



ASSESS THE NUTRITIONAL STATUS AMONG UNDER FIVE YEAR CHILDREN IN A SELECTED HEALTH CENTRE AMRITSAR, PUNJAB

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Abstract

Background: Early childhood nutrition is critical for physical and mental development, and any hindrance at this stage adversely affects adulthood which makes them more susceptible to a variety of communicable and non – communicable diseases. Undernutrition among under-five children is a major public health problem in India. The child mortality rate due to undernutrition is still high in both urban and rural areas.

Objective: To assess the nutritional status among under-five children in terms of height and weight in a health centre, Amritsar, Punjab.

Methodology: A descriptive non experimental research design was selected for the present study. The study was conducted on 150 under five children selected by purposive sampling technique. The tool used was an interview schedule that included socio demographic profile of the respondents (mothers), child history and anthropometric measurement of child in terms of height and weight for age.

Results: The age range of 42% of the mothers was 26 to 30 years. Maximum (60.7%) of them belong to sikh families. 33.3% were having graduation or above qualification. Majority (82%) mothers were home maker. Almost (99.3%) mothers were married. Maximum (77.3%) had single child and nearly one fourth (24.7%) fall in the upper lower socio economic status. As per child profile 39.3% child were fall in 3 to 4 years age group; more than half (56%) were female child and 48.7% child had first birth order. Nutritional status of under five children as per height

for age maximum (66.7%) had normal height followed by 27.3% were mild stunting and as per weight for age maximum (71.4%) had normal weight followed by 19.3% had mild malnutrition. There was a significant association of under five children malnutrition with mother's education and socioeconomic status in term of both height and weight at $p < 0.05$ level of significance.

Keywords: *Nutritional status, Under-five, Children*

INTRODUCTION:

Malnutrition among under five children is major public health concern worldwide; therefore, adequate nutrition for children is one of the essential pillars of the public health. Malnutrition is not only encompasses undernutrition (e.g, stunting, wasting, underweight) but also refers to overweight, obesity and resulting diet related non-communicable diseases. Consume insufficient calories and protein for growth and development and unable to metabolize nutrients are considered at the risk of being undernourished. On the other hand, excessive calorie intake may lead to overweight or obesity.¹ Indicators of undernutrition are stunting (low height for age), wasting (low weight for height) and underweight (low weight for age), whereas overnutrition (overweight, obesity) is an excessive fat accumulation for height.^{2,5}

Globally, approximately 149 million children under five suffer from stunting. In 2018, over 49 million children under five were wasted and nearly 17 million were severely wasted. There are now over 40 million overweight children globally, an increase of 10 million since 2000. It is estimated that by 2050, 25 million more than today will be malnourished.³

Child malnutrition is a chronic problem and a challenge for the public administration of India. The first National Family Survey in 1992-1993 found that India was one of the worst performing countries on child health indicators. The survey reported that more than half the children under four were underweight and stunted. One in every six children was wasted. Despite decades of investment to tackle this challenge, India's child malnutrition rate are still one of the most alarming in the world. On the basis of Global Hunger Index (2020) total undernourishment of the population, child stunting, wasting and child mortality rate India places at the 94th spot among 107 countries.⁴

There are multiple factors contributing to childhood undernutrition. According to UNICEF, the causes of child malnutrition are classified as immediate (individual level), underlying (family level) and basic (community level). Inadequate dietary intake and poor health status are considered immediate determinants. Other factors are demographic, environmental, socio-economic aspect, parental and maternal characteristics, household characteristics, accessibility and availability of food.^{6,7} Based on the above facts, stunted, wasted and underweight of under five children problem inspire the researcher to conduct this study.

MATERIAL AND METHODOLOGY:

The research design we use is a non experimental descriptive research design and the study was conducted at the urban community health centre Nariangarh, Amritsar, Punjab. Before conducting the study, ethical clearance was obtained from ethical committee and medical officer of urban community health centre, Amritsar. The study was conducted among the under-five children who visited the urban community health centre with their mothers and mothers who were willing to participate. Total 150 under five children sample were selected for the study by using non probability purposive sampling technique.

The tool has three parts. The first part consist of the demographic profile of under five children's mother which include age of mother, religion, mother's education, mother's occupation, marital status, total number of under five

children and socio economic status. The second part formed by child profile which include child's age, gender and birth order. The third part was the anthropometry data were collected to get information. whereby we measure the height and weight of the children with their age. For measuring weight, digital scale was employed, ensuring requisite accuracy. Child were weighed twice and the average weight was recorded, in order to minimize measurement error. Children aged <24 months were weighed while being held by their mothers, after which the mother's weight was subtracted to derive the weight of the child. When measuring height, mothers and children aged >24 months were asked to stand against straight a wall, whereby measuring tape was utilized to record their height. Children aged <24 months were measured while lying down.

Child Anthropometry

The outcome of interest for the present study is child malnutrition, Gomez classification was used to weight for age: over 90% is normal, 76 – 90% (mild malnutrition), 61 – 75% (moderate malnutrition) and less than 60% (severe malnutrition). Waterlow classification is used for height for age: over 95% is normal, 90 -95% (mild stunting), 85 – 90% (moderate stunting) and less than 85% (severe stunting).

Both the investigators conducted the interviews with under five children's mothers and conducted the anthropometric measurement of under-five children for an average time of 15 to 20 minutes. The data was analyzed by using descriptive and inferential statistics through frequencies, percentage and chi square test.

RESULTS:

Table 1: Frequency and Percentage Distribution of Demographic Variables of mothers

N=150

Demographic Variables	Frequency (n)	Percentage (%)
Age in years		
21-25years	18	12
26-30 years	63	42
31-35 years	47	31.3
Above 35 years	22	14.7
Religion		
Sikh	91	60.7
Hindu	56	37.7
Christian'	2	1.3
Muslim	1	0.7
Mothers education		
Illiterate	9	6
Elementary	22	15.7
Matriculation	22	14.7
Secondary	47	31.3
Graduation and above	50	33.3
Mothers occupation		
Home maker	123	82
Skilled worker	6	4
Private job	10	6.7
Government job	11	7.3
Marital status		
Married	149	99.3
Divorced	0	0
Separated	1	0.7
Total number of under five children		

1	116	77.3
2	30	20
> 2	4	2.7
Socio-economic status		
Upper	20	13.3
Upper middle	27	18
Lower middle	60	40
Upper lower	37	24.7
Lower	6	4

Table 1 shows that 42% mothers were 26 to 30 years old. Maximum (60.7%) of the mothers belong to sikh families. As per education 33.3% had graduation and above qualification and few (6%) were illiterate. As per occupation majority (82%) were home maker and almost (99.3%) were married. Maximum (77.3%) mothers had one under five year child and 40% were fall in lower middle socio economic category.

Table 2: Frequency and Percentage Distribution of child profile

N=150		
Child profile	Frequency (n)	Percentage (%)
Age in years		
1 year	22	14.7
2 years	26	17.3
3 years	40	26.7
4 years	59	39.3
5 years	3	2
Gender		
Male	66	44
Female	84	56
Birth order		
1	73	48.7
2	61	40.7
3	14	9.3
4	2	1.3

Table 2 shows that 39.3% children were 4 years old. More than half (56%) were female child and as per birth order 48.7% were first child.

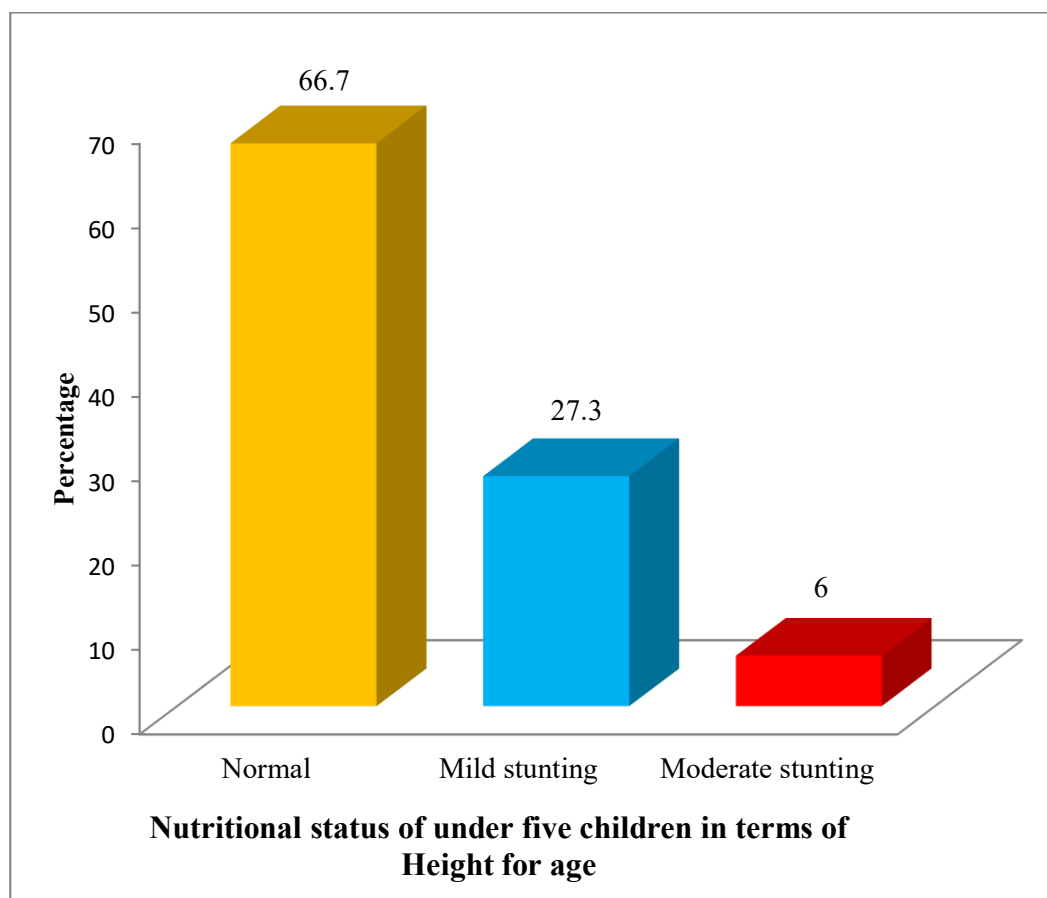


Fig 1: Distribution of nutritional status of under-five children in terms of height for age

Fig 1 depicts the distribution of nutritional status of under five children in terms of height. It showed that Maximum (66.7%) under five children were having normal height for their age, followed by 27.3% were mildly stunted whereas only 6% were moderately stunted. Indicating a normal height on average.

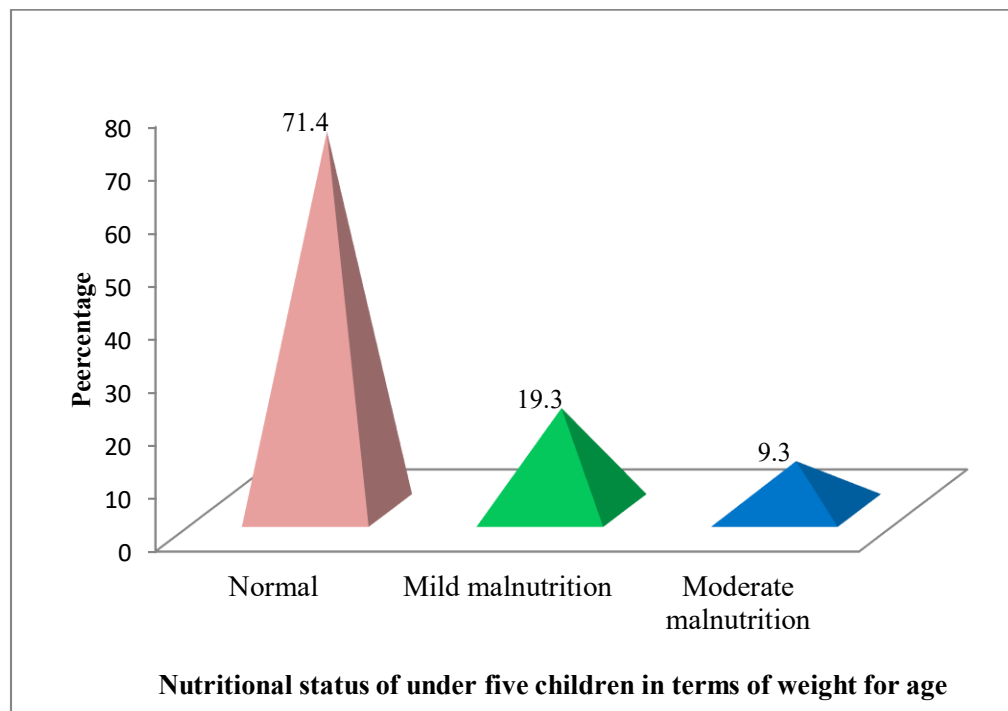


Fig 2: Distribution of nutritional status of under five children in terms of weight for age

Fig 2 depicts the distribution of nutritional status of under five children in terms of weight for age. It showed that Maximum (71.4%) of under five children were having normal weight followed by 19.3% were mildly malnourished and about 9.3% were moderately malnourished. Indicating a normal weight on average.

Table 3: Association between nutritional status of under five children in terms of height for age with selected socio-demographic variables of mothers

N=150

Demographic Variables	Height for age			χ^2 value	df	p value
	Normal	Mild	Moderate			
Age in years						
21-25 years	16	2	0	12.11	6	0.05 ^{NS}
26-30 years	34	25	4			
31-35 years	36	8	3			
Above 35 years	14	6	2			
Religion				7.662	6	0.26 ^{NS}
Sikh	65	21	5			
Hindu	34	18	4			
Christian'	0	2	0			
Muslim	1	0	0			
Mothers education				19.05	8	0.01*
Illiterate	8	0	1			
Elementary	17	3	2			
Matriculation	16	5	1			
Secondary	21	22	4			
Graduation and above	38	11	1			
Mothers occupation				3.443	6	0.75 ^{NS}
Home maker	81	34	8			
Skilled worker	3	3	0			
Private job	8	2	0			
Government job	8	2	1			

Marital status						
Married	99	41	9	0.503	2	0.77 ^{NS}
Divorced	--	--	--			
Separated	1	0	0			
Total number of under five children				4.277	4	0.37 ^{NS}
1	76	31	9			
2	21	10	0			
> 2	3	0	0			
Socio-economic status				21.44	8	0.06*
Upper	14	4	2			
Upper middle	16	11	0			
Lower middle	32	22	6			
Upper lower	33	4	0			
Lower	5	0	1			

*p value < 0.05 level of significance NS-Non Significant

Table 3 depicts the association between nutritional status of under five children in terms of height for age with selected socio-demographic variables of mothers. There was a significant association between nutritional status of under five children in terms of height for age with demographic variables like mother's education and socio-economic status which was statistically significant at < 0.05 level of significance ($\chi^2 = 19.05$; df =8; p = 0.01) ($\chi^2 = 21.44$; df =8; p = 0.06). Other variables such as age of mother, religion, mother's occupation, marital status, total number of under five children were statistically non significant (p > 0.05).

Significantly a higher number of mother's education was graduation and above and fall in upper lower socio economic class had normal height of their under-five children as compared to other counterparts.

Table 4: Association between nutritional status of under five children in terms of weight for age with selected socio-demographic variables of mothers

N=150

Demographic Variables	Weight for age			χ^2 value	df	p value
	Normal	Mild	Moderate			
Age in years						
21-25 years	16	2	0	7.075	6	0.31 ^{NS}
26-30 years	40	15	8			
31-35 years	37	7	3			
Above 35 years	14	5	3			
Religion				4.143	6	0.65 ^{NS}
Sikh	69	14	8			
Hindu	36	14	6			
Christian'	1	1	0			
Muslim	1	0	0			
Mothers education				16.37	8	0.03*
Illiterate	8	0	1			
Elementary	18	1	3			
Matriculation	17	4	1			
Secondary	25	17	5			
Graduation and above	39	7	4			
Mothers occupation				3.359	6	0.76 ^{NS}
Home maker	87	25	11			
Skilled worker	4	2	0			
Private job	8	1	1			

Government job	8	1	2			
Marital status						
Married	106	29	14	0.405	2	0.81 ^{NS}
Divorced	--	--	--			
Separated	1	0	0			
Total number of under five children						
1	78	24	14	6.259	4	0.18 ^{NS}
2	26	5	0			
> 2	3	0	0			
Socio-economic status						
Upper	14	3	3	23.70	8	0.00*
Upper middle	18	9	0			
Lower middle	35	15	10			
Upper lower	35	2	0			
Lower	5	0	1			

*p value < 0.05 level of significance NS-Non Significant

Table 4 depicts the association between nutritional status of under five children in terms of weight for age with selected socio-demographic variables of mothers. There was a significant association between nutritional status of under five children in terms of weight for age with demographic variables like mother's education and socio-economic status which was statistically significant at < 0.05 level of significance ($\chi^2 = 16.37$; df =8; p = 0.03) ($\chi^2 = 23.70$; df =8; p = 0.00) respectively. Other variables such as age of mother, religion, mother's occupation, marital status, total number of under five children were statistically non significant (p > 0.05).

Significantly a higher number of mother's education was graduation and above and fall in upper lower socio economic class had normal weight of their under-five children as compared to other counterparts.

Table 5: Nutritional status of under five children in terms of height for age as per with child profile

N=150

Demographic variables	Height for age		
	Normal	Mild Stunted	Moderate Stunted
Age in years			
1 Year	14 (9.3%)	8(5.3%)	0(0.0%)
2 Year	20(13.3%)	4(2.6%)	2(1.3%)
3 Year	27(18%)	12(18%)	1(0.6%)
4 Year	38(25.3%)	15(10%)	6(4%)
Gender			
Male	43 (28.6%)	18(12%)	5(3.3%)
Female	57(38.3%)	23(15.3%)	4(2.6%)
Birth order			
1	47 (31.3%)	22(14.65%)	4(2.6%)
2	41(27.3%)	17(11.3%)	3(2%)
3	10(6.6%)	2(1.3%)	2(1.3%)
4	2(1.3%)	0(0.0%)	0(0.0%)

Table 5 shows that nutritional status among under five children in terms of height for age that 18% of three year children were fall in normal and mild stunted height followed by only 1.3% children had age 2 years w fall in moderate stunted. As per gender 28.6% and 38.3% male and female child had normal height respectively. As per birth order only 2.6% children were moderated stunted who had first birth order.

Table 6: Nutritional status of under five children in terms of Weight for age with child profile
N=150

Demographic variables	Weight for age		
	Normal	Mild Malnourished	Moderate Malnourished
Age in years			
1 Year	16 (10.6%)	6(4%)	0(0.0%)
2 Year	20(13.3%)	4(2.6%)	2(1.3%)
3 Year	27(18.6%)	7(4.6%)	5(3.3%)
4 Year	41(27.3%)	11(7.3%)	7(4.6%)
5 Year	2(1.3%)	1(0.6%)	0(0.0%)
Gender			
Male	45 (30%)	12(7%)	9(6.0%)
Female	62(41.3%)	17(11.3%)	5(3.3%)
Birth order			
1	50 (33.3%)	15(10%)	8(5.3%)
2	45(30%)	12(8%)	4(2.6%)
3	10(6.6%)	2(1.3%)	2(1.3%)
4	2(1.3%)	0(0.0%)	0(0.0%)

Table 6 shows that nutritional status among under five children in terms of weight for age that 18.6% of three year children were fall in normal weight followed by 13.3% had normal weight who had age 2 years. As per gender 41% female child had normal weight followed by 30% boys had normal weight and 6% males are moderate malnourished followed by 11.3% female were mild malnourished. 33.3% first birth order child had normal weight followed by few 5.3% were moderate malnourished who had first birth order.

DISCUSSION:

Child malnutrition continues to be a major public health problem in developing countries including India. Children are most vulnerable to malnutrition because of low dietary intakes, infectious diseases, and lack of appropriate care and inequitable distribution of food within the household in developing countries. Therefore, the current study aimed to assess the malnutrition (underweight and stunting) among under five children in Naraingarh, Amritsar, Punjab.

The current study revealed that 9.3% and 6% of under five children were moderate malnourished and moderate stunted, respectively in the study area. Maximum (71.4%) of under five children were having normal weight and Maximum (66.7%) under five children were of normal height for their age. Regarding the associated factors of

malnutrition, analysis of this study indicated mother's education and socio-economic status were significantly associated with both underweight and stunting.

This finding is supported by the study conducted to assess the malnutrition among under five children, which showed that 40% of under five children were stunted followed by 19.5% were underweight. The rate of stunting was high. 25% of them were moderately malnourished followed by 18% at risk and 3% has severe malnutrition and 54% were normal. From total sample, 64% were boys and 36% were girls. Of 64% boys, 10.5% boys were under weight and 19.5% were stunted. Of 36% girls, 9% were under weight and 20.5% were stunted. It is shown that the rate of stunting was more as compared to the under-weight in both the genders

CONCLUSION:

It can be concluded that under five children had normal height and weight for age on average basis. The nutritional status among under five children are significantly associated with mother's education and socio-economic status in terms of both height and weight. Significantly a higher number of mother's education was graduation and above and fall in upper lower socio economic class had normal height and weight of their under-five children as compared to other counterparts in the study area..

Based on the findings of present study, it is recommended that similar studies should be conducted on a large sample to assess the effectiveness of strategies to prevent malnutrition among under five children, or to assess the association between other factors like breastfeeding, practice of care and dietary practices.

REFERENCES:

1. Hafizul Islam.Md, Nayan M. Md. Malnutrition among under five children in St. Martin's Island, Bangladesh. A cross sectional study on prevalence and associated factors. August 13,2022. [internet], <https://doi.org/10.1177/20503121221116246>
2. World health organization. Malnutrition. 15 April2020. [internet], <https://www.who.int/news-room/questions-and-answers/item/malnutrition>
3. UNICEF-WHO-World Bank: Joint Child Malnutrition Estimates – 2019 edition. Available from: <https://data.unicef.org/topic/nutrition/malnutrition>
4. Saha.S, S.Rashi. Child malnutrition in India: A systemic failure. 15 April 2021. [internet], <https://www.downtoearth.org.in/blog/health/child-malnutrition-in-india-a-systemic-failure-7650>
5. UNICEF, WHO, World Bank. Levels and trends in child malnutrition: Key findings of the 2020 Edition of the Joint Child Malnutrition Estimates. Geneva WHO 2020; 24: 1–16
6. Ali NB, Tahsina T, Emdadul Hoque DM, et al. Association of food security and other socioeconomic factors with dietary diversity and nutritional statuses of children aged 6-59 months in rural Bangladesh. PLoS One 2019; 14: 1–18.
7. UNICEF. The state of the world's the state of the world's children. 1998.
8. D. Priyanka, K. Simarjeet. An exploratory study to assess the prevalence and risk factors of malnutrition among under-five children residing in selected rural areas of district Sirmaur, Himachal Pradesh. 2019 vol 4(1) page no 7-10