SJ Pediatrics and Child Health Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/rtep3752
Original Article

Economic factors contributing to anaemia in children under the age of five years at the paediatric ward in Nakaseke General Hospital, Nakaseke district. A cross-sectional study.

Joseph Wabomba*, Moses Ojale, George Masete
Kampala Institute of Health Professionals

ABSTRACT

Background:

The study aimed to determine the economic factors contributing to anaemia in children under the age of five years at the paediatric ward in Nakaseke General Hospital, Nakaseke district.

Methodology:

The study employed a descriptive cross-sectional design at Nakaseke General Hospital, targeting caretakers of children under five diagnosed with anaemia. A sample of 80 participants was selected using simple random sampling. Data were collected through pretested self-administered structured questionnaires in Luganda. Ethical approval and informed consent were obtained prior to participation. Quantitative data were analyzed using Microsoft Excel and presented in tables and charts. Standard operating procedures were followed to ensure confidentiality, voluntary participation, and accuracy, with training provided to research assistants to enhance data quality.

Results:

Among the 80 respondents, half were married (40; 50.0%), 25 (31.3%) single, 10 (12.5%) divorced, and 5 (6.2%) widowed. Regarding education, 30 (37.5%) had secondary, 25 (31.3%) primary, 15 (18.7%) tertiary, and 10 (12.5%) never attended school. Occupation-wise, 30 (37.5%) were housewives, 25 (31.3%) small-scale business, 20 (25.0%) peasants, and 5 (6.2%) other. Household sizes were 1–4 members (30; 37.5%), 5–8 members (40; 50.0%), and 8+ members (10; 12.5%). Rural residents were 45 (56.3%) and urban 35 (43.7%). Economically, 45 (56.3%) of mothers were unemployed. Household income was below 200,000 UGX (35; 43.8%), 200,001–500,000 UGX (30; 37.5%), and above 500,001 UGX (15; 18.7%). Household heads were farmers (25; 31.3%), employed (25; 31.3%), business owners (20; 25.0%), and unemployed (10; 12.5%). Forty-five (56.3%) households had enough money for food, 60 (75.0%) had safe drinking water, with boreholes serving 10 (12.5%) of respondents.

Conclusion:

Low income, unemployment, and food insecurity significantly increased anaemia risk among children under five.

Recommendation:

Government and NGOs should promote women's income activities and provide social support to improve household food security.

Keywords: *Anaemia, Children under five, Economic factors, Household income, Maternal employment, Food security, Safe drinking water.*
Submitted: *March 22, 2026* ***Accepted:*** *April 28, 2026* ***Published:*** *May 14, 2026*
Corresponding author: *Joseph Wabomba*
Kampala Institute of Health Professionals.

BACKGROUND OF THE STUDY

Anaemia among children under five years remains a major public health concern, particularly in low- and middle-income countries, where economic constraints significantly affect child health outcomes. Household income, maternal employment, and access to basic resources such as food and clean water play a critical role in determining children's nutritional status and susceptibility to anaemia.

Evidence from various studies highlights the strong association between low household income and increased prevalence of anaemia. A study conducted at Shanan Gibe Hospital in Southwest Ethiopia reported that the majority of mothers (67.1%) earned low monthly incomes, with only a small proportion earning high incomes, indicating limited financial capacity to meet children's nutritional needs (Destaw et al., 2021). Similarly, research at Hoima Regional Referral Hospital in Uganda revealed that most mothers were either housewives or engaged in small-scale economic activities, with a large proportion of households earning low incomes, further emphasizing the link between poverty and anaemia among children (Byoma, 2024).

SJ Pediatrics and Child Health Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/rtep3752
Original Article

Economic limitations also directly affect food security at the household level. In Lira Regional Referral Hospital, a significant proportion of respondents reported an inability to afford adequate food, while others attributed food shortages to adverse weather conditions and large family sizes. These factors contribute to inadequate dietary intake, both in quantity and quality, thereby increasing the risk of anaemia (Ogwal, 2023). Furthermore, reliance on staple foods with limited nutritional diversity underscores the challenge of achieving balanced diets in low-income settings.

In addition to income, occupation, and access to essential services such as clean water, influence anaemia outcomes. A study in Sheema District found higher anaemia prevalence among children from households with moderate incomes and those relying on subsistence farming, suggesting that food availability does not necessarily translate into nutritional adequacy.

Maternal employment status is another key determinant, as unemployed mothers may lack the financial means to provide adequate nutrition and healthcare for their children. This is supported by findings from Iraq, where children of unemployed mothers had lower haemoglobin levels, indicating more severe anaemia (Mashhadani et al., 2023).

The study aimed to determine the economic factors contributing to anaemia in children under the age of five years at the paediatric ward in Nakaseke General Hospital, Nakaseke district.

METHODOLOGY

Study Design

The study employed a descriptive cross-sectional design to collect quantitative data. This design was chosen because it enabled the capture of a wide range of views from respondents.

Study Area

The study was conducted at Nakaseke General Hospital in Nakaseke District. The study area was selected because it has a high prevalence of anaemia among children under the age of five who received care at the ward. Nakaseke general hospital has a bed capacity of 150 beds with several departments like the outpatients department, dental department, laboratory department, eye care department, paediatric ward, male and female wards, among other departments.

Study Population

The study population comprised all caretakers of children under 5 years of age who were diagnosed with anemia and admitted to the Pediatric Ward of Nakaseke General Hospital at the time of data collection.

Sample Size Determination

The sample size for caregivers of children attending Nakaseke General Hospital will be obtained using the Kish-Leslie formula (1965)

$$N=\frac{Z^2PQ}{d^2}$$

Where; n=sample size

Z-score corresponding to 95%

Confidence interval=1.96

P= anticipated proportion of care takers of childrenQ = 1 – P

d^2 = precision/sampling error (9.8%)

Therefore; $n = \frac{1.96\times1.96\times0.4(1-0.5)}{0.098\times0.098}$

n = 80 respondents

Sampling Technique

A simple random sampling method was used to select mothers and caretakers of anemic children under five years of age admitted at Nakaseke General Hospital during the study period. This method was considered appropriate and time-efficient for selecting study participants. Simple random sampling also helped to minimize bias compared to other methods, such as judgmental sampling, where selection depends on personal preference.

Sampling Procedure

Mothers and caretakers of anemic children under five years of age admitted at Nakaseke General Hospital during the study period were enrolled using simple random sampling to ensure fairness in participant selection. Since a specific sample size was required, participants were first approached, informed about the purpose of the study, and informed consent was obtained.

Papers equal to the number of available respondents were prepared; some were labeled “participate” according to the required sample size, while the rest were labeled “do not participate.” These papers were folded, thoroughly mixed in a container, and participants randomly selected one without seeing its content. Those who picked papers labeled “participate” were included in the study. This process continued until the desired sample size of 80 participants was achieved. Luganda was used since most of the participants will find it easier and more comfortable to express themselves, as well sharing ideas and views about the problem of anemia.

Data Collection Methods

A self-administered questionnaire method was used to collect data for mothers/caretakers of children admitted to the hospital, to collect data because questionnaires are a safe and easy way of collecting organized data, and also saved time.

Data Collection Tools

A self-administered structured questionnaire comprising closed-ended questions was used to collect data. This method is efficient, allows for standardized responses, and saves time during data collection. Open-ended questions: These require participants to provide detailed responses rather than simple “yes” or “no” answers, allowing for deeper insights into personal experiences, perceptions, and factors influencing contraceptive use. For example: "What challenges do you face in accessing modern contraceptives in your community?" Closed-ended questions: These require respondents to select from predetermined options, such as "yes" or "no," or choose from multiple-choice responses. This type of question simplifies data analysis and ensures consistency across responses. For example: "Have you ever used any form of modern contraceptive? Yes / No."

Data Collection Procedure

After obtaining an introductory letter from the Research Committee of Kampala Institute of Health Professionals, permission to conduct the study was sought from the hospital administration before data collection began.

Respondents were selected using simple random sampling due to its simplicity and effectiveness in providing an unbiased representation of the population. All eligible caretakers of children who consented were considered for participation.

Five folded papers were prepared to guide the order of data collection, and respondents were randomly selected upon arrival at the hospital. The data collection process involved randomly approaching mothers or caretakers of reproductive age to participate in the study.

The investigator introduced themselves to the selected participants, explained the purpose, procedures, and ethical considerations such as informed consent and confidentiality, and then administered the questionnaire. Participants were required to sign a consent form before taking part in the study.

Study Variables

Dependent Variables.

It was anaemia among children under the age of five years.

Independent Variables.

It was the economic factors.

Data Quality Control

Pre-testing of the Research Tool

Pretesting of data collection tools, specifically self-administered questionnaires, was carried out a week prior to the start of actual data collection to check their effectiveness and reduce errors. Pretesting was done at Semuto Health Centre IV by giving questionnaires to be answered accordingly so as to check the effectiveness of the self-administered questionnaires and to rectify any errors before actual data collection, as Semuto Health Centre IV has a similar population and climatic conditions to Nakaseke General Hospital.

Piloting of the Study

The three (3) Research Assistants were trained on how to correctly fill out questionnaires and ensure ethical considerations during the research process to enhance data validity.

Adequate Time for Data Collection

Adequate time was allocated for data collection to allow for a comprehensive assessment of household and hospital-related factors contributing to anaemia. The primary criteria for participant selection were caretakers/mothers with at least one child under five years admitted or attending the paediatric ward. This ensured that respondents were directly relevant to the study objectives and that the data collected reflected real experiences of anaemia in children within Nakaseke District.

Adherence to Standard Operating Procedures (SOPs)

All activities in the study were conducted in strict adherence to standard operating procedures (SOPs). This included maintaining the confidentiality of participants, ensuring accurate recording of responses, and following hospital protocols during interviews with caretakers and clinical staff. Such adherence minimized errors, safeguarded ethical integrity, and enhanced the reliability of findings regarding the causes of anaemia among under-five-year-olds

Selection Criteria

Inclusion Criteria

The study included all the caretakers of children under 5 years of age with anemia admitted in the Pediatric Ward, Nakaseke General Hospital, who were free, willing, and voluntarily consented to participate in the study.

Data Analysis and Presentation

The quantitative data was sorted, processed, and analyzed using Microsoft Excel 2013, as this eliminates errors, and it was easy to use.

Data was analyzed and presented in figures, tables, pie-charts, and bar graphs in the report for easy interpretation of the research findings.

Ethical Considerations

An introductory letter for data collection was obtained from the Research and Ethics Committee of Kampala Institute of Health Professionals. This letter was taken to the Research

and Ethics Committee of Nakaseke General Hospital to introduce and seek permission to carry out the research. Caretakers' autonomy was respected by allowing them to freely decide on participation. Those who decline will not be forced but may be replaced by other willing respondents. Caretakers were required to voluntarily consent to take part in the research, and the contents of the consent form were clearly explained before participation. Confidentiality was ensured by assigning identification codes instead of using real names. All the information collected will strictly be used for academic and research purposes and will not be shared with unauthorized persons. Beneficence was observed by sensitizing caretakers and the community about the importance of proper child feeding practices, malaria prevention, deworming, and other preventive measures that can help reduce the burden of anaemia among children under five years.

RESULTS

Demographic Characteristics of the Respondents

Table 1: Distribution of respondents by their demographic Characteristics of Respondents (n = 80)

Variable	Category	Frequency	Percentage (%)
Gender	Female	55	68.7
	Male	25	31.3
	Total	**80**	**100**
Age (Years)	14–25	20	25.0
	26–35	35	43.8
	36–45	15	18.7
	46 years and above	10	12.5
	Total	**80**	**100**
Marital Status	Single	25	31.3
	Married	40	50.0
	Divorced	10	12.5
	Widowed	5	6.2
	Total	**80**	**100**
Level of Education	Primary	25	31.3
	Secondary	30	37.5
	Tertiary	15	18.7
	Never attended school	10	12.5
	Total	**80**	**100**
Occupation	Housewife	30	37.5
	Small-scale business	25	31.3
	Peasant	20	25.0
	Others	5	6.2
	Total	**80**	**100**
Household members	1–4	30	37.5

https://doi.org/10.51168/rtep3752

	5–8	40	50.0
	8 or more	10	12.5
Area of residence	Rural	45	56.3
	Urban	35	43.7
	Total	**80**	**100**

Source: Primary data, 2025

The results in Table 1 show that the majority of respondents, 55 (68.7%), were female, while 25 (31.3%) were male.

Regarding age distribution, most respondents, 35 (43.8%), were aged 26–35 years, followed by 20 (25.0%) aged 14–25 years, and 15 (18.7%) aged 36–45 years. The smallest group, 10 (12.5%), was aged 46 years and above.

With respect to marital status, half of the respondents, 40 (50.0%), were married, 25 (31.3%) were single, 10 (12.5%) were divorced, while 5 (6.2%) were widowed.

Considering the level of education, 30 (37.5%) of respondents had attained secondary education, 25 (31.3%) had primary education, 15 (18.7%) had tertiary education, while 10 (12.5%) had never attended school.

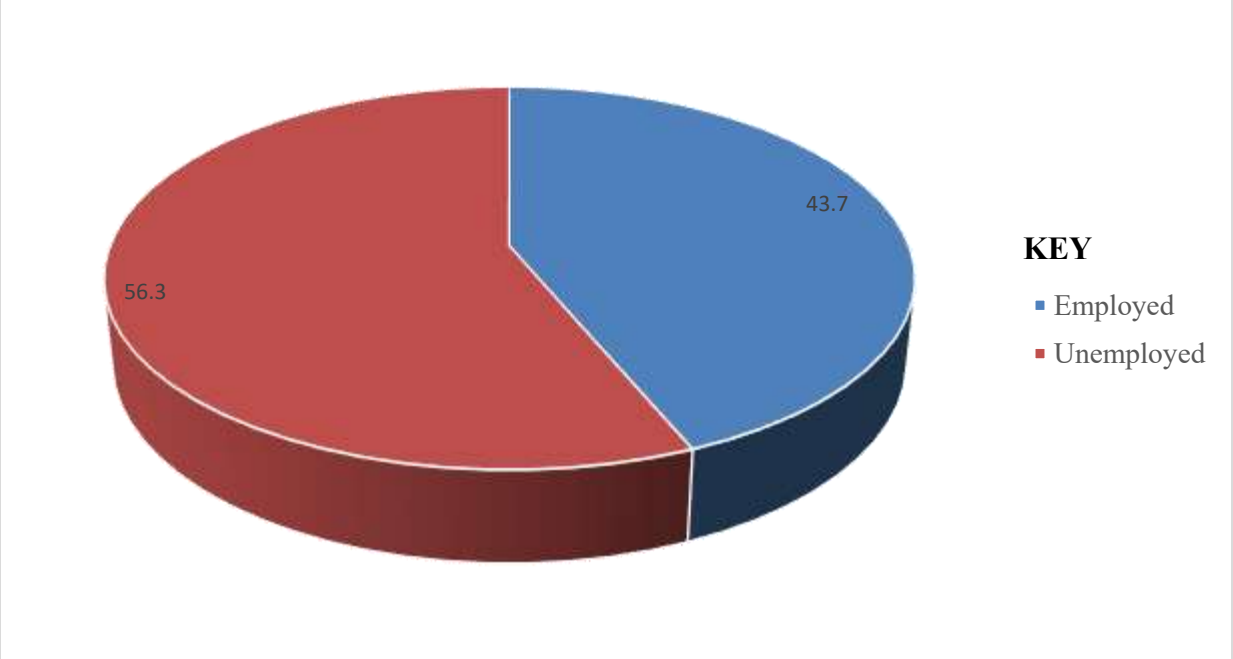
In terms of occupation, 30 (37.5%) were housewives, 25 (31.3%) engaged in small-scale business, 20 (25.0%) were peasants, and 5 (6.2%) were in other occupations.

Regarding household size, half of the respondents, 40 (50.0%), lived in households with 5–8 members, 30 (37.5%) had 1–4 members, while 10 (12.5%) had 8 or more members.

Concerning the area of residence, 45 (56.3%) of the respondents lived in rural areas, while 35 (43.7%) were from urban settings.

Economic factors contributing to anaemia in children under the age of five years at the pediatrics ward

Figure 1: Distribution of Respondents by Employment Status



Source: Primary data, 2025

Figure 1, most of the respondents, 45 (56.3%) of mothers, were unemployed, while 35 (43.7%) were employed.

SJ Pediatrics and Child Health Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/rtep3752
Original Article

Table 2: Distribution of Respondents by Economic Factors (n = 80)

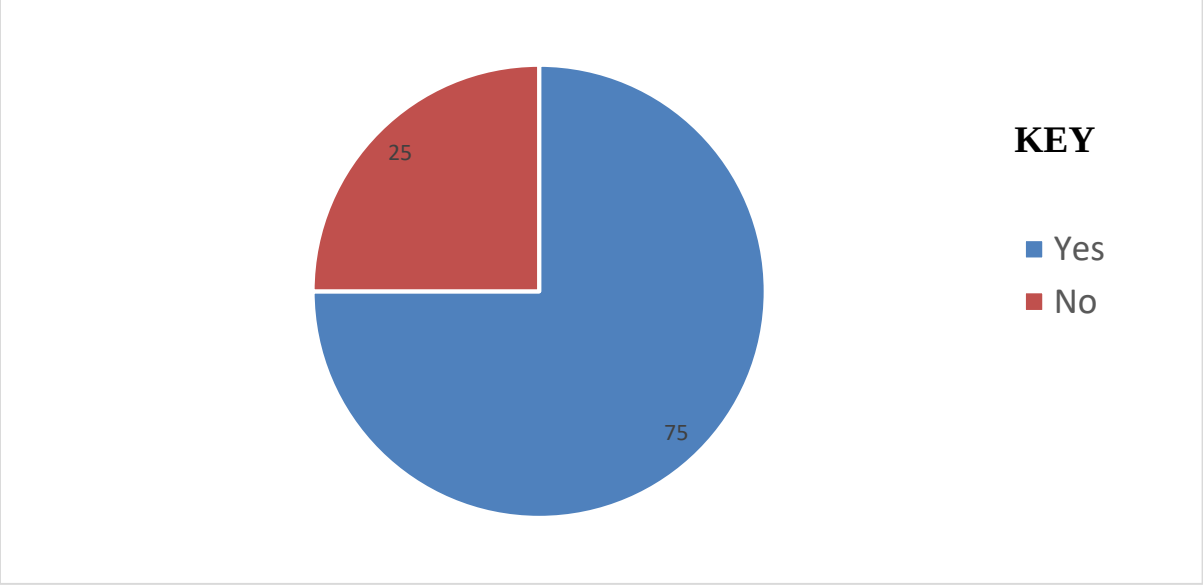
Variable	Category	Frequency	Percentage (%)
Monthly household income	Below 200,000 UGX	35	43.8
	200,001–500,000 UGX	30	37.5
	Above 500,001 UGX	15	18.7
	Total	**80**	**100**
Occupation of household head	Farming	25	31.3
	Business	20	25.0
	Employed (salaried)	25	31.3
	Unemployed	10	12.5
	Total	**80**	**100**
Enough money to buy food	Yes	45	56.3
	No	35	43.7
	Total	**80**	**100**
Reason for food shortage	Lack of money	35	43.8
	Bad weather	25	31.2
	Large family size	15	18.8
	Others	5	6.2
	Total	**80**	**100**

Source: Primary data, 2025

From table 2, most,35 (43.8%), earned below 200,000 UGX, and a minority, 15 (18.7%), earned above 500,001 UGX. Concerning the occupation of household heads, most 25(31.3%) were engaged in farming, and the least 10 (12.5%) were unemployed.

In relation to food availability, the majority, 45 (56.3%) of households reported having enough money to buy food, whereas the minority, 35 (43.7%) did not.
Regarding households experiencing food shortages, 35 (43.8%) of respondents reported that the main reason was lack of money, and the least 5(6.2%) reported other reasons.

Figure 2: Showing Distribution of Respondents by household have access to clean and safe drinking water (n = 80)



Source: Primary data, 2025

Figure 2 shows the majority 60 (75.0%) of respondents had access, while the minority 20 (25.0%) did not.

https://doi.org/10.51168/rtep3752

Table 3: Showing Distribution of Respondents by their main source of drinking water (n = 80)

Category	Frequency	Percentage (%)
Borehole	10	12.5
Open wells	5	6.2
Other	5	6.2
Total	**20**	**100**

Source: Primary data, 2025

Out of the 20 respondents who reported that they have access to safe drinking water, half of them, 10 (12.5%), got it from the Borehole, while less than 5 (6.2%) got it from open wells and other sources like springs.

DISCUSSION

The study found that over half of the mothers (56.3%) were unemployed, suggesting that maternal unemployment may significantly contribute to anaemia among children under five. Unemployment often limits household income, reducing mothers' ability to provide balanced and nutritious diets for their children, which leads to poor nutritional outcomes and anaemia. This finding supports Mashhadani et al. (2023) in Kut City, Iraq, who reported that 89.4% of mothers of anaemic children were unemployed, with their children having lower mean hemoglobin levels than those of employed mothers. These results highlight the importance of economically empowering mothers as a strategy to reduce anaemia prevalence among young children.

Additionally, the study revealed that the largest proportion of households (43.8%) earned below 200,000 UGX per month. Low household income was identified as a key contributor to anaemia, as families with limited financial resources often struggle to afford foods rich in iron and other essential nutrients. This aligns with Destaw et al. (2021) in Southwest Ethiopia, who found that 67.1% of mothers of anaemic children came from low-income households. Hence, improving household income levels could help mitigate anaemia among children.

The findings also showed that 56.3% of households had sufficient money to buy food, while 43.7% did not. Among those facing food shortages, the major causes were lack of money (43.8%), unfavorable weather (31.2%), and large family size (18.8%). This indicates that food insecurity remains a major economic factor influencing anaemia, as families that cannot afford or produce adequate food often fail to meet children's nutritional needs. These results correspond with Ogwal (2023), who found that 60% of households in Lira Regional Referral Hospital lacked money for food, while 33% cited bad weather as a major cause of food scarcity. Therefore, improving both household income and food accessibility could significantly reduce anaemia rates among children under five.

Furthermore, the study found that 75.0% of respondents had access to clean and safe drinking water, while 25.0% did not. Limited access to clean water increases children's exposure to waterborne infections, which can impair nutrient absorption and lead to anaemia. This is consistent with Namirembe and Kazibwe (2025), who observed that anaemia prevalence was significantly higher (68%) among children from households without safe water. Contaminated water contributes to recurrent infections such as diarrhoea and intestinal parasites, further worsening iron deficiency. Hence, ensuring universal access to safe water remains a key preventive measure against anaemia.

CONCLUSION

The study established that economic factors significantly contribute to anaemia among children under five years. Most mothers were unemployed, and many households had low incomes, which limited their ability to provide adequate and nutritious food. Food shortages were also influenced by financial constraints, adverse weather conditions, and large family sizes. Although most households accessed safe water, some still relied on unsafe sources, increasing the risk of infections that can worsen anaemia.

RECOMMENDATION

Government and non-governmental organizations should promote income-generating activities for women to improve household income and ensure access to adequate and nutritious food.

Policymakers should implement social support programs such as food aid and nutrition supplementation for low-income families to reduce food insecurity and anaemia prevalence.

Acknowledgement

With gratitude, I thank the almighty God for protecting me throughout the entire period in which I carried out my research and for giving me the wisdom to complete this programme successfully.

I also appreciate the following for their stable support while in Nakaseke General Hospital, Nakaseke district: the entire staff of Nakaseke General Hospital for their hospitality and willingness to equip me with the relevant medical knowledge and skills needed in different sections of medical care, and also thank my family for the continuous support throughout my career development.

I also want to acknowledge the efforts of my research committee and the staff of Kampala Institute of Health Professionals for their unrelenting support during this research activity.

Finally, I want to acknowledge the effort of my research supervisor, OJJALE MOSES, for his continuous encouragement and support throughout my research activity.

List of abbreviations

UGX – Uganda Shilling
NGO – Non-Governmental Organization
SOP – Standard Operating Procedure
n – Sample size / Number of respondents
CI – Confidence Interval
P – Proportion (used in sample size calculation)
d – Precision / Sampling error

Source of funding

The study received no external funding.

Conflict of interest

The authors declare no conflict of interest.

Data availability

Data is available upon request from the author.

Author contributions

JW: collected the data.
MO: supervised the study.

Informed consent

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Author biography

Joseph Wabomba is a student pursuing a diploma in clinical medicine and community health at Kampala Institute of Health Professionals.
Moses Ojale: research supervisor at Kampala Institute of Health Professionals
George Masete : research supervisor at Kampala Institute of Health Professionals.

References

1. Byoma, L. (2024). Prevalence and associated factors of anemia among children admitted to a pediatric ward in Hoima Regional Referral Hospital. *Uganda Medical Journal, 41*(3), 33–48.
2. Destaw, F., Tadesse, M., & Bekele, A. (2021). Prevalence of anemia and its associated factors among under-five children in Shanan Gibe Hospital, Southwest Ethiopia. *BMC Pediatrics, 21*, Article 123.https://doi.org/10.1186/s12887-021-03011-5
3. Mashhadani, S., Al-Kaabi, A., & Hamid, R. (2023). Association between the severity of anemia and socio-demographic factors among children under five years of age in Kut City, Iraq. *Iraqi Journal of Pediatrics, 35*(2), 55–63.
4. Namirembe, J., & Kazibwe, F. (2025). Factors contributing to anemia among children under five years in health facilities in Sheema District, Uganda. *Uganda Health Journal, 29*(1), 34–46.
5. Ogwal, R. (2023). Assessing factors associated with the prevalence of anemia among children under five years of age in the pediatric ward at Lira Regional Referral Hospital. *Lira Medical Journal, 18*(2), 25–39.

SJ Pediatrics and Child Health Africa
Vol. 3 No. 2 (2026): May 2026 Issue
https://doi.org/10.51168/rtep3752
Original Article

PUBLISHER DETAILS

SJC PUBLISHERS COMPANY LIMITED

Catergory: Non Government & Non profit Organisation
Contact: +256 775 434 261 (WhatsApp)
Email: info@sjpublisher.org or studentsjournal2020@gmail.com
Website: https://sjpublisher.org
Location: Scholar's Summit Nakigalala, P. O. Box 701432,Entebbe Uganda, East Africa