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## Prevalence of malnutrition among children (Aged 1-6 years) in Prayagraj district

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#### Abstract

Millions of people around the world suffer from hunger or malnutrition. Malnutrition is often used to specifically refer to under nutrition where an individual is not getting enough calories, protein, or micronutrients. In the present study was conducted in the Trans –Yamuna area of Prayagraj District with the objectives to assess the nutritional status of children (aged 1-6 years). By the questionnaire method data on dietary intake was collected by using 24 dietary recall methods and the average nutrient intake was calculated and compared with RDA. Statistical analysis was carried out to calculate frequency, per cent, mean and t -test. From the results it was observed that mean height and weight for children was found lower as compared to ICMR standards. The major findings of the results were that majority of the children i.e. 39% were found to be mild malnutrition, 31% found moderately malnutrition whereas 8% children were severely malnourished. After the nutrition education with Documentary and Folder, majority of the mothers had satisfactory knowledge level. Mothers were found to exert significant positive influence on the gain in knowledge about malnutrition and their facts. The study revealed that the mother's knowledge on nutritious diet needs to be improved.

**Keywords:** Malnutrition, prevalence, 1-6 years aged children, IAP classifications, mothers knowledge, education materials

#### Introduction

Malnutrition is widely recognized as a major health problem in developing countries. Growing children in particular are most vulnerable to its consequences. Cases with mild-to-moderate malnutrition are likely to remain unrecognized because clinical criteria for their diagnosis are imprecise and are difficult to interpret accurately. Studies have suggested that there is a need to focus on the youngest children in nutrition programmes to prevent long-term effects (Victoria, *et al.*, 2008) <sup>[1]</sup>. Undernourished children are also more likely to come from poorer backgrounds (Wagstaff, *et al.*, 2000) <sup>[2]</sup>, where they do not get enough food and are exposed to poor living conditions (for example, lack of proper sanitation or clean drinking water), which in turn leads to disease and further under nutrition. So, nutritional programmes should focus on sufficient feeding for individuals as well as families, community work, health care delivery systems and other underlying determinants, including poverty (Bhutta, *et al.*, 2008) <sup>[3]</sup>. Anthropometric measurements are the most common tool used to assess the nutritional status of a population and to monitor growth in children (Gorstein *et al.*, 1994) <sup>[4]</sup>. According to WHO (1995) <sup>[4]</sup>, anthropometry provides an indication of risks as well as that of socioeconomic development. Anthropometry is widely used, easy and low cost method popularly used for assessment health and nutritional status of children. It can be used to verify the existence of a nutritional problem in a population and to assess the magnitude of malnutrition (Bisai, 2010) <sup>[13]</sup>.

Promoting good nutrition and dietary habits is one of the most and important components of maintaining child's health. Mother is the principle provider of the primary care that her child needs during the first six years of his /her life. The type of care she provides depends to a large extent on her knowledge and understanding of the aspect of basic nutrition and care (Kaori, *et al.*, 1997). Thus this study was an attempt to estimate the nutritional status of children (aged 1-6 years).

#### Materials and Methods

The present study was conducted in Prayagraj district of Uttar Pradesh. Chaka Block was selected from the Trans Yamuna area of Prayagraj district. Four villages from Chaka block were selected randomly. Total 100 children (aged 1-6 years) were selected in which 42 girls and 58 boys were selected for the study.

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## Data Collection

The pre designed and pre tested questionnaire, which was being prepared with the help of teachers in a face-to-face manner was used to collect the data from mothers of children (aged 1-6 years). It includes demographic details, family history, socio-cultural and economic factors and anthropometric data. The dependent variables were the height-for-age, which indicates the level of stunting and weight-for-age, which indicates the level of underweight. The independent variables were occupation of the parents, income of the family, maternal educational knowledge, type of family and gender. The prevalence of malnutrition was determined by using (Weight for age) According to classification of IAP, 2011.

## Anthropometric assessment

An electronic weighing scale was used to measure the weight in kilograms. The scale was calibrated. Zero error was checked, children were without shoes and light clothing. The weighing machine was placed on a firm and flat ground. Height, Chest circumference, Head Circumference was measured with non-stretchable measuring tape. Mid- Upper-Arm Circumference (MUAC) was measured with MUAC tape in standardized way.

## Nutrition Education

Nutritional education and awareness program was conducted with the help of developed nutrition education materials like Documentary and Folder.

## Statistical Analysis

Descriptive statistics was expressed in percentages, Standard mean and t- test were used for statistical analysis, P value of < 0.05 was considered.

## Results and Discussion

**Table 1** shows the background information of the families of the children (aged 1-6years). It was found that (87%) children were Hindu and (13%) Muslim. Most of the children were living in (4-8 number of members) families (48%) followed by (2-4 number of members) families (29%) and (8-10 number of members) families were found (26%). Majority of the children were found in the age group (5 to 6) years. Large numbers of families (37%) were fall under low income (monthly income Rs.2000-3000) group and medium income (Rs.3000-4000) group (37%) and lower number of families were (28%) were (monthly income Rs.4000-5000). Mother's education of the children was found low and (44%) of them were illiterate while (26%) were educated primary level (15%) were found educated in secondary level and only (4%) were found educated in college level. Father's education of the children was found (22%) were illiterate, (30%) were educated in primary and secondary level education and only (7%) were found educated in college level. Most of the families (39%), were living in bricks with corrugated (33%) were living in Iron sheet roofing. Similar results were also found by Dave and Mistry (2017) [6] who studied nutritional and health status of tribal farm women of Sabarkantha and reported about their poor socio-economic background i.e. low income, large family size, more number of children and living in kachcha houses. The problems of low standard of living,

hunger, starvation, malnutrition, agricultural illiteracy, disease, poor sanitary and housing facilities are common to tribal people in comparison to the non-tribal (Vasudevachary, 2006).

In the present study anthropometric parameters i.e. height, weight mid-upper arm (MUAC), chest circumference and head circumference are used to assess malnutrition amongst children (aged 1-6 years). Height measurement data was presented in the Table 2 and 3 shows that the both group (girls and boys) children average mean height and average mean weight measurement then compared with ICMR standards. The data very clearly shows that both girls and boys in all ages were found having considerably lower mean values for height and weight as compared to the ICMR standards. After applying t-test the data was represent significantly. Conducted a similar study Dave *et al.*, (2016), amongst tribal children of Sabarkantha and found that both the groups (girls and boys) showed almost similar values for mean height and weight. The data very clearly shows that both girls and boys were found having considerably lower mean values for height and weight as compared to the ICMR standards. This indicated poor nutritional status of the children. Figure 1. Shows that the distribution of respondents according to their degree of malnutrition on the basis of weight-for-age (IAP classification), is very commonly used for the anthropometric studies and same is adopted for the present study. Data presented in the Figure 2, shows that only 39 per cent children studying in mild malnutrition 31 per cent moderate malnutrition and 8 per cent were severe condition. Figure 2. Shows the level of knowledge of the respondent's mothers regarding various aspects of the malnutrition and their facts. Before nutrition education majority of respondents (60 percent) were in low knowledge category followed by (25 percent) had medium level of awareness level while in the pre-exposure knowledge test, only (15 percent) respondents had high level of awareness regarding different aspects of malnutrition. In general the knowledge of respondent's mothers was very less aware about the malnutrition and related facts. It is also revealed that when the respondents were exposed to the nutritional Education material, their knowledge level was raised and it was observed majority of the respondents (43 percent) obtained medium score followed by (35 percent) respondents had high level of awareness level, while after the exposure with awareness material only (22 percent) respondents had low level of awareness level. So that obtained data revealed that there was a significant improvement in the awareness level of respondents after the exposure with the awareness material.

The statistical interpretation of the data revealed that there was a significant association ( $P < 0.05$ ) between the data regarding scores obtained by the respondents in the pre intervention and scores obtained in the post intervention. So it could be stated ICT media in the form of documentary in a best way to improve the awareness level of the respondent's mothers regarding various aspects of malnutrition. Another study by Kavitha *et al.*, (2015) Percentage wise distribution of level of knowledge of mothers of under five children shows that, highest percentage (46.6%) of mothers having average knowledge about malnutrition and 36.6% of mothers having poor knowledge regarding malnutrition, only 16.6% of mothers having good knowledge regarding malnutrition.

**Table 1:** Socio –economic background information of the respondents families

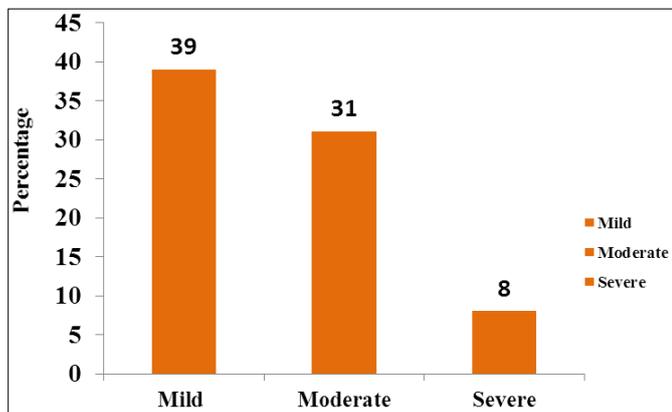
Social Attributes		Frequency(n=100)	Percent
Religion	Hindu	87	87
	Muslim	13	13
Size of Family	2-4	29	29
	4-8	45	45
	8-10	26	26
Age in (years)	1-2 (years)	19	19
	2-3(years)	20	20
	3-4(years)	20	20
	4-5(years)	17	17
	5-6(years)	24	24
Family monthly Income (Rs.)	2000-3000	37	37
	3000-4000	35	35
	4000- 5000	28	28
Mother's Education	Illiterate	44	44
	Primary School	26	26
	Secondary School	15	15
	High School	11	11
	College	4	4
Father's Education	Illiterate	22	22
	Primary School	30	30
	Secondary School	30	30
	High School	11	11
	College	7	7
House type	Bricks with corrugated	39	39
	Iron sheet roofing	33	33
	Others	28	28

**Table 2:** Distribution of the children according to their height

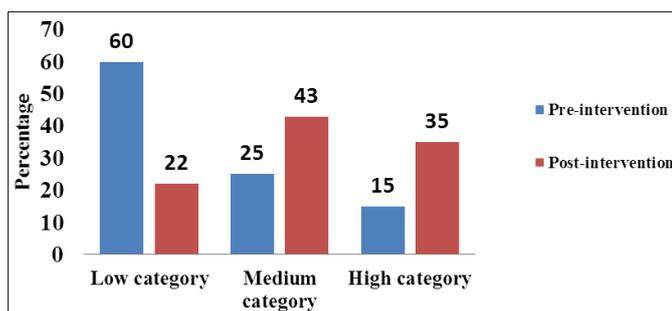
Age in years	Observed mean height measurement											
	Boys (n=58)						ICMR Std in (cm)	Girls (n=42)				
	Difference with				t- value	Result		Difference with			t- value	Result
	ICMR Std in (C.M.)	Observed Average ht. in (cm)	S.E. (±)	Difference with ICMR				Observed Average ht. in (cm)	S.E. (±)	Difference with ICMR		
1-2	85	74.76	±3.77	-10.24	15.605	S	84	76.4032	±4.95	-7.59	21.115	S
2-3	93	81.86	± 5.08	-11.14	15.695	S	92	83.82	±6.31	-8.18	21.498	S
3-4	99.7	92.1	± 8.52	-7.6	25.38	S	99	91.73	±8.64	-7.27	26.232	S
4-5	109.4	99.69	± 4.66	-9.71	21.519	S	106	99.06	±6.02	-6.94	14.058	S
5-6	115.6	106.7	±6.02	-8.9	24.975	S	113	107.04	±4.55	-5.96	36.913	S

**Table 3:** Distribution of the children according to their weight

Age in years	Observed mean weight measurement											
	Boys(n=58)						ICMR Std in (K.G.)	Girls(n=42)				
	Difference with				t- value	Result		Difference with			t- value	Result
	ICMR Std in (K.G.)	Observed Average Wt. in (Kg.)	S.E. (±)	Difference with ICMR				Observed Average wt. in (Kg.)	S.E. (±)	Difference with ICMR		
1-2	11.7	10.5	±1.09	-1.2	15.605	S	11.4	10.13	±0.63	-1.27	21.115	S
2-3	14.4	12.95	±0.88	-1.45	15.695	S	13.2	12.05	±1.07	-1.15	21.498	S
3-4	16.5	14.96	±2.06	-1.54	25.38	S	15.8	13.92	±2.30	-1.88	26.232	S
4-5	18.5	16.78	±1.09	-1.72	21.519	S	17.5	16.25	±1.18	-1.25	14.058	S
5-6	20.5	17.69	±2.50	-2.81	24.975	S	19.4	17.3	±0.78	-2.1	36.913	S



**Fig 1:** Distribution of respondents according to their Degree of malnutrition on the basis of weight-for-age



**Fig 2:** Awareness Level of the mother's at Pre- Post Intervention of nutritional knowledge

## Conclusion

On the basis of the findings we can conclude that the nutritional assessment of 1-6 year's age children were below the standards. Out of 100 1-6 years age children, according to IAP classification (weight-for-age) results (39 percent) boys and girls were suffering from mild malnutrition, (31 percent) had found in moderate malnutrition, ( 8 percent) had found in severe malnutrition.

It is also revealed that when the respondents were exposed to the nutritional Education material, their knowledge level was raised. So it could be stated ICT media in the form of documentary in a best way to improve the awareness level of the respondent's mothers regarding various aspects of malnutrition. The study implies that it is very essential that every women's in India needs to have knowledge of nutrition which builds of strong and healthy citizens for the support and development of a country. A holistic approach comprising empowering the women with education, decision making in child rearing, health care, complete immunisation including optional immunisation and preparation of nutritious food is required to combat the malnutrition among children.

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