

Assessment of Knowledge Regarding Malnutrition Among Parents of Under-Five Children in Bokaro Steel City

Lisa Sam

Ph,D Scholar, Malwanchal University, Indore
Vice Principal, AG College of Nursing, Bokaro

Abstract: *This study explores the level of parental awareness regarding malnutrition among children under five years of age in selected areas of Bokaro Steel City. A quantitative, non-experimental descriptive research design was adopted, involving a convenience sample of 60 mothers. Data were gathered using a self-developed questionnaire and analyzed with the help of descriptive and inferential statistical methods. The results showed that 60% of participants had a moderate level of knowledge, 28% demonstrated good knowledge, and 11.66% had inadequate knowledge. Further analysis indicated a significant relationship between knowledge levels and selected demographic factors. The study emphasizes the importance of implementing focused educational programs to enhance parental understanding and help reduce the incidence of malnutrition among young children.*

Keywords: Malnutrition, Under-five children, Parental knowledge, Community health, Nutritional awareness, Descriptive study, India

1. Introduction

Malnutrition is a broad medical condition resulting from an inadequate diet including both under nutrition and overnutrition. It commonly arises from inadequate intake, poor absorption, or excessive loss of nutrients over time, leading to serious health consequences such as starvation, disease, and infection. Various factors contribute to malnutrition, including lack of access to balanced food, underlying health conditions that impair digestion or increase nutrient needs, and nutrient loss due to illnesses like diarrhea or bleeding. Globally, malnutrition remains a major concern, particularly among children in developing countries, where poverty, natural disasters, and political instability exacerbate the problem.

In children, severe malnutrition can cause conditions such as marasmus, characterized by extreme wasting, and kwashiorkor, marked by edema and protein deficiency. Deficiencies in essential vitamins and minerals further lead to disorders like rickets, osteomalacia. Symptoms range from early signs like fatigue, irritability, and weight loss to advanced complications such as muscle weakness, anemia, and impaired growth.

Effective management involves restoring nutrient balance through proper diet, supplements, and gradual rehabilitation in severe cases. Addressing malnutrition is crucial to improving health outcomes, reducing mortality, and enhancing overall development.

2. Purpose of the Study

The purpose of this study is to assess the level of knowledge regarding malnutrition among parents of under-five children in Bokaro Steel City. It aims to evaluate parents' understanding of the causes, signs and symptoms, prevention, and management of malnutrition, as well as their awareness of appropriate feeding practices and nutritional requirements for young children.

Furthermore, the study seeks to identify gaps in knowledge and misconceptions related to child nutrition among parents. The findings will help in developing effective health education programs and community-based interventions to improve parental awareness, promote healthy practices, and ultimately reduce the prevalence of malnutrition among under-five children in the area.

Objectives

- To assess the knowledge regarding malnutrition among parents of under-five children in selected areas of Bokaro Steel City.
- To determine the association between parents' knowledge and selected demographic variables.

Operational Definitions

- 1) **Assess:**
According to the Cambridge Dictionary, assess means to evaluate or estimate the nature, ability, or quality of something.
In this study, it refers to evaluating the knowledge of parents regarding malnutrition among children under five years of age.
- 2) **Effectiveness:**
According to the Merriam-Webster Dictionary, effectiveness means producing a desired result or having the intended effect.
In this study, it refers to how well the measurement tool assesses parents' knowledge regarding malnutrition.
- 3) **Knowledge:**
According to the Merriam-Webster Dictionary, knowledge is the fact or condition of knowing something through experience or education.
In this study, it refers to the level of understanding of parents regarding malnutrition among under-five children, measured through a structured questionnaire.
- 4) **Malnutrition:**
According to the World Health Organization (WHO), malnutrition refers to deficiencies, excesses, or

imbalances in a person's intake of energy and/or nutrients.

In this study, it refers to undernutrition conditions affecting children under five years of age.

5) **Parents:**

According to the Cambridge Dictionary, parents are a child's mother or father.

In this study, it refers to individuals responsible for the care and upbringing of children under five years of age.

6) **Children:**

According to the United Nations (UN), a child is any human being below the age of 18 years. In this study, it specifically refers to children under five years of age.

Hypothesis

Null Hypothesis (H₀):

- There is no significant association between the knowledge of parents regarding malnutrition and selected demographic variables among parents of under-five children in selected areas of Bokaro Steel City.

Alternative Hypothesis (H₁):

- There is a significant association between the knowledge of parents regarding malnutrition and selected demographic variables among parents of under-five children in selected areas of Bokaro Steel City.

Ethical Aspects:

- Participants (parents) should be clearly informed about the purpose of the study.
- Written consent must be obtained before data collection.
- Personal information of participants should be kept confidential.
- The study should not cause physical, psychological, or emotional harm.
- Obtain approval from an Institutional Ethics Committee (IEC) or review board before conducting the study.
- Permission should be taken from local health authorities or institutions where data is collected

3. Methodology

Research Approach: - Quantitative Research Approach

Research Design: - Non- Experimental Descriptive Research Design

Variables:

- Independent Variable: - Demographic variable
- Dependent Variable: - Knowledge about Malnutrition

Setting of the Study:

Selected community areas of Bokaro Steel City

Population:

Target Population: Mother of under-Five children

Accessible Population: Mother of under-Five children from selected community areas in Bokaro Steel City

Sampling Technique: Non-Probability (Convenience sampling technique).

Convenience sampling has several limitations that affect the quality of research. Since participants are selected based on

their easy availability rather than random selection, it often leads to sampling bias. The sample may not accurately represent the entire population, which reduces the generalizability of the findings. This method can also result in the overrepresentation of certain groups while excluding others, leading to limited diversity. Additionally, the researcher's personal judgment in selecting participants may introduce subjectivity and further bias. Because of these factors, the results obtained through convenience sampling may be less reliable and may not reflect the true characteristics of the broader population.

Sample Size: - 60

Sample Selection Criteria

Inclusion Criteria

- Mothers of under-five children living in selected community areas of Bokaro Steel City.
- Mothers who are willing to participate in the study.
- Mothers who can understand Hindi or English.
- Mothers who are available at the time of data collection.

Exclusion Criteria

- Mothers who are not willing to participate in the study.
- Fathers of under-five children.
- Mothers who are seriously ill or unable to respond to the questionnaire.
- Mothers who are not present during the data collection period.

Validation of the Tool

In this study, the prepared tool along with statements, objectives, hypothesis, operational definitions, and criteria checklist was submitted to five experts in the field of community health nursing to establish content validity.

Reliability of the Tool

The reliability of the tool was calculated using **Cronbach's alpha**. The coefficient obtained was $\alpha = 0.82$, which indicates that the tool is highly reliable and demonstrates good internal consistency for assessing the knowledge of mothers regarding malnutrition.

Tool Preparation

The tool consists of 2 sections

- Section - I Demographic Data
- Section - II Self - structured questionnaire on malnutrition.

Scoring

Good: 14 – 21

Average: 8 – 13

Poor: 0 – 7

Presentation and Organizing of Data

Section- A: Description of frequency and percentage distribution of demographic variables of parents of under-five year children.

Section- B: To analyze the knowledge level of parents regarding malnutrition among children under- five years of age

Section- C: To Associate the pretest knowledge score regarding malnutrition with selected demographic variable.

Section A: Description of frequency and percentage distribution of demographic variables of parents of under five-year children

Variable	Categories	Frequency (n)	Percentage (%)
Age	20–25 yrs	22	36
	25–30 yrs	33	55
	30–35 yrs	5	8.33
	35+ yrs	0	0
Education	No formal	10	16.66
	Primary	23	38.33
	Secondary	22	36
	Graduate & above	5	8.33
Occupation	Housewife	51	85
	Government	5	8
	Private	3	5
	Others	1	1.66
Monthly Income	₹5k–15k	36	60
	₹15k–25k	19	31.66
	₹25k–35k	3	5
	₹35k+	2	3.33
Family Type	Nuclear	16	26.66
	Joint	44	73.33
Residential Area	Urban	0	0
	Semi-urban	16	26.66
	Rural	44	73.33
Religion	Hindu	54	90
	Muslim	5	8.33
	Christian	1	1.66
Medical Field	Yes	4	6.66
	No	56	93.33
Exclusive Criteria	Mother	0	0
	Father	60	100
Diet Intake of Mother	Vegetarian	1	1.66
	Non-vegetarian	59	98.33

The table describes the distribution of participants according to various demographic variables. With regard to age, the majority of participants (55%) belonged to the 25–30 years age group, followed by 36% in the 20–25 years group and 8.33% in the 30–35 years group, while no participants were above 35 years. In terms of education, most respondents had primary education (38.33%), followed closely by secondary education (36%), whereas 16.66% had no formal education and only 8.33% were graduates or above.

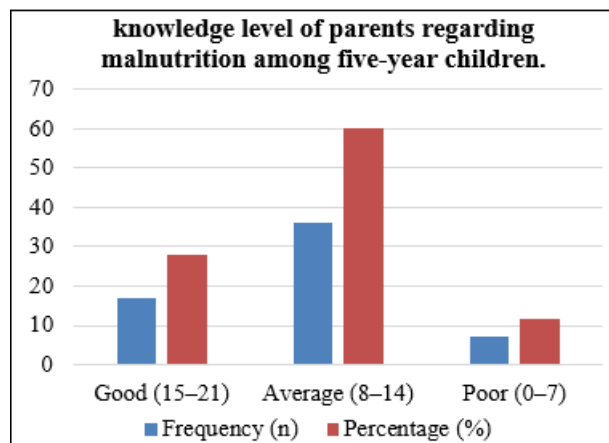
Considering occupation, a large proportion of participants were housewives (85%), with a small number working in government (8%), private jobs (5%), and other occupations (1.66%). Regarding monthly income, the majority (60%) earned between ₹5,000–15,000, followed by 31.66% earning ₹15,000–25,000, while very few participants fell into higher income categories.

In terms of family structure, most respondents (73.33%) belonged to joint families, whereas 26.66% were from nuclear families. Similarly, the majority of participants resided in rural areas (73.33%), followed by 26.66% in semi-urban areas, with no participants from urban settings. Religion-wise, most respondents were Hindu (90%), with smaller proportions of Muslim (8.33%) and Christian (1.66%) participants.

Only a small percentage (6.66%) of participants had a medical background, while the vast majority (93.33%) did not. According to the exclusive criteria, all participants were fathers (100%), with no mothers included in the study. Regarding dietary habits, almost all mothers (98.33%) followed a non-vegetarian diet, whereas only 1.66% were vegetarian. Overall, the data indicate that the sample is largely composed of young adults, predominantly housewives from rural, joint family backgrounds with low to moderate income levels and limited medical background.

Section B: Analyze the knowledge level of parents regarding malnutrition among five-year children.

Knowledge Level	Frequency (n)	Percentage (%)
Good (15–21)	17	28
Average (8–14)	36	60
Poor (0–7)	7	11.66



The assessment of maternal knowledge concerning malnutrition among mothers of children under five shows that the majority of participants, n = 36 (60%), had an average level of knowledge (scores 8–14). Additionally, n = 17 (28%) demonstrated a good level of knowledge (scores 15–21), while n = 7 (11.7%) exhibited poor knowledge (scores 0–7).

These findings suggest that while most mothers have a basic understanding of malnutrition, there remains a clear need for targeted educational interventions to enhance their knowledge and promote better nutritional practices for young children.

Section C: To Associate knowledge of parents regarding malnutrition and their demographic variables,

Demographic Variable	Categories	Frequency (n)	Percentage (%)	Knowledge Level (Good/Average/Poor)	Chi-Square/ t-test	p-value	Significance
Age	20–25 yrs	22	36	2 / 21 / 3	$\chi^2 = 2.74$	-0.84	NS
	25–30 yrs	33	55	5 / 21 / 3			
	30–35 yrs	5	8.33	0 / 5 / 0			
	35+ yrs	0	0	0 / 0 / 0			

Education	No formal	10	16.66	2 / 7 / 1	$\chi^2 = 5.55$	-0.47	NS
	Primary	23	38.33	4 / 15 / 4			
	Secondary	22	36	5 / 15 / 2			
	Graduate+	5	8.33	6 / 0 / 0			
Occupation	Housewife	51	85	4 / 43 / 5	$\chi^2 = 7.04$	-0.32	NS
	Government	5	8	1 / 4 / 0			
	Private	3	5	2 / 0 / 1			
	Others	1	1.66	0 / 0 / 1			
Monthly Income	₹5k–15k	36	60	5 / 28 / 4	$\chi^2 = 2.75$	-0.84	NS
	₹15k–25k	19	31.66	1 / 16 / 2			
	₹25k–35k	3	5	0 / 2 / 1			
	₹35k+	2	3.33	1 / 1 / 0			
Family Type	Nuclear	16	26.66	2 / 13 / 1	$\chi^2 = 3.78$	-0.15	NS
	Joint	44	73.33	5 / 34 / 5			
Residential Area	Urban	0	0	0 / 0 / 0	$\chi^2 = 1.03$	-0.59	NS
	Semi-urban	16	26.66	3 / 12 / 1			
	Rural	44	73.33	4 / 36 / 4			
Religion	Hindu	54	90	6 / 40 / 8	$\chi^2 = 1.43$	-0.84	NS
	Muslim	5	8.33	1 / 4 / 0			
	Christian	1	1.66	0 / 1 / 0			
Medical Background	Yes	4	6.66	2 / 2 / 0	$\chi^2 = 11.7$	-0.003	S
Mother's Diet	Vegetarian	1	1.66	0 / 1 / 0	$\chi^2 = 7.66$	-0.02	S
	Non-vegetarian	59	98.33	7 / 35 / 17			

- NS = Not Significant
- S = Significant
- Knowledge levels: Good (15–21), Average (8–14), Poor (0–7)

The association between demographic variables and knowledge levels among parents of under-five children was analyzed using the Chi-square test. Most variables, including age ($\chi^2 = 2.74$, $p \approx 0.84$), education ($\chi^2 = 5.55$, $p \approx 0.47$), occupation ($\chi^2 = 7.04$, $p \approx 0.32$), monthly income ($\chi^2 = 2.75$, $p \approx 0.84$), family type ($\chi^2 = 3.78$, $p \approx 0.15$), residential area ($\chi^2 = 1.03$, $p \approx 0.59$), and religion ($\chi^2 = 1.43$, $p \approx 0.84$) showed no significant association with knowledge. This suggests that these factors did not substantially influence parental awareness regarding malnutrition, with most participants demonstrating average knowledge across categories.

In contrast, medical background ($\chi^2 = 11.7$, $p \approx 0.003$) and mother's diet ($\chi^2 = 7.66$, $p \approx 0.02$) were significantly associated with knowledge levels. Parents with a medical background demonstrated higher awareness of malnutrition, and maternal dietary practices also influenced knowledge, though the very small number of vegetarian participants warrants cautious interpretation. These findings highlight medical exposure and maternal diet as important determinants of parental knowledge.

4. Recommendation

- 1) Community awareness campaigns can be organized involving local leaders and health workers to educate parents and caregivers about the importance of balanced nutrition, hygiene, and preventive measures to reduce malnutrition among children.
- 2) Longitudinal studies can be conducted to track the growth and nutritional status of children over time, helping to identify early predictors of malnutrition.
- 3) Intervention-based research can be carried out to evaluate the effectiveness of specific nutritional programs or supplements in improving child health outcomes.

- 4) Qualitative studies can be undertaken to explore parental knowledge, attitudes, and practices regarding child nutrition, which can inform targeted educational strategies.
- 5) Research on socioeconomic determinants can be conducted to examine how factors like family income, parental education, and access to health services influence nutritional status among children.
- 6) A comparative study can be conducted in rural and urban setting and between male and female children.
- 7) A study can be conducted to assess the prevalence of other nutritional deficiency disorder and the risk factors associated with it. make another recommendation

5. Conclusion

The study revealed that the knowledge of parents regarding malnutrition among under-five children in the selected area of Bokaro Steel City was moderate, with a considerable proportion demonstrated limited awareness of the causes, signs, and preventive measures of malnutrition. Factors such as educational status, socio-economic background, and access to health information were found to influence the level of knowledge.

The findings emphasize the urgent need for targeted health education programs to enhance parental awareness about proper nutrition, feeding practices, and early recognition of malnutrition. By improving parental knowledge, the risk of malnutrition among under-five children can be reduced, contributing to better growth, development, and overall child health in the community.

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