 2019, 19, 1757. <https://doi.org/10.1186/s12889-019-8114-1>
 20. Saaka, M. Relationship between Mothers' Nutritional Knowledge in Childcare Practices and the Growth of Children Living in Impoverished Rural Communities. *J. Health Popul. Nutr.*, 2014, 32, 237–248
 21. Brooks-Gunn, J., Han, W.-J., Waldfogel, J. First-Year Maternal Employment and Child Development in the First Seven Years. *Monogr. Soc. Res. Child Dev.*, 2010, 75, 7–9. <https://doi.org/10.1111/j.1540-5834.2010.00562.x>
 22. Parcel, T.L., Menaghan, E.G. Effects of low-wage employment on family well-being. *Future Child*, 1997, 7, 116–121.
 23. Adedokun, S.T., Yaya, S. Factors associated with adverse nutritional status of children in sub-Saharan Africa: Evidence from the Demographic and Health Surveys from 31 countries. *Matern. Child. Nutr.*, 2021, 17, e13198. <https://doi.org/10.1111/mcn.13198>

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