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Assessment of nutritional status of under five years old children in Banadir Hospital Mogadishu Somalia

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ABSTRACT

Introduction. It's a recent emerging problem documented in developing countries, malnutrition under five children contributes to major current health problems (morbidity and mortality) inseveral ways. Undernutrition remains a devastating problem in many developing countries affecting over 815 million people causing more than one–half of children's death. Study objective was to assess the nutritional status of under-five-year-old children in Banadir Hospital Mogadishu Somalia.

Method and material. a Hospital bases cross-sectional studywas conducted in triangulated quantitative approach was carried out from June 2017 to November 2017 among 150 participants in Banadir Hospital Mogadishu Somalia, sample Random sampling was employed to select the sampled participants, a sum-structured questionnaire was used to collect the socio-demographic characteristics, Usual Dietary intake and assess adequacy, Breastfeeding and Complementary feeding pattern of the mothers and anthropometric index of the children.

Results. A descriptive analysis was carried out to identify the nutritional status of the children under 5 years old, age categorized into 0-1 years old were 52.7%, 32.0% were 1-2 years old, 8.7% were 3-4 years old and 6.7% were 4-5 years old. With mean and Std. of **17.44±13.096** age was most critical variable because it was one of the scales of the MAC measurements and target objective of the study. families uses 50 US dollar per month were 32.0%, 51-100 US dollar were 22.7%, 101-150 US dollar were 20.7%, 151-200 US dollar were 12.7%, 201-250 US dollar were 10.0%, and 251-300 US dollar were 2.0%. And **Mean &Std. Deviation2.52± 1.413**,

Conclusion. The research also concludes that most of Mothers doesn"t well understand the necessary need of child nutrition. So that in this study I recommended that this needs extra researchers should launch researches on Nutritional Status

INTRODUCTION

Nutritional status is the balance between the intake of nutrients and the expenditure of these in the processes of growth, reproduction, and health maintenance. Undernutrition, especially in children, can lead to substantial problems in mental and physical development. Undernourished children can also suffer several diseases from nutrient deficiencies. Although the overall pattern of growth is genetically determined, it is significantly affected by nutrition. Socioeconomic status, nutritional knowledge and feeding practices among others are some of the reasons why children maybe undernourished. Female head porters who care for their children, due to the low wages they earn may not be able to afford healthy meals and provide the necessary care for these children.1. Nutrition plays the most important part in growth [2]. It influences growth before and after birth [3]. Proper nutrition and control are important in promoting the normal growth and development of children. Rapidly growing infants, children and maturing adolescents have specific but notnecessarily fixed requirement for macronutrients and micronutrients. It plays a central role in growth and changing body composition. [4.] Children below the age of five years constitute the most vulnerable segment of the community. Their nutritional status is a sensitive indicator of community health and nutrition, and undernutrition among them is one of the greatest public health problems in developing countries.[6] In early childhood, nutritional status is of paramount importance for a child‟s later physical, mental and social development. The inadequate or excessive intake of nutrients may result from disease factors that affect digestion, absorption, transport, and utilization of nutrients.[12] In Somalia malnutrition under five children contributes major current health problems (Morbidity and mortality) in several ways. Under nutrition remains a devastating problem in many developing countries affecting over 815 million people causing more than one half of children death.10,11Although WHO, UNICEF and Somali‟s National Breastfeeding policy recommended that infants be exclusively breastfed from birth to 6 Months and continue breastfeeding to 24 months and beyond for optimal survival, growth Development unfortunately only 9.00% of infants under six months of age are exclusively Breastfed in Somalia.[16]The poor breastfeeding and inadequate complementary feeding explained the protein energy malnutrition level in children as they grow older.

Methods and Materials

Study design: Hospital Based descriptive cross-sectional study design

Study period and duration**:** The study was conducted during the period from July to December 2023

Study Population**:** The study population was children under five years in Banadir hospital in Mogadishu Somalia

Sample Size

The sample size was 150. This was determined using the formula by Kothari (2003).

$$\frac{z^2pq}{d^2}$$

N=target population

Where n=required sample size form this cross sectional study.

Z= percentiles of the standard normal distribution corresponding to 95% confidence level which is equal to 1.96.

P = is the expected proportion or percentage of malnutrition children in Banadir region is 19 % (FSNAU technical series report, December 21, 2016):

q = population without the characteristics being measured (1-19%)

d = Degree/ proportion of error that was accepted in the study. This study adopted 5% degree of error (0.05).

$$N=\frac{1.96^2 x 0.19 x 0.81}{0.52}=\frac{1.96 x 1.96 x 0.19 x 0.81}{0.05 x 0.05}=236$$

The total sample size was 236 but due to constraints in time and resources only 150 sample was taken.

Sampling Technique

The sample procedure which was used for the study non-probability sampling, specially, the Purposive sampling. Purposive sampling also referred to as judgment, selective or subjective.

Mid Upper Arm Circumference (MUAC): Normal MUAC for a child between 1-5 years of age is greater than 13.5 cm. If the MUAC is 12.5-13.5, the child has mild to moderate malnutrition and if it is less than 12.5 cm it is suggestive of severe malnutrition. This is useful for screening a large number of children but less useful in long term growth monitoring. The techniques to measure mid arm circumference include accurate measurement with a tape and a simple bangle test. Bangle test using plastic bangles of an inner diameter of 3.7 cm (Red Bangle) and 4 cm (Yellow bangle) the bangle was passed up the forearm and the upper arm to decide if the upper mid-arm circumference was below or above 12.6 cm.

Data Collection Procedure

Data was collected through pre tested semi structured questionnaire, face to face interview withthe mothers and anthropometric measurements.

Quality Control

The research assistants were health professional in the field of public health (Bachelor holders infaculty of public health).

The research assistants were health professional in the field of public health (Bachelor holders in faculty of public health).The research assistants were trained by the investigator using internet. The research assistants checked the questionnaire, on the completeness, accuracy and consistency before the next respondent was interviewed.

Data Analysis

Data was analyzed by using SPSS, version 21.0. All the responses obtained from the Participants were coded numerically and entered into the SPSS, version 16.0 for analysis. Descriptive statistical analysis will be used to calculate the frequencies and Percentages. The descriptive analysis of data will be presented as figures and tables.

Results

Socio-demographic characteristic.

Table 1: socio-demographic characteristics of the study population.

Variable		**Frequency**	**Percentage**
Gender	Male	90	60%
	Female	60	40%
	Total	**150**	**100.0%**
Age of child	0-1 years	79	52.7%
	1-2 years	48	32.0%
	3-4 years	13	8.7%
	4-5 years	10	6.7%
	Total	**150**	**100.0**
	Mean and Std.D		**17.44±13.096**
Mother age	15-30 years	95	63.3%
	31-40 years	46	30.7%
	41 and above	9	6.0%
	Total	**150**	**100.0%**
Number of the family members	1-4	66	44.0%
	5-8	61	40.7%
	9-13	21	14.0%
	13 above	2	1.3%
	Total	**150**	**100.0%**

Occupation of head of the family	Self employed	69	46.0%
	Un employed	15	10.0%
	Looking work	25	16.7%
	Retied	6	4.0%
	Worker	8	5.3%
	Student	9	6.0%
	Other	18	12.0%
	Total	**150**	**100.0%**
Primary source of water of household	Pipe water	40	26.7%
	Filtered water	6	4.0%
	Borehole	10	6.7%
	Well	84	56.0%
	Other	10	6.7%
	Total	**150**	**100.0%**

Gender: Under five years old male and female children was respondents of the study. The populations were male 60% while the female percentage of the study was 40%.

Age of Child: Among the respondents 52.7% were 0-1 years old, 32.0% were 1-2 years old, 8.7% were 3-4 years old and 6.7% were 4-5 years old. With mean and Std. of **17.44±13.096** age was most critical variable because it was one of the scales of the MAC measurements and target objective of the study.

Mother age: these categories used in the study 15-30 years old were 63.3%, 31-40 years old were 30.7% while 40 years above were 6.0%.

Number of Family members: number of the children in the family or the family size was one ofthe most important, 1-4 individuals were 44.0%, 5-8 individuals were 40.7%, 9-13 individuals were 14.0% and 13 individuals and above were 1.3%, obvious in sub-sahra Africa there is a high fertility rate and Somalia is plying major role.

Occupation of head of the family: Self-employed of the respondents were 46.0%, un- employed were 10.0% , looking work were 16.%, retired were 4.0%, only 5.3% ware workers, 6.0% were students and again 12.0% others.

Primary source of water of household: Among respondents who use Pipe water were 26.7%, Filtered water were 4.0%, borehole were 6.7%, well were 56.0% and others were 6.7%.

Breastfeeding and complementary feeding pattern of the mothers.

Variable		Frequency	Percentage
Time of initiating breastfeeding	Within the first hour after birth	51	34.0%
	Between 1 hour to 2 hour	47	31.3%
	More than 2 hour	52	34.7%
	Total	**150**	**100.0**
Other liquids given to infant before breastfeeding	Water only	29	19.3%
	Water and sugar	18	12.0%
	Tea or herbal water	44	29.3%
	Milk formula	8	5.3%
	Other	35	23.3%
	None	16	10.7%
	Total	**150**	**100.0%**
Period after breastfeeding baby will be given food.	1-30 days	14	9.3%
	1-2 month	50	33.3%
	3-4 month	15	10.0%
	5-6 month	17	11.3%
	above 6 month	54	36.0%
	Total	**150**	**100.0**
Duration of	0-6 month	39	26.0%
	6-9 month	48	32.0%
	9-11month	39	26.0%

breastfeeding	11-14 month	12	8.0%
	14-24 month	12	8.0%
	Total	**150**	**100.0**

Time initiating breastfeeding: 34.0% mothers give their baby breastfeeding within the first hour of the birth, 31.3% give breastfeeding within 1hour to 2 hour and another group of 34.7% give breastfeeding after 2 hour from the birth.

Other liquids given to infant before breastfeeding: 19.3% of respondents were given their infants water only, 12.0% water and sugar, those give tea or herbal water was 29.3%, there is a group which was given a milk formula 5.3%, 23.3 was given others and 10.7% was given none only direct the breast.

Period after breastfeeding baby will be given food: normally baby feeds breast within period after the baby stomach became ready to digest normally mothers start normal food, about 9.3% of study subject was given the normally food after 1-30 days, 1-2 months were 33.3%, those 3-4 months were 10.0%, 5-6 months were 11.3% and above 6 month were 36.0%.

During breastfeeding: among the respondents 26.0% were giving breastfeeding 0-6 months, 32.0% were 6-9 months, 26% were 9-11, while 8% were 11-14 months and 8% were 14-24 months.

4.6. Association between anthropometric measurement and family income

Table 4: Association between anthropometric measurement and family income

Variables	Acute malnutrition				Total	Chi-square	P-value
Family income	severe	Moderate	mild	normal			
50 US dollar	22	14	4	8	48	27.987[a]	.022

51-100 US dollar	11	6	4	13	34		
101-150 US dollar	7	5	2	17	31		
151-200 US dollar	2	3	4	10	19		
201-250 US dollar	4	1	1	9	15		
251-300 US dollar	0	0	1	2	3		
Total	46	29	16	59	150		
	MAUC in Cm						
family income	<11.5		11.6-12.4	>12.5			
50 US dollar	38		3	7	48	37.574[a]	.000
51-100 US dollar	17		5	12	34		
101-150 US dollar	12		9	10	31		
151-200 US dollar	4		4	11	19		
201-250 US dollar	3		2	10	15		
251-300 US dollar	0		1	2	3		
Total	74		24	52	150		

The above table 4 summarizes relationship between family income and anthropometric measurement about nutritional status of under five children. There is significant association between anthropometric measurement and family income: **acute malnutrition (χ2= 27.987[a])and MAUC in Cm (χ2= 37.574[a])**

4.7. Association between acute malnutrition and knowledge of mother for nutritional status on her child

Table 5: Association between acute malnutrition and knowledge of mother fornutritional status of her child

Variables	Acute malnutrition				Total	Chi-square	P-value
knowledge of mother for nutritional status on her child	severe	Moderate	mild	normal			
Good knowledge	6	4	5	25	40	14.438[a]	.002
Poor knowledge	40	25	11	34	110		
Total	46	29	16	59	150		

The above table 5 summarizes the relationship between **acute malnutrition and the knowledge of mother for nutritional status on her child**. There is significant association between **Acute malnutrition** and **knowledge of mother for nutritional status on her child** (**χ2= 14.438[a])**.

Discussion: In my research shows that children in this study: chronic malnutrition 16.0% were severe, 14.7% of the respondents were moderate, 24.0% of the respondents were mild and acute malnutrition 30.7% were severe, 19.3% of the respondents were moderate, 10.7% of the respondents were mild. According to MUAC assessments the study found 49.3% were severe, 16.0% of the children were mild malnourished, 34.7% of the children were well-nourished children.

FSNAU (2013-2014) found that Global Acute Malnutrition (GAM, 12.0%) and median Severe Acute Malnutrition (SAM, 1.9%) rates are lower, compared to six months ago (14.9% and 2.6%, respectively) as well as one year ago (14.2% and 2.6%, respectively)

The finding of this study support FSNAU‟s finding where Malnutrition rate was found to be predominated form, among the 150 children included in the study 60% were males and 40% were females (table, 4.1).

This finding agrees with many other studies carried out in Somalia where it was found that more males suffer from malnourished than females as their numbers in the community are very.

In this study illiteracy was found to be high amongst the parents particularly mothers.

The result showed that the majority of the mothers‟ respondents 70.7% were no formal education, 16% of the respondents were having primary education, 8.0% of the respondents were secondary education,

only 2.7% of the respondents were collage graduate, and 2.7% of the respondents were university level see table (4.1).

***Conclude*:** According to the findings in this study we found that all types of malnutrition exist; chronic malnutrition 16.0% were severe, 14.7% of the respondents were moderate, 24.0% of the respondents were mild and acute malnutrition30.7% were severe, 19.3% of the respondents were moderate, 10.7% of the respondents were mild. The study was showed a general tendency for early weaning. According to MUAC assessments the study found 49.3% were severe, 16.0% of the children were mild malnourished, 34.7% of the children were well-nourished children.

Recommendation

The parents should be encouraged to include more fruits in their daily meals.

According to the study findings, most of the children were malnourished, due to that, emphasis should be given in improving the knowledge and practice of the parents on appropriate infant and young child feeding practices and appropriate child health care measures.

Mothers‟ level of complementary breastfeeding and complementary feeding practice were not appropriate, health authorities especially ministry of health should set policies along with training to encourage and enhance appropriate practice complementary breastfeeding and complementary feeding and to prolong duration as long as possible.

Mass immunization program to immunize all children against preventable diseases should be made compulsory to all parents under five children.

here have to be started programs to control malaria and diarrheal diseases among under five children to decrease level of malnutrition.

To give health education at all levels including school, University, health services and community level.

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