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An Analytical Approach To Evaluate Malnutrition Impact On Underprivileged Section Of The Society

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ABSTRACT

Unfortunately, India's recent high economic growth has not been accompanied by adequate advancements in the fight against hunger and malnutrition. The study's objectives are to ascertain the prevalence of malnutrition in kids between the ages of 6 months and 5 years, as well as the sociodemographic, environmental, and other factors that are linked to acute malnutrition. Based on the findings, it will also provide suitable recommendations. Topiwala National Medical College's rural field practise area was chosen as the study's location. Children between the ages of 6 months and 5 years comprised the study population in this case. The study was a descriptive cross-sectional epidemiological study conducted in the neighbourhood. Children in the research area were underweight in 56.30% of cases, stunted in 52.96%, and wasted in 27.8%. The majority of the local children (96.7%) were Hindu. The vast majority of kids are from socioeconomic class IV (Modified B.G.Prasad). The majority of kids (28.15%) were between the ages of 25 and 36 months. Children made up 67.78% of joint families. Approximately 79% of moms had completed at least their first year of school. The prevalence of malnutrition in all three forms—underweight, stunting, and wasting—was somewhat higher in male children than in female children, which is encouraging for female children. Although the reading rate was relatively high, children's diets lacked sufficient amounts of calories, proteins, and minerals.

Keywords: Malnutrition in children, Socio-demographic factors, Rural area.

INTRODUCTION

Unfortunately, India's recent high economic growth has not been accompanied by adequate advancements in the fight against hunger and malnutrition. Given that 61 million (37%) of the 165 million stunted children under the age of five in the world are Indian children, India is a prominent location on the worldwide map of childhood stunting (UNICEF 2014). With so many hungry children, our nation cannot hope for a healthy future; the issue of malnutrition is a "National Shame," notwithstanding the great growth in our GDP (Dr. Manmohan Singh, Ex. Prime Minister, India). According to UNICEF 2016, India continues to have one-third of the world's stunted children. As a result, it falls into a serious category; 38.7% of Indian children under 5 are stunted, a sign of chronic

malnutrition, and 4.8% of children in India die before turning five. Data from the NFHS4 (national family health survey) reveals that malnutrition is quite prevalent in rural India, with rates of underweight, stunting, and wasting being respectively 40%, 38.4%, and 26.1% in rural areas and 30.7%, 29.3%, and 24.9% in urban areas. Malnutrition is widespread in Maharashtra, especially in the rural and tribal areas (wasting in children under the age of 5 is 34.7% in the rural area and 33.3% in the urban region, according to the District Level Health Survey (DLHS) 4).

Objectives of the study

The study's objectives were to identify the prevalence of malnutrition in kids between the ages of 6 months and 5 years, analyse the socioeconomic, demographic, environmental, and other factors linked to acute malnutrition, and make suggestions based on what was seen.

Research Methodology

Investigation design: This descriptive cross-sectional demographic study was conducted in a community.

Study population and location: The Yawatmal Medical College in Yawatmal, which is located in the Yawatmal district of Maharashtra, was chosen as the site for this study. One PHC with seven subcenters and a total population of 19,423 people, of which 2150 are children under the age of five, served as the study's study population. The children in the study ranged in age from 6 months to 5 years. February 2017 to January 2018: the study's time frame.

Children between the ages of 6 months and 5 years old, Families who have lived in the community for at least six months, and mothers or other primary caregivers (informants) who have consented to participate in the study were all required for inclusion.

Children with chronic disorders, deformities, impairments, and chronic infections that could be potential causes of organic failure to flourish were also excluded, as were children whose mothers or other primary caregivers (informants) were not present at the visit.

Sample size was determined using the NFHS (IV) prevalence of malnutrition in under-five-year-old children in rural Maharashtra, which was 40%. The formula n=4pq/l2 was used to get the sample size. A 270-person sample was calculated.

Sampling method - The Systematic Simple Random Sampling Method was used to acquire the data. It is known that there are 2150 children under the age of five living in the vicinity of the rural primary health centre, which has seven subcenters named A, B, C, D, E, F, and G. Interval of sampling = 2150/270 = 7.9 ~8. As a result, every eighth child between the ages of 6 months and 5 in each sub-center was chosen; a line listing of the residences was obtained from the village guide or local surpanch. The sample size was calculated based

on the number of children under five in each subcenter. The older child in those families with two kids under five was included in the study.

Utilizing pre-structured and pre-tested Performa, data was gathered. The child's age was verified by the parents, the immunisation record, the birth certificate, or the local calendar of events. Parental written consent was obtained after being told of the study's goal. A weighing machine with a least-count of 100 g (0.1 kg) was used to record the child's weight. If a child had shoes on or a chappal, these had to be taken off before the weight could be taken. The measuring tape was used to record the child's height, with a 1 cm minimum count. Its posterior occipital protuberance, heel, and buttocks touched the wall as we measured it. The length of the infant was measured using an infantometer with a 1 cm minimum count while it was properly lying down. A flexible, non-stretchable tape with a 1 mm least count was used to measure the mid upper arm circumference at the midpoint of the left arm (the position between the acromion process of the scapula and the olecrenon process of the ulna).

Weight for age (underweight), height for age (stunting), and weight for height (wasting) nutritional status indices were represented as a standard deviation (z score) from the reference median in accordance with WHO standards. These results were then contrasted with age and sex reference data derived from WHO growth standards. The deciding factors were weight for height (wasting), weight for age (underweight), and height for age (stunting). The T. N. Medical College Mumbai Institutional Ethics Committee gave its approval to the project.

Data Analysis

According to Table 1, the age group of 25 to 36 months has the most children (28.14%), while the age group of 7 to 12 months has the fewest (8.14%). Maximum number of females in this age range is 36 (36/129), or 27.90%. According to the modified BG Prasad classification shown in Table 2, the majority of children (67.78%) lived in joint households, with the highest number of children (56.67%) falling into class IV. 10.74% of fathers and 20.37% of mothers reported being illiterate. 96.7 percent of the kids are Hindu.

Table 1: Distribution of the study's participants' children by age and gender (n=270).

No. of children (age in months)	Male	Female	Total	Percentage out of total
7-12	16	6	22	22/270
	72.72	27.28	100.0	(8.14)
13-24	34	26	60	60/270
	56.67	43.33	100.0	(22.22)
25-36	40	36	76	76/270
	52.63	47.37	100.0	(28.14)
37-48	31	31	62	62/270
	50.0	50.0	100.0	(22.96)
48-60	20	30	50	50/270
	40.00	60.00	100.0	(18.51)

Table 2: Children's distribution based on sociodemographic characteristics.

Sociodemographic factors/ variables	No. of children	Percentage
Class II	18	6.67
Class III	76	28.14
Class IV	153	56.67
Class V	23	8.52
Type of family		
Joint	183	67.78
Nuclear	87	32.22
Educational status of parents-mother		
Illiterate	55	20.37
Primary	100	37.03
Secondary	71	26.30
Higher secondary	44	16.30
Educational status of parents-father		
Illiterate	29	10.74
Primary	94	34.81
Secondary	113	41.85
Higher Secondary	34	12.60
Religion		
Hindu	261	96.7
Buddhist	06	2.2
Christian	03	1.1

According to Table 3, 41.48% of females have their first kid before becoming 20, whereas 40.74% of females marry before turning 18. First and second birth orders show that only 39.25% and 35.56% of couples have more than the typical two children, respectively. The birth weight of 18.97% of babies is less than 2.5 kg. 38.16% of households have more than three children. According to Table 4, the prevalence of malnutrition in the study region was 56.30% underweight, 52.96% stunting, and 27.8% wasting, respectively.

Table 3: Distribution of children by birth order, birth weight, number of children in the family, and mother's age at first child and at marriage.

Variables	N (%)
Age of mother at marriage	
<18 years	110 (40.74)
>18 years	160 (59.26)
Age of mother at first child	
<20 years	112 (41.48)
>20 years	158 (58.52)
Birth order	
First	106 (39.25)
Second	96 (35.56)
Third	42 (15.56)
Fourth and more	26 (9.63)
Birth weight	
<2.5 kg	48 (18.97)
≥2.5 kg	205 (81.03)
No. of children in family	
<3	167 (61.85)
≥3	103 (38.16)

Table 4: malnutrition is common.

Indices	Number	Percentage
Underweight	152	56.30
Stunting	143	52.96
Wasting	75	27.8

Table 5: distribution of kids based on mid

Mid upper arm circumference		No. of children		Total (%)
		Male	Female	
>13.5 cm	Count %	91 (52.90)	81 (47.10)	172 (100)
12.5-13.5 cm	Count %	40 (50.63)	39 (49.37)	79 (100)
<12.5 cm	Count %	10 (52.63)	9 (47.37)	19 (100)
Total	Count	141	129	270

According to Table 6, there is a significant relationship between malnutrition and family type, the number of children in the family, birth order, the educational status of the

mother and father, and the age of the mother's marriage. However, there was no statistically significant relationship between age and gender of the child.

Table 6: Acute malnutrition and a variety of factors are associated.

Factors	Acute malnutrition (WHO criteria) Normal	Malnourished	Total
Age group			
7-12 months	17	5	22
1-3 years	100	36	136
3-5 years	78	34	112
Pearson Chi-square value(X^2=0.767), df=2, p<0.681 non significant			
Birth order			
First	87	19	106
Second	69	27	96
Third	26	16	42
Fourth and more	13	13	26
Pearson Chi-square value(X^2=4.432), df=1, p<0.037 significant			
No. of children in family			
<3	129	38	167
≥3	66	37	103
Pearson Chi-square value(X^2=5.506)	df=1	P<0.019 Significant	
Education of mother			
Illiterate	25	30	55
Primary	72	28	100
Secondary	59	12	71
Higher Secondary	39	5	44
Pearson Chi-square value (X^2=29.74)	df=3	P<0.001 Significant	
Education of Father			
Illiterate	16	13	29
Primary	65	29	94
Secondary	85	28	113
Higher Secondary	29	05	34
Pearson Chi-square value (X^2=8.043)	df=3	P= 0.045 Significant	
Gender			
Male	100	41	141
Female	95	34	129
Pearson Chi-square value (X^2=0.249)	df=1	P<0.618 Non Significant	
Type of family			
Joint	125	58	183
Nuclear	70	17	87
Pearson Chi-square value (X^2=4.342)	df=1	P<0.037 Significant	
Maternal Age of marriage			
Less than 18 years	70	40	110
≥ 18 years	125	35	160
Pearson Chi-square value (X^2=6.821)	df=1	P <0.009 Significant	
Socioeconomic Status			
Class II	18		
Class III	76		
Class IV	153		
Class V	23		

Chi-square value =175 p value<0.001 significant

Result

Underweight, stunting, and wasting were all prevalent in this community-based cross-sectional epidemiological investigation, with rates of 56.30%, 52.96%, and 27.8%, respectively. Mallikharjuna et alstudy .'s of the primitive Saharia tribe in Rajasthan revealed higher prevalence, or 72%, 68%, and 13%, respectively. The age group of 4-5 years showed the highest percentage of malnutrition in this study (30.4%), however the difference was statistically insignificant (p value = 0.681). In an urban slum of Mumbai, Bhavsar et alresearch .'s of anganwadi children revealed a nonsignificant prevalence of

malnutrition in the 1-2 year age group. However, a comparable study by Sahoo et al. found a statistically significant increase in the prevalence of malnutrition among children aged 7 months to 3 years.

Male children had a slightly higher prevalence of acute malnutrition than female children, although this difference is statistically insignificant. In a study done by Anuradha et al. in a rural area of Tamil Nadu, it was discovered that male children had a greater prevalence and that the difference was statistically significant. According to Jawaregowda et al., male children were statistically significantly more likely than female children to have acute malnutrition (wasting, or weight for height). Joint households have statistically significantly more underweight children than nuclear ones. Similar findings were made in a research by Kumar et al. in the urban slum of Gurgaon, Haryana, where it was discovered that families with three or more siblings had a greater frequency of malnutrition in children than those with 1-2 siblings.

The nutritional status of the kid and mother education were significantly correlated in this study (p value = 0.001). Meshram et al. found that preschool-aged tribal Maharashtrian children who had illiterate moms had a 1.7 times higher probability of being underweight. This study also underlines how crucial it is for fathers to have a good education because children who have illiterate or less literate fathers are more likely to suffer from malnutrition (p=0.045). According to Prasot et al., there is a substantial correlation between a father's educational level and a child's nutritional quality, but not a mother's.

The literacy of parents, especially the mother, was accorded substantial relevance in a study by Govani et al. in an urban slum of Gujarat (Ahmadabad). It was statistically significant (p=0.037) that children with the first birth order have malnutrition rates of 17.9%, whereas those with the second and third birth orders have malnutrition rates of 28.1% and 38.1%, respectively. In Mumbai's urban slums, Tiwari et al research's of under-five-year-old children revealed a substantial link between malnutrition and the child's birth order.

Malnutrition in children and the age of women at marriage were also statistically significant (p=0.009). Raj et al. came to the conclusion that young children born to mothers who were married as minors had a higher risk of malnutrition than children born to moms who were married at a majority age. Children of minors who were married had a significantly higher risk of stunting (OR 1.85, 95% CI 1.71 to 1.99), was wasting (1.19, 1.07 to 1.30), and was underweight (1.87, 1.74 to 2.01).

CONCLUSION

The prevalence of malnutrition in all three forms—underweight, stunting, and wasting—was slightly higher among male than female children overall, which is encouraging for female children. Most of the children in the study's total population, according to a

modified version of B.G. Prasad's classification (updated in 2017), were in class IV, and relatively few of them lived in pucca houses; poverty was their biggest issue. The area's literacy rate was higher than the national average for males and females in rural areas, which was pretty excellent. Age and sex of kid were not substantially linked with low nutrition in this study. Encouragement of contraception usage, health education, and education about the environment and sanitation at the family level. Local self-help groups at the village level can support families economically by helping them generate revenue and raise awareness about the legal marriage age. In order to prevent migration, ICDS (integrated child development services) must be strengthened, regularly supervised, and have access to jobs locally.

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