Factors Predisposing Children Under Five Years to Malnutrition at Kampala International University Teaching Hospital Bushenyi Districts, Western Uganda

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Authors' contributions

This work was carried out in collaboration among all authors. All the authors were involved from conceptualization to completion the work and writing. All authors read and approved the final manuscript.

Article Information

Original Research Article

ABSTRACT

In Uganda, malnutrition remains a serious health and welfare problem affecting the under-five children to whom it contributes significantly to mortality and morbidity. The study was done to identify the factors predisposing children under five years to malnutrition at Kampala International

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University Teaching Hospital. This study was a cross-sectional study design conducted on 240 children under five years at KIU-TH whose caretakers/parents consented to take part in this willing to take part in this study. Data was collected from them with the help of questionnaires. The collected data was entered into SPSS version 25, analyzed and presented inform tables. 120(50.0%) were aged 21-34 years, many 124(51.7%) were Banyoro by tribe, 104 (43.3%) were Catholics by religion, many 88(36.7%) were of primary level of education, and lastly majority 140 (58.3%) of the participants were married. the rate of malnutrition among children under five years was 28.3%. on factors predisposing children to malnutrition, there was a significant association of malnutrition status with education level that participants of primary level of education were 8.073 times more likely to malnourished children as compared to care takers/mothers of tertiary level of education. The rate of malnutrition in this study is low and malnutrition rate was seen change from place to place, time to time and from on population to another. In addition, mothers' education is associated with good nutrition practice.

1. INTRODUCTION

"Malnutrition denotes insufficient intake of energy and nutrients to meet an individual's needs to maintain good health. In most literatures, under-nutrition is used synonymously with malnutrition though malnutrition denotes both under-nutrition and over-nutrition" [1-5]. "Micronutrient deficiencies are a sub-category of under-nutrition and occur when the body lacks one or more micronutrients. These deficiencies usually affect growth and immunity but some cause specific clinical conditions such as anemia, hypothyroidism or xerophthalmia" [6-11].

"In Uganda, malnutrition remains a serious health and welfare problem affecting the under-five children to whom it contributes significantly to mortality and morbidity. According to Uganda Demographic and Health Survey of 2006, nearly four in ten Ugandan children under-five years of age (38%) are stunted (short for their age), six percent are wasted (thin for their height), and sixteen percent are underweight" [12].

"In Bushenyi district Uganda, it was revealed that the rate of malnutrition was high, of the 21 5 children assessed 32% of the children were stunted, 13% underweight and 2.8% wasted. The factors contributing to this state of affairs were likely to be related with socio-economic status" [13].

"Nutrition continues to be a key global development agenda under the Sustainable Development Goals (SDGs) after the completion of the Millennium Development Goals (MDGs) era. Despite a critical need for addressing malnutrition among all populations, the monitoring indicators currently in SDG2 and previously in MDG1 are consistently focused on children under 5 years of age" [14]. "The worst situation was revealed by UNICEF where an estimated that 40% of all deaths among children under five years of age were related to malnutrition" [13].

"Malnutrition can predispose children to infection, creating a vicious infection-malnutrition cycle that contributes to over 35% of the disease burden of early childhood" [15]. "In addition cognitive development and brain physiology among children and adolescents requires access to sufficient and nutrient rich food at early stages of life" [16]. "Recurrent food shortage may result in under nutrition which results in developmental impairments including poor learning capacity in children" [17].

Having seen the problems associated with malnutrition the research felt it is of great importance to identify the factors predisposing children under five years to malnutrition at Kampala International University Teaching Hospital.

2. MATERIALS AND METHODS

2.1 Study Design and Study Area

The study employed a cross-sectional descriptive study. The collection of data was quantitative to establish the opinions of the respondents about the study problem under investigation. The study was done in Kampala International University Teaching Hospital, Ishaka, Uganda.

2.2 Inclusion and Exclusion Criteria

All children under five years at KIU-TH whose caretakers/parents consented to take part in this

willing to take part in this study. The study excluded children whose caretakers/parents won't consent to take part in this study, children with mental health problems, children under five years delivered at during the period of the study and critically ill children.

2.3 Data Collection Procedure

A pre-test questionnaire was used to collect data from 240 consecutively sampling technique children under five years attending KIU-TH for health care services at Kampala International University Teaching Hospital. "This facilitated clear testing on the reliability and validity of the research instrument concerning the appropriateness of the questions. This helped to make clear adjustments where it was necessary before the primary data collection. The researcher read and explained the consent form to every participant in the study, to get their consent to freely participate. After they have consented, each will be administered a questionnaire. Privacy and confidentiality will be maintained throughout the process of data collection" [18].

2.4 Data Management

Editing: This involved checking the questionnaire for completeness and improperly filled questionnaires will be sorted. Complete filled questionnaires were kept in the cupboard for safety and confidentiality and were later taken for analysis.

Coding: All questions in the questionnaire were coded for easy analysis and help in reducing data into manageable proportions.

2.5 Data Analysis

"The data collected was checked for completeness. The data were subjected to various steps including; editing to identify missing gaps, spelling mistakes, and incomplete answers and to eliminate unwanted data; classification of data with common characteristics and coding for easy analysis. Data was exported to SPSS windows version 16.0 for analysis and Microsoft excel program and was presented in form of graphs, tables, and pie-charts for easy interpretation" [18].

3. RESULTS

Table 1. Socio-demographic findings

Variables	Frequency	Percent
Age		
Below 20 years	96	40.0
20-34 years	120	50.0
Above 34 years	24	10.0
Religion		
Pentecostal	44	18.3
Catholic	104	43.3
Moslem	36	15.0
SDA	8	3.3
Anglican	48	20.1
Education level		
None	44	18.3
Primary	88	36.7
Secondary	56	23.3
Tertiary/ university	52	21.7
Marital status		
Single	80	33.3
Married	140	58.3
Divorced/window	20	8.4

Table 2. Rate of malnutrition among children under five years at KIU-TH

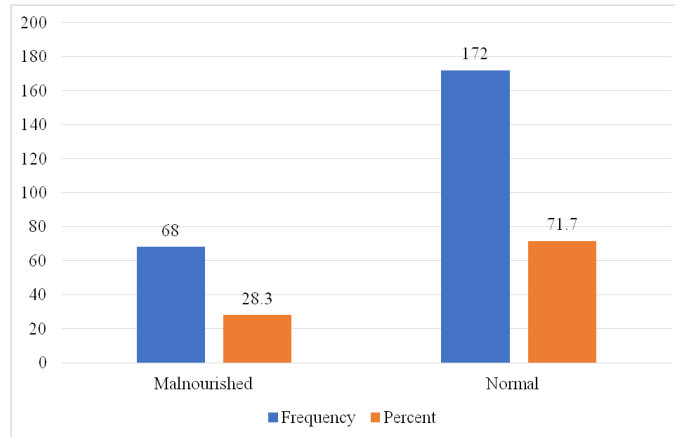| Malnutrition status	Frequency	Percent
Malnourished	68	28.3
Normal	172	71.7
Total	**240**	**100**

Fig. 1. Table showing rate of malnutrition among children under five years

Table 3. Bivariate of maternal factors predisposing children under five years to malnutrition

Variables		Malnutrition status		OR (95% CI)	P-value
		Normal	**Malnourished**		
Age	Below 20 years	74	22	2.193(0.378-12.766)	0.385
	20-34 years	83	37	0.524(0.224-1.125)	0.970
	> 35 years	15	9	1.000	
Employment status	Employed	139	41	0.616(0.388-0.977)	0.039
	Unemployed	33	27	1.000	
Marital status	Single	58	22	0.603(0.102-3.570)	0.577
	Married	103	37	0.543(0.195-1.511)	0.242
	Divorced/single	11	9	1.000	
Education Level	None	41	17	0.569(0.264-1.227)	0.150
	Primary	57	31	10.180(2.384-43.465)	0.002
	Secondary	43	13	1.217(0.727-2.039)	0.455
	Tertiary	45	7	1.000	

Table 1 shows that many 120(50.0%) were aged 21-34 years, many 124(51.7%) were Banyoro by tribe, 104 (43.3%) were Catholics by religion, many 88(36.7%) were of primary level of education, and lastly majority 140 (58.3%) of the participants were married.

From Table 2, majority 172(71.7%) were malnourished while 68 (28.3%) were malnourished.

This graph in Fig. 1 shows that the rate of malnutrition among children under five years was 28.3%.

According Table 3 employment status and education had values with p-value < 0.2 thus were proceed to the multivariate stage.

Multivariate analysis of maternal factors predisposing children under five years to malnutrition:

From the Table 4, there was a significant association of malnutrition status with education level that participants of primary level of education were 8.073 times more likely to malnourished children as compared to care takers/mothers of tertiary level of education.

Table 4. Multivariate analysis of maternal factors influencing completion of immunization schedule by mothers of children under two year

	P-value	Odd ratio	95% Confidence Interval for odd ratio	
			Lower Bound	Upper Bound
Employment status				
Employed	0.083	0.360	0.184	0.706
Unemployed		1.000	.	.
Education level				
None	0.593	0.716	0.210	2.438
Primary	0.006	8.073	1.797	36.262
Secondary	0.085	2.616	1.208	5.668
Tertiary	.	1.000	.	.

Table 5. Bivariate of child factors predisposing children under five years to malnutrition

		Malnutrition status		OR(95%CI)	P-value
		Normal	Malnourished		
Age of the child	0.5-1 year	46	6	4.125(1.679-10.137)	0.002
	2-3 years	76	48	0.625(0.384-1.018)	0.059
	4-5 years	50	14	1.000	
Sex of the child	Male	79	39	0.259(0.154-0.436)	0.010
	Female	93	39	1.000	

Table 6. Multivariate analysis of child factors predisposing children under five years to malnutrition

	P-value	Odd ratio	95% Confidence Interval for odd ratio	
			Lower Bound	Upper Bound
Age of the child				
0.5-1 year	0.132	2.849	1.108	7.325
2-3 years	0.111	0.655	0.389	1.102
4-5 years	.	1.000	.	.
Sex of the child				
Male	0.615	1.167	0.639	2.132
Female	.	1.000	.	.

According Table 5 "child's age", "child's sex", "had values with p-value < 0.2 thus were proceed to the multivariate stage.

From the Table 6, there was a no significant association of malnutrition status with "age of the child", and "sex of the child", since all P-value > 0.05.

4. DISCUSSION

In this study, the rate of malnutrition among children under five years was 28.3%. This finding is consistent with 29 percent of children under 5 who are considered to be short for their age or stunted, according to [12]. The reason for consistent could linked to both being findings in Uganda. Thus geographical location could be the reason for consistence however a higher rate was showed by a study done Acham [19] in Kumi district showed that the prevalence rate of 31.8%.

Nevertheless, Müller (2015) showed that the worldwide malnutrition estimation rate of 35.8%. A study done Ethiopia by Zegeye [20] showed prevalence of malnutrition was 55.1% and results in a study carried out in Kenya by Gewa, [21] which showed that the general rate of malnutrition was 51%. Other high rates in comparison with the study finding were showed by John et al. [22] in his study in Nzega district Tanzania found that the prevalence of malnutrition as 43.4% while a study carried out in Arusha District, Tanzania by Dyness Kejo et al. [23] found the prevalence of malnutrition was 59.5%. Thus year of study does not hold as a reason a reason for high rates of malnutrition.

Considerably, the study rate of malnutrition is higher than results in a study done in Cameroon by Léonie et al. [24] which found the prevalence of malnutrition as 24.8%.Therefore, the rate of malnutrition change from place to place, time to time and from on population to another.

In this study, there was a significant association of malnutrition status with education level that participants of primary level of education were 8.073 times more likely to malnourished children as compared to care takers/mothers of tertiary level of education.

A case control study in United States by Islam et al. [25] also found that illiteracy was significantly associated with severe malnutrition in their children. More so maternal illiteracy and lack of breastfeeding were significantly associated with approximately fourfold increased risk of severe malnutrition in their children. While a study done in Rwanda by Nshimyiryo et al. [26] showed that both primary education and no education (illiterate) increased the risk of malnutrition by 2. Therefore, mother's education improves nutrition of which children.

In this study, there was a no significant association of malnutrition status with "age of the child", and "sex of the child", since all P-value > 0.05.

5. CONCLUSION

The rate of malnutrition in this study is low and malnutrition rate was seen change from place to place, time to time and from on population to another. In addition, mother's education is associated with good nutrition practices.

CONSENT AND ETHICAL APPROVAL

Permission was obtained from Kampala International University School of Nursing Sciences and local authorities from the area of study. Before administering the questionnaires, the objectives of the study were clearly explained to the participants and written informed consent was sought from the respondents. Participants were informed about the procedure and the voluntary nature of participation in the study. Confidentiality and anonymity was ensured throughout the execution of the study and informed that no adverse consequences would arise if they refused to participate and that data collected was to remain private and be used for research study purpose. This helped to eliminate bias and doubts about the aim of the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/99632