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ORIGINAL ARTICLE

A Descriptive Study to Assess the Nutritional Status of Under – Five Children in the Selected Hospitals of the City

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Abstract

The health of children is of fundamental importance. Over 1/5th comprises of children aged 5-14 years i.e. the group covering and secondary education of our population.As today's children are the citizens of tomorrow's world, their survival, protection and development are the prerequisite for the future development of humanity. Without ensuring optimal child growth and development efforts to accelerate economic development significantly will be unsuccessful. Children under the age of 5 years constitute a priority group because of their large numbers. *Objectives:* The objectives of the study were 1) To assess the nutritional status of the under-five children in the selected hospitals of the city 2) To find out the association between nutritional status of under five children with selected demographic variables. *Methodology:* Quantitative research & descriptive design was adopted for the study. A total of 100 samples were selected using non probability convenient sampling technique at selected hospitals of the Nagpur city. The tool use for this study comprises of 3 sections, section A: Demographic data which consist the items for obtaining information about the selected background factors such as, age, gender, religion, types of family, place of residence, educational status of mother, educational status of father, type of delivery, no. of birth order, type of diet, & family income per month. Section B: children distributed according to their nutritional status (by using WHO criteria of malnutrition), other parameters for malnutrition like specific vitamin distribution, specific trace elements, questionnaire about the sources of food in diet of under five children. Section C: association of nutritional status by using WHO criteria of malnutrition with selected demographic variables. Result: The study findings revealed that association of the nutritional status (stunting) with religion, place of residence & birth order, for weight for height (wasting) with type of family. Conclusion: the assessment of under-five children was found to be effective to know the nutritional status of the children.

Keywords: Under- Five Children; Assess; Nutritional Status; Hospital.

Introduction:

Children constitute a large and "vulnerable" or special risk group, as 50% of all deaths were occurring during the first 5 years of life in the developing world. The pre-schoolers have to cope with the killer triad of diarrheal diseases, respiratory tract infections, and malnutrition, resulting in high morbidity and mortality. Ignoring under nutrition puts the long-term health and development of population at risk.

Despite global efforts for improving maternal and child health and specific efforts like Integrated Child Development Services Scheme, malnutrition among children remains a significant problem in India constituting 48%, 43%, and 20% of children under five years of age stunted, underweight, and wasted, respectively. The proportion of

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children who are severely undernourished is also notable-24%, severely stunted and 16%, severely underweight, Mortality rates of under 5 children is 2.5 times higher among moderately underweight and 5 times higher in severely underweight.

It is seen that children who are stunted are more prone to be wasted and underweight. This is possible that once a child is stunted, it is difficult to revise it in late childhood. Children identified with more than one form of anthropometric failure may have significant impact on the growth and development of the individual and the country at large. In view of the wide use of the anthropometric indicators to assess the nutritional status of children, this study focused on the multidimensional nature of association of the anthropometric indicators. Better understanding of the nature of association among the indicators will help in developing focused interventions to improve child health and survival.

Socio-cultural practices such as less consideration for supplementary child feedings, late weaning and poverty are major causal factors of malnutrition among under-five year children. Child health nutritional indicators are used to assess the quality of available health services as well as the general health condition of the entire population. Similarly, childhood nutritional status also determines the health and disease conditions of children in the future life.

Anthropometry is an easy tool for assessing nutritional status in individuals and communities and offers the advantages of objective evidence with relatively low technology. The childhood malnutrition is complex and the aetiology involves biological, cultural, and socioeconomic influences.

Nutrition (also called nourishment or aliment) is the provision, to cells & organism, of the materials necessary (in the form of food) to support life. Many common health problems can be prevented or alleviated with a healthy diet. A poor diet can have an injurious impacton health, causing deficiency disease such as scurvy, kwashiorkor, protein energy malnutrition etc.

The most glaring disorder in India is Protein Energy Malnutrition, deficiencies of B – Complex, Vitamin C, Vitamin A, Vitamin D, iron and calcium are commonly occurs in inadequately fed infants and children. Malnutrition is a factor constituting 13million annual deaths of children under 5years old. The numbers of malnourished children under 5years in the developing world rise from 168 million in 1975 to 184 million in 1990, but fell as a share of our developing country children from 42% to 34%. Vitamin and mineral deficiencies are less easily noticed but they can severely retard the growth and mental development of children

1. *Global Scenario:*

Stunting: Globally, an estimated 165 million children of under-five age group, i.e. 26% were stunted (i.e. height-for-age below –2 SD) in 2011 — a 35% decrease from an estimated 253 million in 1990.

Underweight: Globally, an estimated 101 million children under-five years of age, or 16%, were underweight (i.e., weight-for-age below –2SD) in 2011— a 36% decrease from an estimated 159 million in 1990.

Overweight: Globally, an estimated 43 million children of under-five years of age, or 7%, were overweight (i.e., weight-for-height above +2SD) in 2011 — a 54% increase from an estimated 28 million in 1990.

2. *India Scenario:*

India is the second most populated country in the world. Under nutrition is highly prevalent in the country with 52% of children of under 3 years being under nourished in 91-92. As late as 2006, prevalence of under nutrition was 40% in children under 5 years.

India has set goal to reduce malnutrition to 26% by 2015. At the present rate of decline,

India will be able to achieve reduction of under nutrition to 33%, which is much higher than MDG for India.

3. *Maharashtra Scenario:*

In Maharashtra rates of malnutrition:-

1. Stunting (low height for age): 40%
2. Under weight (low weight for age): 50%
3. Wasting (Low weight for height) : 21%

IMR: - 48 per 1000.

The different methods used for the appraisal of nutritional status are not mutually exclusive; on the contrary, they are complementary. So the assessment of nutritional status is done by the staff nurses & physician to know the prevalence of the different nutritional problems to treat or cure the secondary complication from that.

Materials & Methods

Quantitative approach & descriptive design was adopted for the study. The variable is the nutritional

status of under five children in the selected hospitals of the city. Demographic variables are age, gender, religion, types of family, place of residence, educational status of mother, educational status of father, type of delivery, no. of birth order, type of diet, & family income per month. The study was conducted in the outpatient department of paediatrics at Lata Mangeshkar Hospital, Nagpur, Maharashtra. The accessible population consists of under five children who visited to Lata Mangeshkar hospitals. The sample size for present study was 100. Non probability convenient sampling technique was adopted to select the samples for the study. The inclusion criteria includes: 1) 1.Under five children whose parents are willing to participate in the study. 2. Under five children whose parents are able to understand the Hindi, Marathi Language. The exclusion criteria include

1. Children of age group above 5 years. 2. Under five year children who are very sick or critically ill.

The data collection instruments consist of following sections

Section A: Semi structured questionnaire to collect the demographic data which consist the items for obtaining information about the selected Background factors such as age, gender, religion, types of family, place of residence, educational status of mother, educational status of father, type of delivery, no. of birth order, type of diet, & family income per month.

Section B: It consist of format of nutritional assessment for under five children in the selected hospitals of the city. It was divided into anthropometric measurement & assessment of protein energy malnutrition, specific vitamin deficiency, and specific trace elements, dietary assessment for newborn & child.

Grading of nutritional assessment: - (According to WHO)

Weight for height: - Normal, Wasting, Severe wasting.

Weight for age: - Normal, Under-weight, Severe under weight

Height for age: - Normal, Stunting, Severe stunting.

The content of the tools were established on the basis of opinion of nursing experts. Suggestions were incorporated in the tool. The reliability of the tool was done by Karl Pearson correlation coefficient formula. Permission was obtained from the Medical Superintendent & Matron of the Hospital. The investigator explained the objectives & methods of data collection. Data collection was done within the given period in Lata Mangeshkar Hospital. The researcher introduced herself to the parents of under-five children & developed good rapport with them. The purpose of the study was explained to every sample. So as to get their full co-operation. The collected data was coded & analysis was performed using statistical formulas.

Results

Table 1: Percentage wise distribution of under-five children with regards to selected demographic variables n=100

Demographic Variables	Frequency (f)	Percentage (%)
Age in (Months)		
0-11 months	38	38.0
12-23 months	15	15.0
24-35 months	18	18.0
36-60 months	29	29.0
Gender		
Male	57	57.0
Female	43	43.0
Religion		
Hindu	73	74.0
Muslim	3	2.0
Buddhist	21	21.0
Christian	3	3.0
Others	0	0
Type of family		
Joint	43	43.0
Nuclear	49	49.0
Extended	8	8.0
Place of residence		
Slum Area	5	5.0
Semi Urban Area	17	17.0
Urban Area	58	58.0
Rural Area	20	20.0
Educational Status of mother		
Illiterate	0	0
Primary	4	4.0
Secondary	17	17.0
Higher Secondary	45	45.0
Graduate & Above	34	34.0
Educational status of father		
Illiterate	4	4.0
Primary	3	3.0
Secondary	12	12.0
Higher Secondary	47	47.0
Graduate & Above	34	34.0
Type of Delivery		
Vaginal	57	57.0
Caesarean	38	38.0
Instrumental	5	5.0
Number of birth order		
1st child	49	49.0
2nd child	47	47.0
3rd child	3	3.0
3rd child and more	1	1.0
Type of Diet		
Vegetarian	41	41.0
Mixed	59	59.0
Family Income per month (In Rs.)		
<5000 Rs	5	5.0
5001-10000 Rs	15	15.0
10001-15000 Rs	39	39.0
>15001 Rs	41	41.0

Table 2: Distribution of children according to their protein energy malnutrition parameters. n=100

Age Group(months)	Frequency	Percentage (%)	Mean	SD
0-11 months	38	38.0	1.66	0.67
12-23 months	15	15.0	9.07	7.43
24-35 months	18	18.0	22.8	1.80
36-60 months	29	29.0	41.9	6.00
Total	100	100.0	9.58	41.67

Table 3: Distribution of nutritional status according to WHO criteria of malnutrition. n=100

	According to height for age		According to weight for age		According to weight for height	
According to age	Mild/ moderate stunting	Severe stunting	Mild/ moderate under weight	Severe under weight	Mild/ moderate wasting	Severe Wasting
0-11 Month	13	8	14	7	6	10
12-23 Month	7	1	7	4	5	5
24-35 Month	1	3	4	1	1	0
36-60 Month	8	5	10	5	9	7
Total	28	17	35	17	21	22

Table 4: Distribution of other parameter for protein energy malnutrition. n=100

Age in Months	Bilateral pitting edema	Hair (flag signs)	Dermatitis toad skin & boils, eczema	a. Platonychia b. Koilnychia c.Brittle Nails
0-11 months	0	2	1	1
2-23 months	0	0	1	0
24-35 months	2	1	2	0
36-60 months	0	4	1	1
Total	2	7	5	2

Table 5: Distribution of other parameter for Physical activity n=100

Age in Months	Pallor	Physical activity		Appetite
		Irritable	Lethargy	
0-11 months	2	2	6	1
2-23 months	1	0	1	1
24-35 months	2	0	5	3
36-60 months	1	3	0	2
Total	6	5	12	7

Table 6: Distribution of Specific vitamin deficiency in relation to age of under- five children. n=100

Age in Months	Swelled, fissured tongue	Cheilosis	Knuckle Pigmentation	Bleeding Gums	Frontal Bossing
0-11 months	0	0	0	0	1
12-23 months	1	1	0	0	0
24-35 months	1	1	0	1	1
36-60 months	0	0	1	2	0
Total	2	2	1	3	2

Table 7: Distribution of Specific trace elements according to age group of under-five children. n=100

Age Group (months)	Child immediate get the breast fed after birth	Child still breast feeding.	Mother facing a problem while breast feeding.	Test of breast feeding during day.	Times of breast feeding during night
0-11 months	17	28	11	32	28
12-23 months	6	10	5	11	11
24-35 months	0	0	1	2	5
36-60 months	2	0	0	0	0
Total	25	38	17	45	44

Table 8: Distribution of sources of foods in diet of under-five children.

n=100

Age Group (months)	The child Consume fruit.	The child consumes food (from animal sources)	Child consumes pulses daily.	Child consumes food according to like & dislike.
0-11 months	4	3	7	14
12-23 months	1	1	3	12
24-35 months	3	3	5	15
36-60 months	5	6	9	8
Total	13	13	24	49

Table 9: Association of nutritional status in relation to religion. (Height for age).

n=100

Religion	Nutritional Status			Frequency	df	χ^2value	p-value	Level of significance
	Normal	Stunting	Severe Stunting					
Hindu	42	24	7	73	6	13.94	0.030	S p<0.05
Muslim	2	1	0	3				
Buddhist	9	5	7	21				
Christian	0	1	2	3				
Others	0	0	0	0				
Total	53	31	16	100				

*S- Significant

Table 10: Association of nutritional status in relation to place of residence.

n=100

Place of Residence	Nutritional Status			Frequency	df	χ^2 value	p-value	Level of significance
	Normal	Stunting	Severe Stunting					
Slum Area	0	4	1	5	6	14.17	0.028	S p<0.05
Semi Urban Area	7	7	3	17				
Urban Area	31	16	11	58				
Rural Area	15	4	1	20				
Total	53	31	16	100				

*S- Significant

Table 11: Association of nutritional status in relation to number of birth order of mothers of under five children.

n=100

No of birth order	Nutritional Status			Frequency	df	χ^2 value	p-value	Level of significance
	Normal	Stunting	Severe Stunting					
1st child	34	10	5	49	6	13.92	0.031	S, p<0.05
2nd child	19	18	10	47				
3rd child	0	2	1	3				
3rd child and more	0	1	0	1				
Total	53	31	16	100				

*S- Significant

Table 12 Association of nutritional status in relation to type of family (Weight for Age)

n=100

Type of family	Nutritional Status			Frequency	df	χ^2 value	p-value	Level of significance
	Normal	Wasting	Severe Wasting					
Joint	25	5	13	43	4	10.16	0.038	S p<0.05
Nuclear	27	14	8	49				
Extended	7	1	0	8				
Total	59	20	21	100				

*S- significant

Discussion

Nutritional status were assessed among 100 under-five children in Lata Mangeshkar, Hospital. Distribution of respondents in relation to birth order revealed that 49% of samples were of 1st number of birth order, order, 47% were having 2nd number of birth order, 3% of samples having 3rd number of birth order, 1% of samples were having of 1st number of birth order. The tabulated x^2 value was 12.59 (df=6) which is much less than calculated x^2 value i.e. 13.92 at 0.05 level of significance. The finding of the study compared with study conducted by Amsalu S, Tigabu Z. in which children born to a mother who gave birth to more than four children were more likely to be underweight when compared to children from a mother who gave birth to less than four children.

Distribution of respondents in relation to place of residence revealed that tabulated χ^2 value is 13.96 & p –value is 0.030 which is less than 0.05, in place of residence of subject χ^2 value is 14.17 & p –value is 0.028 which is less than 0.05. The birth order of subjects the χ^2 value is 13.92 & p –value is 0.031 which is less than 0.05 so it is significant. This findings compared with the study conducted by Nguyen Ngoc Hien, Sin Kam in 2008 in which region of residence, number of children in the family were found to be significantly related to malnutrition.

Another study was conducted by Kandala, Ngianga-Bakwin, Madungu, Tumwaka P, Emina, Jacques B O, et al. on Malnutrition among children under the age of five in the Democratic Republic of Congo (DRC): does geographic location matter? It revealed that models of nutritional intervention must be carefully specified with regard to residential location.

Conclusion

The nutritional status of under - five children is find out by using the standard WHO chart, the finding revealed that, out of 100 under-five children 28 children were stunted, 35 were underweight & 22 were in sever wasting. Thus it was concluded that under-five children were come under status of malnutrition in urban area.

Also analysis revealed that there is significant association between nutritional status with religion, place of residence, birth order & type of family.

Hence it is essential that accurate information & education should know to mothers & caregivers about breastfeeding & appropriate diet of child according to their age which helps to prevent malnutrition & improve the health status of the children.

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Reference

1. PK Raghava. School health School health. Indian journal of community medicine 2005;30:1-3.
2. Anonymous. WHO. Research to improve implementation and effectiveness of school health programmes. Geneva: WHO; 1996, 1, 9, 10-15.
3. Park K. Chapter 10; Preventive Medicine in Obstetrics, Paediatrics and Geriatrics. 21st ed. Parks textbook of preventive and social medicine; p.481, 599-600.
4. Ramani KV, Mavalankar D, Joshi S, Malek I, Puvar T, Kumar H. Why should 5000; children die in India every day. Major causes of death and managerial challenges? Vikalpa. 2010;35:9–19.
5. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, et al. Maternal and Child Undernutrition Study Group. What works? Interventions for maternal and child undernutrition and survival. Lancet. 2008;371:417–40.
6. National Family Health Survey (NFHS-3), India, 2005-06. Mumbai: 2008. International Institute for Population Sciences (IIPS) and Macro International.
7. World health organization. Life in the 21st century: A vision for all. Geneva: WHO; [Last accessed on 2012 Sept 12]. World health report 1998. Available from: www.who.int/whr/1998/en/whr98_en.pdf.
8. Gupta Ashish Kumar, KakoliBorkotoky.Exploring the multidimensional nature of anthropometric indicators for under-five children in India. 2016;60(1):68-72.
9. Ghosh A, Adhikari P, Chowdhury SD, Ghosh T Prevalence of under-nutrition in Nepalese children. Ann Hum Biol 2009;36(1):38-45.
10. Veghari Gholamreza. The comparison of under –five children's Nutrition status among ethnic groups in North of Iran. Iran J Pediatrics, 2015 Aug;25(4);e2004.
11. Sharma Rimple. Essentials of Pediatrics Nursing. Jaypeebrothers medical Publishers (P) LTD. Page no. 269.
12. National Family Health Survey (NFHS-3), 2005–06: India. Mumbai: IIPS. 2007.