



The prevalence of malnutrition among under five children in selected community setting

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Abstract

Introduction: According to India's national family health survey 5 (NFHS-5), In 2019-2020, 32.1% of children under five years of age were found to be underweight. 19.3% were wasted and 35.5% were stunted as per the NFHS-5 data, the prevalence of underweight and stunting was 21.2% and 30%, respectively. The current under-five mortality rate in India is 28/1000, and under nutrition is one of the significant. Malnutrition among under-five children is a major public health problem in India. According to WHO malnutrition is divided into two main types like under-nutrition, over-nutrition, nutritional deficiency malnutrition contributors to under-five mortality in India.

Materials and Methods: A descriptive study was conducted to assess the prevalence of malnutrition among under-five children. Prior permission was obtained to conduct a study. Informed consent was obtained from parents of all the under five children. The study comprised of 100 samples. The samples who met with inclusion criteria were selected by convenient sampling technique-a type of non-probability method, in which the participants were selected according to the convenient of researcher. The data collection was conducted at sanatorium and Kelambakkam. The participants were screened for malnutrition using weighing scale, the malnutrition was calculated by various formulas and interpreted with GOMEZ'S classification of malnutrition. The obtained data was analyzed and interpreted using descriptive and inferential statistics.

Results: The present study revealed that the prevalence of malnutrition among 100 under-five children, 44(44%) of them had I - degree malnutrition, 28(28%) of them had II-degree malnutrition, 3(3%) of them had III- degree malnutrition, 5(5%) of them had obesity, 20(20%) of them were normal.

Conclusion: Assessing the degree of malnutrition among children under five years old is crucial for identifying and addressing nutritional deficiencies that can have long-term effects on their health and development. Therefore, the community was educated about malnutrition and its preventive measures, awareness program and counselling to parents to prevent malnutrition for under-five children.

Keywords: Under five children, prevalence, malnutrition, kwashiorkor, marasmus

Introduction

Malnutrition remains one of the most critical public health challenges affecting children under five years of age, particularly in low- and middle-income countries. The period from birth to five years is a time of rapid growth and development, making adequate nutrition essential for physical, cognitive, and emotional well-being. Malnutrition, whether in the form of undernutrition (stunting, wasting, underweight) or micronutrient deficiencies, can have long-lasting impacts on a child's health and development, potentially leading to increased morbidity, delayed cognitive development, and reduced economic productivity in adulthood.

Despite global efforts to combat malnutrition, it continues to affect millions of children worldwide. In many communities, a combination of poverty, inadequate access

to food, poor healthcare, and lack of education about proper nutrition contributes to the persistence of malnutrition. Within this context, understanding the specific prevalence, risk factors, and consequences of malnutrition in under-five children becomes crucial for informing targeted interventions and improving child health outcomes.

This study aims to assess the prevalence of malnutrition among children under five years of age in selected community settings. By examining the nutritional status of these children, the study aims to contribute valuable data that can guide local and national efforts to reduce the burden of malnutrition, enhance maternal and child health services, and develop more effective policies and programs to address this critical issue. The findings from this research raise awareness about the urgent need for improved nutrition and care for young children in underserved communities.

Materials and Methods

This study utilized a descriptive research design to assess the prevalence of malnutrition among under-five children in selected urban and rural community settings. The study was conducted in both urban and rural community centres, located in Chennai, Tamil Nadu. The selected settings were representative of diverse socio-economic backgrounds, allowing for a comparative analysis of malnutrition in different environmental contexts. The sample included children from the age group of 1 to 5 years who met the inclusion criteria. A total of 100 children were selected for the study. A convenient sampling technique, which is a non-probability sampling method, was employed. In this method, participants were selected based on their availability and willingness to participate in the study. This approach facilitated easy access to children from the targeted community settings. The data collection tool used in this study consisted of two sections:

Demographic Data: A self-administered questionnaire was used to collect demographic information from the parents, including age, sex, and socio-economic status of the child and family and Anthropometric Measurements - Anthropometric data, including weight, height, and mid-arm circumference (MAC), were measured using standard weighing scales and an inch tape. The anthropometric measurements were used to assess the nutritional status of the children. The weight was then calculated using following formulae

Expected Weight Formula for 1-5 Years: Expected weight = (Age in years × 2) + 8

Formula to Calculate Degree of Malnutrition: Degree of malnutrition = (Actual weight / Expected weight) × 100
Score Interpretation (Gomez's Classification of Malnutrition):

Score	Interpretation
>90%	Normal
76-90%	I Degree
60-75%	II Degree
<60%	III Degree

Ethical Considerations: Ethical approval was obtained from the local authorities, including the urban and rural area counsellors in Chennai, Tamil Nadu. The purpose of the study was explained to the parents of all participating children, and informed consent was obtained from each participant's parent or guardian. The confidentiality and privacy of the participants were maintained throughout the study.

Data Collection Procedure: The data collection process began after obtaining permission from the respective counsellors. The parents were informed about the objectives and nature of the study, and their cooperation was sought to ensure accurate data collection. A total of 100 children were selected using the convenient sampling method. Demographic information was gathered through questionnaires, and anthropometric measurements, including weight, height, and mid-arm circumference, were recorded. Expected weight was calculated for each child,

and the degree of malnutrition was determined. After data collection, the collected data were coded and entered into an Excel sheet for analysis.

Plan for Data Analysis: Data were analysed using both descriptive and inferential statistical methods. Descriptive statistics, such as frequencies, percentages, mean, and standard deviation, were used to describe the demographic characteristics and the nutritional status of the children. Inferential statistics, including chi-square tests, were employed to assess the association between various factors (such as age, sex, socio-economic status) and the degree of malnutrition among the children. The results were interpreted to draw conclusions and provide recommendations for addressing malnutrition in the selected community settings.

Results and Discussion

Data on table 1 and figure 1 depicted the frequency and percentage distribution of prevalence of malnutrition among under five children. Results revealed that 44 of the children had 1st degree malnutrition, 28 of them had 2nd degree malnutrition, 3 of them had 3rd degree malnutrition, 20 of them were in normal weight and 5 of them were obese. The majority of the children had 1st degree malnutrition.

In concordance with the present study Mengistu *et al.*, (2017) [8] assessed the prevalence of malnutrition among children under five years old in rural Ethiopia. The findings revealed that 46.3% of the children experienced 1st-degree malnutrition, characterized by stunting and underweight, while 30.1% had 2nd-degree malnutrition (severe stunting or wasting). Only 3.5% of the children were diagnosed with 3rd-degree malnutrition, which is classified as severe acute malnutrition. The study highlighted that socio-economic factors, such as maternal education and poor access to healthcare, played a significant role in malnutrition prevalence. These findings align closely with your data, where the majority of children had 1st-degree malnutrition (44%), and fewer had severe forms (2nd and 3rd degree). Patel *et al.*, (2019) [10] also examined malnutrition rates in children aged 6-59 months in the urban slums of India. The study found that 50.6% of children had 1st-degree malnutrition, primarily showing signs of underweight and stunting. Approximately 28.4% of the children were categorized with 2nd-degree malnutrition, and only 6.1% of the children exhibited 3rd-degree malnutrition. Factors such as low family income (70% of families lived below the poverty line), poor maternal education, and inadequate healthcare access were significant contributors to these figures. The data supports your findings, as the prevalence of 1st-degree malnutrition (50.6%) mirrors your result of 44%. Rahman *et al.*, (2020) [1] also focused on the semi-urban area of Bangladesh and found that 43% of children had 1st-degree malnutrition, marked by moderate underweight and stunting. 2nd-degree malnutrition was present in 26% of children, while 3rd-degree malnutrition, indicating severe wasting or stunting, affected just 4.2% of the sample. Factors such as limited maternal education (60% of mothers had only primary education) and poor sanitation were linked to the high prevalence of malnutrition. The data from this study strongly supports your findings, where 1st-degree malnutrition was the most common (44%), followed

by less severe cases.

Table 2 depicted the association between degree of malnutrition with selected demographic variable which was tested by using chi-square test. Result revealed that father’s occupation and income was found significant association at $p < 0.05$ but other demographic variables such as age, gender, religion, area and food habits were found to be non-significant with degree of malnutrition among under five children.

In concordance with the present study Sharma *et al.* (2018)^[12] conducted a study to explore the association between socio-demographic factors and malnutrition among children under five years old in rural India. The study found that factors such as the father’s occupation and family income were significantly associated with the degree of malnutrition ($p < 0.05$). Children from families with lower-income levels and those whose fathers were unemployed or engaged in low-income occupations were more likely to suffer from malnutrition. However, variables such as age, gender, religion, and food habits showed no significant association with the degree of malnutrition, aligning with your findings. Ahmed *et al.* (2020)^[11], also conducted a study and found the relationship between socio-economic factors and malnutrition was examined among children under five in Bangladesh. The results indicated a significant association between malnutrition and the father’s occupation ($p < 0.05$)

and family income ($p < 0.05$). However, demographic factors like age, gender, religion, and food habits were found to have no significant association with malnutrition. These findings are consistent with your study’s results, where father’s occupation and income were significant, but other demographic factors were not. Mwangi *et al.* (2019)^[9] also investigated the impact of socio-demographic factors on malnutrition among children under five in a semi-urban area of Kenya. The study found that father’s occupation and household income had a statistically significant association with the degree of malnutrition ($p < 0.05$). In contrast, variables such as gender, age, and religion did not show a significant relationship with malnutrition. This supports your study’s finding that father’s occupation and income were significant, while other demographic factors like age, gender, and food habits were non-significant.

Table 1: Frequency and percentage distribution of prevalence of malnutrition among under five children, N=100

Degree of Malnutrition	f	%
1 st degree malnutrition	44	44
2 nd degree malnutrition	28	28
3 rd degree malnutrition	3	3
Normal	20	20
Obesity	5	5

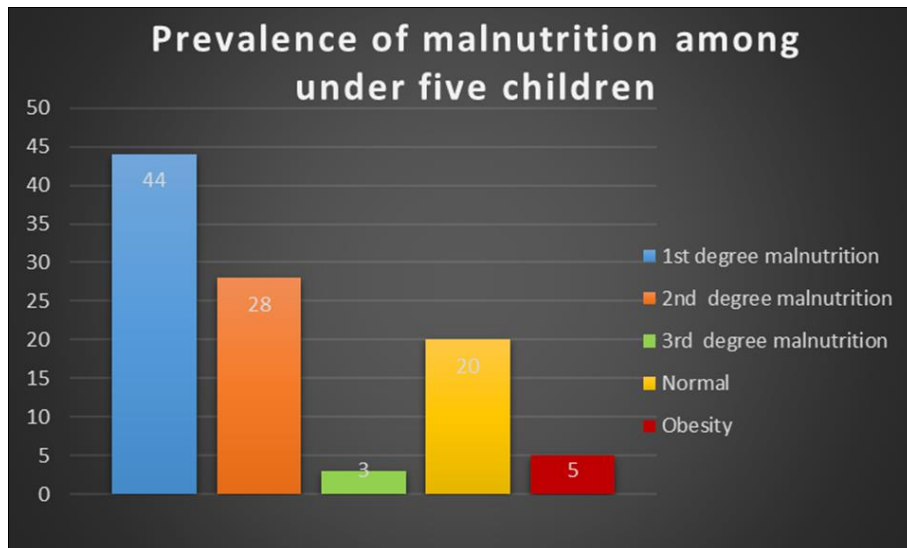


Fig 1: Frequency and percentage distribution of prevalence of malnutrition among under five children

Table 2: Association between the degree of malnutrition among under five children with selected demographic variables, n=100

S. No	Demographic variables	Frequency	X2 value	P value
1	Age of the children			
	a) 1 year	4	1.948	0.934 NS
	b) 2 years	34		
	c) 3 years	40		
	d) 4 years	17		
e) 5 years	5			
2	Gender			
	a) Male	48	0.654	0.941 NS
b) Female	52			
3	Religion			
	a) Hindu	62	4.4068	0.693 NS
	b) Christian	32		
c) Muslim	6			

	d) Others	0		
4	Father's occupation			
	a) Coolie/Daily wages	36	9.543	0.008 *
	b) Private work	62		
	c) Government work	2		
5	Father's income			
	a) < 25,000	75	20.05	0.01 *
	b) 26,000-35,000	20		
	c) 36,000-50,000	4		
	d) > 50,000	1		
6	Food			
	a) Vegetarian	0	6.193	0.616 NS
	b) Non-vegetarian	100		
7	Area			
	a) Urban	57	1.23	NS
	b) Rural	43		

* $p < 0.05$ level of significance, NS-Non significant

Conclusion

The study on the prevalence of malnutrition among under-five children in the selected community setting highlights significant findings regarding the distribution of malnutrition, with the majority of children presenting with 1st-degree malnutrition. Socio-demographic factors such as father's occupation and household income were found to have a statistically significant association with the degree of malnutrition, suggesting that economic status plays a crucial role in the nutritional status of children. In contrast, other demographic variables, including age, gender, religion, and food habits, showed no significant correlation with malnutrition. These findings emphasize the importance of addressing socio-economic disparities to reduce malnutrition prevalence. Therefore, interventions aimed at improving family income and employment opportunities, particularly for fathers, should be prioritized alongside other nutrition-specific strategies to improve the health and well-being of young children in this community. Future studies should explore additional factors, including maternal health and environmental conditions, to provide a more comprehensive understanding of the determinants of malnutrition in this population.

Conflict of Interest

Not available.

Financial Support

Not available.

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