Prevalence of Malnutrition among Under-five Children in Njala University Hospital in Kori Chiefdom of Moyamba District, Southern Sierra Leone

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ABSTRACT

Background: *Childhood acute malnutrition is a form of wasting described by a severe weight loss that occurs as a result of acute food shortage and illness. It is a grave public health problem which requires urgent attention in developing countries.*
Objective*: the study is aimed at investigating the prevalence of malnutrition among underfive children in Njala-Mokonde Communities in Kori Chiefdom of Moyamba District, Southern Sierra Leone.*
Methodology*: the study was done using Semi-structured questionnaire.*
Results: *the prevalence of 20, 28 and 19% for stunting, wasting and underweighting respectively was observed. Prevalence of stunting was higher among males (57.5%) than females (42.5%). Highest prevalence of stunting (35.0%) occurred among children in age group 25-36 months and lowest (12.0%) in children aged 37-59 months. Wasting was higher in females (58.9%) than males (41.1%) and wasting was highest in children 13-24 months (44.7%) with lowest in 37-59 months (18.0%). The study showed higher prevalence in underweight among females (63.2%) compared to males (36.8%). Prevalence of underweight was highest in childrern13-24 months (39.5%) and lowest in 37-59 months (13.2%). Most of the parents are within child bearing age. Most of them are married while others are single parents with low level of education and low wealth index. Exclusive breastfeeding is a common practice in the study area but they give their babies supplementary foods when they are just 3-4 months old earlier than WHO recommended time.*
Conclusion*: The study concludes that low education with wealth index, alone or in combination could hinder provision of adequate care during children growth and development. Therefore, the study recommends that* policymakers to pay special attention to policies targeted at reducing under-five malnutrition.

Keywords: Malnutrition, Childhood, Growth, Anthropometric indices

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INTRODUCTION

Malnutrition is one of the major underlying risk factors for morbidity and mortality in children under five years (1). Wasting is epitomized by a swift corrosion in nutritional status over a dumpy period that causes a child to be too thin for his or her height due to weight loss or failure to gain weight (2) and can be assessed by weight-for-height nutritional index or mid-upper arm circumference (MUAC) in children (3, 4). According to Seboka *et al*. (5), wasting is

categorized as moderate acute malnutrition and severe acute malnutrition.

Globally, 8-11 million under-five children die annually (5) and over 35% of these deaths are ascribed to malnourishment with 1 in 12 children (8%, 52 million) were wasted (6). This condition is one of the major causes of childhood mortality in developing countries with above 90% of undernourished children (7). Africa carries the heaviest burden of under-nutrition (6) of which WHO, (1) reported 39.9% of under-five children and the prevalence of wasting in East Africa is 6% (8).

In Sierra Leone, the national prevalence of stunting (HAZ<-2) was 31.3% translating to 293,736 stunted children with 21.3% moderately stunted and 10.0% severely stunted, with more boys than girls reportedly stunted (9). Also, the national prevalence of acute malnutrition using MUAC (<23cm) was 5.7% among pregnant and/or lactating women and 5.1% based on BMI of non-pregnant/lactating women (9). The prevalence of overweight and obesity was 18.4% and 7.5% respectively. The crude death rate (CDR) and under five death rate (U5DR) of 0.19 and 0.16 were recorded respectively. In Sierra Leone, data on the malnutrition and its associated factors are so limited (9). It is therefore obvious that the prevalence of malnutrition and its determinants have not been well studied in Sierra Leone.

In 2017, Sierra Leone ranked among highest in Global Hunger Index (38.3) of 119 countries with sufficient data which signify alarming levels of hunger (10). The nation experienced EVD outbreak which had negative impact on health and socioeconomic situation of the populations particularly the most vulnerable (9). Since the outbreak, she has relied heavily on foreign aid for basic needs, including food but despite all these assistances, child malnutrition remains a serious challenge.

In order to assess the impact of various ongoing interventions to address high prevalence of malnutrition in Sierra Leone, the study assessed the nutritional status of under-five children aged 0-59 months in Njala University Hospital in Kori Chiefdom of Moyamba District.

METHODOLOGY

Study Area

The study was among under-five children and parents who attend Njala University Hospital (NUH) to obtain Medical Services. Njala University hospital is situated on Njala Campus, Kori chiefdom, Moyamba District in the Southern Region of Sierra Leone. Njala is situated about 7 miles away from Taiama junction which is situated on the main Freetown-Bo highway. Njala is located about 200 km East of Freetown and is located on Latitude 8°07' North and Longitude 12°05' West on the tropical map of Sierra Leone, scale 1:50,000.

The NUH is located on a relatively flat land on the Njala campus. The hospital is the main health center for Students and Staffs of the University and for all inhabitants residing within surrounding commun

Study Population and Sample Size

The study population was under-five age children within and around Njala-Mokonde Community who receive medical services in Njala University Hospital. However, the sample size was 200 children within age of 0-60 months.

Sources of Data

Data used was obtained from primary and secondary sources. Primary data was obtained via anthropometric measurements of nutrition indices using standard procedures and administration of semi-structured questionnaires to parents of the children while that of secondary was by published materials retrieved from Journals and online reports on malnutrition.

Study Design

The research design followed normal routine where by all children underfive years accessing health facilities in the hospital underwent growth monitoring programme and anthropometric indices

Data Collection Techniques and Instrumentation

Nutritional status was determined by measuring

anthropometric indices. Body weight was measured using a weighing scale. Height of children was measured using a portable stadiometer; shoulders, buttocks and heels touched the vertical stand with head in Frankfurt's position to nearest 0.1cm. For children of 6-23 months, recumbent length and for children 24-36 months of age, standing height to the nearest 0.1cm were measured. Age of each child was also provided by the mother and counter-checked from the child's vaccination cards. All anthropometric measurements were taken twice, and the average was calculated and recorded.

Nutritional status was then classified as: weight-for-age z-score (WAZ), height-for-age z-score (HAZ), and weight-for-height z-score (WHZ) as proposed by WHO.

Thereafter, a semi-structured questionnaire was administered in order to obtain demographic and socio-economic characteristics of parent of each child, infant feeding practices, dietary diversity and other factors that may influence the nutritional status of the children in the study area.

Data Analysis

Data was analyzed using descriptive analysis and Z-score classification scheme of nutritional indices.

Ethical consideration

The ethical approval was obtained from the Njala University Hospital authorities and an informed consent was equally obtained from participants before enrollment in the study.

RESULTS

Nutritional Status of under-five children

Results in Table 1 showed that 80% of under-five children were normal while 20% were stunted. Of those stunted, 34 (17%) were moderately stunted while as 6 (3%) were severely stunted.

Also, 144 (77%) of under-five children were normal while 56 (28%) were wasted. Of those wasted, 38 (19%) were moderately wasted while 18 (9%) were severely wasted.

Furthermore, 162 (81%) of the under-five children were normal, while 38 (19%) were underweighted. Of those underweighted, 26 (13%) were moderately underweighted and 12 (13%) were severely underweighted. In all, the prevalence of stunting, wasting and underweighting are recorded 20, 28 and 19% respectively.

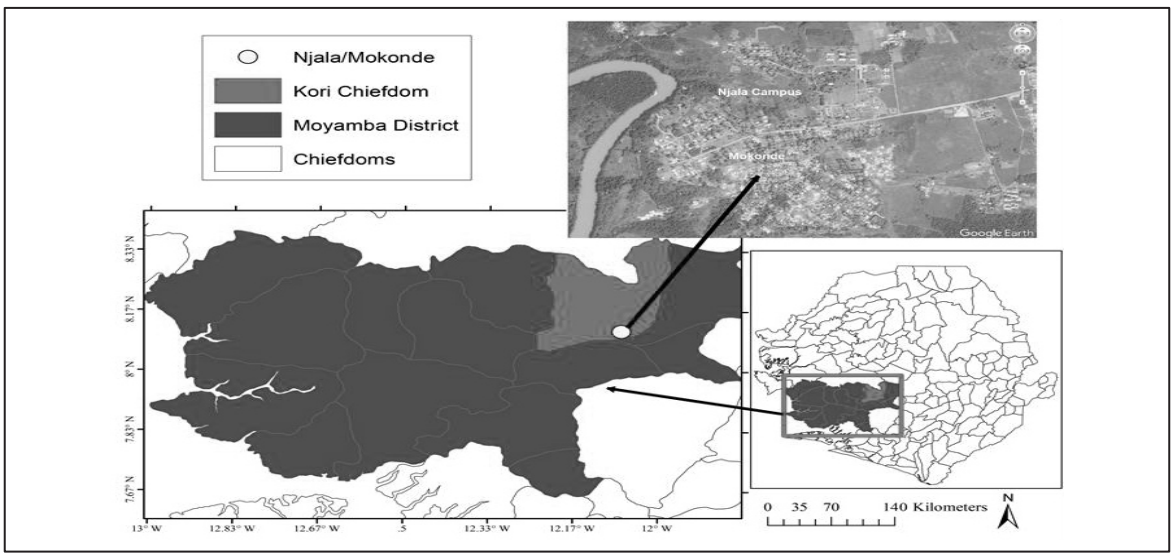

Figure 1: Map of Sierra Leone Showing Southern Region and Njala Area (Study Area)

Table 1: prevalence of stunting, wasting and underweighting among underfive children.

Category	**SD (Z score)**	**No. of Children**	**% Stunting (HAZ)**
Normal	+2SD to −2 SD	160	80.0
Moderate	<−2SD to −3SD	34	17.0
Severe	−<3		3.0
Total No. of Stunting %		**40**	**20.0**
Category	**SD (Z score)**	**No. of Children**	**% Wasting (WHZ)**
Normal	+2SD to −2 SD	144	72.0
Moderate	<−2SD to −3SD	38	19.0
Severe	−<3	18	9.0
Total % of Wasting		**56**	**28.0**
Category	**SD (Z score)**	**No. of Children**	**% Underweighting (WAZ)**
Normal	+2SD to −2 SD	162	81.0
Moderate	<−2SD to −3SD	26	13.0
Severe	−<3	12	6.0
Total % of Underweighting		**38**	**19.0**

Table 2: effect of nutritional status of under-five children on level of growths

		Classes of nutritional s tatus		
Category of growths	**SD (Z score)**	**HAZ**	**WHZ**	**WAZ**
Normal	+-2SD to -2SD	160	144	162
Moderate	<-2SD to -2SD	34	38	26
Severe	-<3	6	18	12

α= 0.05; df = 4; p-value =0.000293; x^2_{cal}= 0.0049; x^2_{cv}= 9.488

Table 3: gender prevalence of stunting, wasting and underweighting among underfive children.

		Gender			
		Male		Female	
Nutritional status	**No. of Children**	**N**	**%**	**N**	**%**
HAZ					
Normal/not stunted	160	73	45.6	87	55.4
Moderately stunted	34	19	56.0	15	44.0
Severely stunted	6	4	66.7	2	33.3
Total % Prevalence of stunting	**40**	**23**	**57.5**	**17**	**42.5**
	α=0.05; df= 2; p = 0.360; x^2_{cal} =2.046; x^2_{cv} = 5.991				
WHZ					
Normal/not wasted	144	70	48.6	74	51.4
Moderately wasted	38	17	44.7	21	55.3
Severely wasted	18	6	33.3	12	66.7
Total % Prevalence of wasting	**56**	**23**	**41.1**	**33**	**58.9**
	α=0.05; P=0.459; df= 2; x^2_{cal} = 1.560; x^2_{cv} = 5.991				
WAZ					
Normal/not underweighted	162	78	48.1	84	51.9
Moderately underweighted	26	10	38.5	16	61.5
Severely underweighted	12	4	33.3	8	66.7
Total % Prevalence of underweighting	**38**	**14**	**36.8**	**24**	**63.2**
	α= 0.05; df= 2; p=0.434; x^2_{cal} = 1.671; x^2_{cv} = 5.991				

Table 2 showed the relationship between classes of nutritional status of under-five children and level of growths. The result revealed that the observed number of the classes of nutritional status of under-five children depicted a statistically significant changes from the level of growths ($p<0.05$). However, the obtained number of the growths did not differ from what would have been expected theoretically, x^2 = (4, N= 200) was 0.0049 at α = 0.05. The critical x^2 (0.05, 4, N= 200) was 9.49. Therefore, the variation was NOT too large enough to be explained by chance alone. So, fail to REJECT Null hypothesis and conclude that the classes of nutritional status is independent of categories of growth.

Table 3 showed the sex-wise prevalence of stunting, wasting and underweighting among under-five children. Results indicated that the prevalence of stunting was relatively higher in males (57.5%) than female (42.5%). Too, 19 (56%) and 4 (66.7%) males were moderately stunted and severely stunted compared to 15 (44%) and 2 (33%) of females.

Also, the prevalence of wasting was higher in females (58.9%) than males (41.1%). Again, 17 (44.70%) and 6 (33.3%) males were moderately and severely stunted compared to 21 (55.3%) and

12 (66.7%) of females. More so, the prevalence of underweighting was higher in females (63.2%) than males (36.8%). while 10 (38.5%) and 4 (33.3%) males were moderately underweighted compared to 16 (61.5%) and 8 (66.7%) of females.

In HAZ, WHZ and WAZ, there is no significant variations between gender and category of growth ($p>0.05$).The observed frequency of the male and female did not differ significantly from what would be expected theoretically, x^2 (2, N= 200) = 2.05, 1.56 and 1.67 respectively ($p>0.05$). The critical x^2 (0.05, 2, N= 200) was 5.991. Therefore, the variation was NOT too large to be expected by simple random change alone.

Table 4 indicated the prevalence of stunting, wasting and underweighting in relation to age of underfive children. The prevalence of stunting was 22.5%, 30.0%, 35.0% and 12.5%. The highest prevalence of moderate stunting occurred among children 25-36 months (38.2%), and least in children aged 37-59 months (11.8%). Prevalence of severe stunting was highest among children 13-24 months (50.0%).

Also, prevalence of wasting was 19.6%, 44.6%, 21.4% and 14.3%. Results indicated that prevalence of wasting was highest in children 13-24 months (44.7%) and lowest in 37-59 months (18.0%). Still, highest prevalence of moderate wasting occurred among children of 13-24 months (41.0%) and lowest in 37-59 (15.8%). Highest prevalence of severe wasting was among 13-24 months (44.4%) and lowest in 37-59 months (11.1%).

Furthermore, prevalence of underweighting was 0-12 months (28.9%), 13-24 months (39.5%), 25-36 months (18.4%) and 37-59 months (13.2%). Results indicate that prevalence of underweighting was highest in 13-24 months (39.5%) with lowest in 37-59 months (13.2%). Too, highest prevalence of moderate underweighting occurred among children 13-24 months (38.5%) and lowest in 37-59 (7.7%). Highest prevalence of severe underweighting was among 13-24 months (41.3%) and lowest in 25-36 months (8.3%).

In HAZ, WHZ and WAZ, there is no significant variations between age and category of growths ($p>0.05$).The observed frequency of the ages did not differ significantly from what would be expected theoretically, x^2 (6, N= 200) = 0.16, 0.78 and 0.21 respectively ($p>0.05$). The critical x^2 (0.05, 6, N= 200) was 12.591. Therefore, the variation was NOT too large to be expected by simple random change alone.

Demographic and socio-economic variables of the children parents

The results revealed that 70% of the respondents fall within 26-35 years, 15% fall within 36-45 years, 10% within age of 18-25 while only 5% fall ≥46 years (table 5). The frequency distribution of respondents by sex showed that 60% of the respondents were females while 40% were males. In marital status, 70% of the respondents were married, 20% were single while 10% were separated. The educational levels of respondents depicted that 50% lacked formal education but 20% had university and primary level of education while only 10% attained secondary level.

Exactly 50%, 30% and 20% were farmers, traders and health workers respectively. However, none of the respondents was teachers, civil servants or self-employed. In earnings, 80% earned between Le250,000-Le500,000 monthly, while only 20% earned between Le1,000,000-Le2,000,000 monthly. In knowledge of malnutrition, 90% heard about malnutrition while 10% have not. In signs and symptoms, 40% identified loss of hair on the child's head; 30% mentioned oedema while 30% skinny. However, none of them mentioned stunting as a sign of malnutrition.

Also, 100 and 80% gave their children breast milk as first food and breastfeed them immediately after birth respectively but 20% breastfeed a day after. On exclusive breastfeeding, 90% breastfeed for only 1-2 months while 5% for 3-4 months and 5-6 months. In initiation of supplementary feeding, 90% gave supplementary feeds between

3-4 months while 10% start in 5-6 months.
In number of times supplementary foods are given per day, 60% feed 3 times, 30% and 10% feed 2 and 4 times respectively. In dietary diversity within 24 hours, 40% served cereal, 20% milk products, 15% sea food and 10% legumes and nuts while 5% leafy vegetables, fats and oils and fruits but none served served eggs, meat and other food in miscellaneous.

Table 4: age prevalence of stunting, wasting and underweighting of underfive children

		Age (months)							
No. of children		**0 – 12**		**13 – 24**		**25 – 36**		**37 - 59**	
		N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
HAZ									
Normal/not stunted	160	30	18.8	28	17.5	52	32.5	50	31.3
Moderately stunted	34	8	23.5	9	26.5	13	38.2	4	11.8
Severely stunted	6	1	16.7	3	50.0	1	16.7	1	16.7
Total % Prevalence of stunting	**40**	**9**	**22.5**	**12**	**30.0**	**14**	**35. 0**	**5**	**12.5**
		α= 0.05; df=6; p= 8.64E-05; x^2= 0.16; x^2cv=12.591							
WHZ									
Normal/not wasted	144	42	29.2	50	34.7	30	20.8	22	15.3
Moderately wasted	38	8	21.1	17	44.7	7	18.4	6	15.8
Severel wasted	18	3	16.7	8	44.4	5	27.8	2	11.1
Total % Prevalence of wasting	**56**	**11**	**19.6**	**25**	**44.6**	**12**	**21.4**	**8**	**14.3**
		α= 0.05; df= 6, p= 7.32E-03; x^2= 0.78; x^2cv=12.591							
WAZ									
Normal/not Underweighted	162	31	19.1	51	31.5	62	38.3	18	11.1
Moderately	26	8	30.7	10	38.5	6	23.1	2	7.7
Severely Underweighted	12	3	25.0	5	41.7	1	8.3	3	25.0
Total % Prevalence of underweighting	**38**	**11**	**28.9**	**15**	**39.5**	**7**	**18.4**	**5**	**13.2**
		α=0.05; df= 6; p= 1.71E-04; x^2=0.21; x^2cv= 12.591							

Table 5: Demographic and socio-economic variables of the children's parents.

Variables		N	%
Gender	male	80	40
	female	120	60
Marital status	single	40	20
	married	20	10
	separated	140	70
Age	18-20	20	10
	25-34	140	70
	35-45	30	15
	>46	10	5
Educational status	university	40	20
	secondary	20	10
	primary	40	20
	informal	100	50
Occupation	Health workers	40	20
	Self employed	0	0
	traders	60	30
	farmers	100	50
	teachers	0	0
	civil servant	0	0
Monthly household income	250,000-500,000	160	80
	1-2m	40	20
	3-4m	0	0
	5-6m	0	0
Knowledge of malnutrition	yes	180	90
	no	20	10
Signs of malnutrition	stunted	0	0
	skinny	60	30
	edema	60	30
	Loss of hair	80	40
	Poor appetite	0	0
Period of exclusive breastfeeding in months	1-2	180	90
	3-4	10	5
	5-6	10	5
	>6	0	0
First diet after birth	Breast milk	200	100
	Milk formula	0	0
	Hot water	0	0
	porridge	0	0
Starting time of breastfeeding	≤ 1 hr	180	90
	24 hrs	20	10
	2-3 day	0	0
	>3	0	0

	1-2	0	0
Time of supplementary after birth	3-4	180	90
	5-6	20	10
	>6	0	0
	2	60	30
Number of times supplementary meals/day	3	120	60
	4	20	10
	>4	0	0
	cereal	80	40
Dietary diversity of children in 24 hrs	egg	0	0
	milk product	36	18
	meat	0	0
	Legumes and nuts	20	10
	fruits	10	5
	tubers	4	2
	sea food	30	15
	vegetables	10	5
	miscellaneous	0	0
	Fats and oil	10	5

DISCUSSION

Malnutrition is the most sensitive health indicator that reflects the quality of the health care delivery system and socio-economic progress of a country (1). This study attempted to identify some factors that would tend to influence the nutritional status of the underfive children in the study area.

Table 1 observed prevalence of 20% stunting, 28% wasting and 19% underweighting. The high prevalence of stunting observed may be attributed to a combination of factors like poor nutrition, infection and level of mother-child interaction. The prevalence of stunting (20%) recorded is comparable to the reports of Gebre *et al*. (11) and Yisak and Ewunetei, (12). Contrarily, the stunting is lower than reports of Roba *et al*. (13), Menalu, (14) and Sakwe *et al*., (15). The difference may be due to difference in sample sizes.

In table 2, the result exposed that the observed number of the classes of nutritional status of under-five children differed significantly at $p<0.05$. However, the obtained number of the growths did not differ from what would have been expected theoretically, x^2 = (4, N= 200) was 0.0049 at $\alpha = 0.05$. The critical x^2 (0.05, 4, N= 200) was 9.49. Therefore, the variation was NOT too large enough to be explained by chance alone. So, fail to REJECT Null hypothesis and conclude that the classes of nutritional status is independent of categories of growth.

This study also reported higher prevalence of stunting among males (57.5%) than females (42.5%) (table 3). This finding is in accordance with previous studies reported by Kejo *et al*. (16) and Amare *et al*. (17). This high incidence in males might be attributed to certain historical social factors that lend females to slight anthropometric advantages over males in sub-Saharan Africa, because of their potential for work in agricultural sector while males are being more predisposed to symptomatic and asymptomatic morbidity which ultimately results in stunting (18). This study also revealed moderate and severe stunting prevalence of 17.0% and 6.0% respectively that are comparable to 17.0% moderate stunting and 7.9% severe stunting reported by Amare et al. (17), 21.3%

moderately stunted and 10.0% severely stunted and 22.8% moderate stunting and 12.5% severe stunting reported by SLNNS, (9). Furthermore, the prevalence of moderate and severe stunting was higher in males (56.0%; 66.7%) than in females (44.0%; 33.3%) respectively. The findings concurred with studies conducted by SLNNS, (9) and Amare *et al*. (17).

This study observed higher prevalence of stunting in children 25-36 months with lowest in 37-59 months. This is in divergence with the results of others who reported higher prevalence of Yang *et al*, (19) and Roba *et al*. (13).

The high prevalence of wasting (28.0%) was recorded which requires urgent attention to reduce the incidence of wasting in the area. However, 28.0% prevalence of wasting is comparable to 33.0% reported by Menalu *et al*. (14) and 34.8% by Sakwe, *et al*. (15). Divergently, the result is higher than 5.1% reported by SLNNS, (9) and 11.9% by Yisak and Ewunetei, (12). The incidence of wasting was higher among females than males and this finding agrees with the report of Sakwe et al. (15). It also reported moderate and severe wasting prevalence of 19.0% and 9.0% respectively which are higher than moderate and severe wasting prevalence of 3.9% moderate and 0.4% severe wasting reported by SLNNS, (9). The study also reported higher wasting prevalence among children 13-24 months and lowest in 37-59 months which is in contrary to Thorne *et al* (19) and Roba *et al*. (13).

The prevalence of 19.0% underweighting reported is comparable with 13.6% by SLNNS, (9) and 26.0% by Menalu *et al*. (14). However, this finding is lower than the reports of Yang *et al* (19), Gebre *et al*. (16) and Sakwe *et al*. (15). However, prevalence of underweight reported is higher than 7.6% reported by Yisak and Ewunetei, (12) and 9.4% by Thorne *et al* (18).

This study reported higher prevalence in underweighting among females (63.2%) compared to males (36.8%). This finding agrees with reports of Amare *et al*, (17; Gebre *et al*, (11), SLNNS, (9), and Sakwe *et al*. (15). Similarly, females recorded higher prevalence of moderate and severe underweighting (61.5%; 66.7%) compared to males (38.5%; 33.3) respectively. This findings contrast with reports of Kejo *et al*. (16) which reported higher moderate and severe underweighting prevalence for boys than girls.

In HAZ, WHZ and WAZ, there is no significant variations between gender and category of growth at $p>0.05$.The observed frequency of the male and female did not differ significantly from what would be expected theoretically, x^2 (2, N= 200) = 2.05, 1.56 and 1.67 respectively at $p>0.05$. The critical x^2 (0.05, 2, N= 200) was 5.991. Therefore, the variation was NOT too large to be expected by simple random change alone.

The prevalence of underweighting was highest in 13-24 months (39.5%) and lowest in 37-59 months (13.2%) (table 4). This finding is consistent with report from a study conducted in Ethiopia by Gebre *et al*. (2019). In HAZ, WHZ and WAZ, there is no significant variations between age and category of growths at $p>0.05$.The observed frequency of the ages did not differ significantly from what would be expected theoretically, x^2 (6, N= 200) = 0.16, 0.78 and 0.21 respectively at $p>0.05$. The critical x^2 (0.05, 6, N= 200) was 12.591. Therefore, the variation was NOT too large to be expected by simple random change alone. The highest proportion (60%) of parents is females that are within 26-35 years which clearly demonstrated that majority of the parents are within the child bearing age.

In table 5, 70% of the parents are married while 30% are unmarried and half lacked formal education. Consequently, this high proportion of single parent with low educational background could tend to hinder the provision of adequate support during growth and development of their children. Generally, children born to single parents with lower education level are more likely to be malnourished. Asoba *et al*. (20) reported that children from single parents are at higher risk of malnutrition than children from married parents. Too, single parents face serious challenges in raising a family especially those of low socio-economic status. The parental care given to their children is minimal as they spent more time sourcing for income to cater for the family needs. Parents with no formal education

significantly showed low practice of exclusive breastfeeding because they lack the information on the importance of exclusive breastfeeding (20). Menalu *et al*. (14) reported that education could make a difference by empowering mothers to make informed nutritional decisions.

Exactly, 70% of the parents are farmers and traders while 80% earn barely between Le250, 000 – Le500, 000 monthly and children born to such lower wealth index parents are more likely to suffer food insecurity. This study revealed that 90% of the parents is aware of malnutrition and can identify major signs. However, none of them could identify stunting as a key sign of malnutrition, which is a concern in dealing with malnutrition.

All parents breastfeed their babies after birth while greater part breastfeed immediately after birth. Majority of the parents do exclusively breastfeed for 1-2 months. These findings are consistent with report of Campbell *et al*. (21). Menalu *et al*. (14) reported that the practice of exclusive breastfeeding has a significant association with stunting, wasting and underweight. Exclusive breastfeeding provides all nutrients needed for proper growth and development during the first six months of a child's life.

About 90% gave supplementary foods to their babies within are 3-4 months, quite before the period of 6 months recommended by WHO. According to Asoba *et al*. (20) early introduction to complementary foods, early cessation of breastfeeding and increased consumption of fatty or sugary foods in a month increased risk of infection. Also, different foods; cereals, milk and milk products, were served to their children within 24 hours and few serve fish/sea food, legumes and nuts and others serve dark green leafy vegetables, fats and oils and fruits. However, none of the parents served eggs, meat, and other food types. The findings revealed low dietary diversity buttressing some form of nutritional inadequacy in the study area.

Conclusion

From the findings, there was a high prevalence of wasting even higher than the national and regional prevalence and in HAZ, WHZ and WAZ; the categorical variables did not offer sufficient evidence to conclude that the variations exceed what would be explained by mere random chance alone.

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Availability of data: The data used for the study are available with the corresponding author

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