

Mothers of Children Under the Age of Five Years in Relation to the Prevention of Protein-Energy Malnutrition: Develop A Motherhood Information Guide.

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Key Words:

Prevention, Protein Energy Malnutrition, Under-five children, Mother, Information guide sheet

Abstract:

Background: Child malnutrition is one of the main health issues in developing nations. Nutritional health is crucial to children's wellbeing. Therefore, malnutrition status in children under five years of age is an important outcome indicator of child health. The study sought to evaluate and identify the factors and relationships among specific demographic characteristics and knowledge and actions for the prevention of Protein Energy Malnutrition. Methods: By using a suitable non-probability sampling method, 384 subjects were selected. Data were gathered using a self-structured knowledge questionnaire and an articulated practice checklist. Findings: According to the survey, 64.8%, 33.6%, and 1.6% of the participants had moderate knowledge, good knowledge, and weak knowledge, respectively. According to the individuals' responses, respectively 68.5% and 31.5% of them do and do not practice. The study found that the majority of the subjects had sufficient information and indicated that they were putting those knowledge into practice by using measures to prevent protein and energy deficiency. Conclusion: Despite numerous interventions and the ongoing National Nutrition Health Programmes for children under the age of five years, protein energy malnutrition is still a serious problem in developing nations.

1. Introduction

Malnutrition is a condition that arises when a person's diet lacks the necessary nutrients for proper growth and development¹. Malnutrition is more common in developing countries and can manifest as under-nutrition or over-nutrition. Anthropometric indicators, such as stunting, wasting, and being underweight, are commonly used to measure malnutrition in children under the age of five. In India, malnutrition is the primary risk factor for death in under-five children, accounting for 68.2% of deaths in 2017^{2,3}.

According to the National Family Health Survey (NFHS-5), 35.5% of children in India are stunted, 19.3% are wasted, 7.7% are severely wasted, and 32.1% are underweight⁴. Malnutrition is not a single problem with a single solution, and addressing it requires a multi-faceted approach^{2,5}.

Protein energy malnutrition (PEM) is a global issue, affecting nearly 150 million children under five worldwide and 70-80 million in India^{6,7}. The severe forms of PEM, such as marasmus, kwashiorkor, and marasmic kwashiorkor, affect 20 million children globally and four million in India⁷.

Despite India's progress in modernization and agriculture, under-nutrition continues to be a significant public health issue^{7,8}, contributing to high rates of morbidity and mortality in mothers and children⁸. Poverty is a major underlying cause of malnutrition, but other factors, such as socio-demographic, socioeconomic, socio-cultural, and lifestyle choices, also play a role^{2,3}.

Malnutrition is a complex problem that affects not only protein and energy intake but also other nutrients and vitamins⁹. The lack of access to food, known as "food

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disparity," is the main cause of protein energy malnutrition, which can lead to low birth weight, failure to thrive, and maternal malnutrition¹⁰

Inadequate food intake, along with various socio-demographic, environmental, nutritional, and maternal factors, contribute to child malnutrition. Scientific evidence highlights the importance of the first 1000 days of a child's life^{9,10}, during which they are growing and developing, and suffer from high rates of morbidity and mortality¹¹. Malnutrition can have long-term effects on health, making it essential to address it early¹².

To address the problem of malnutrition, a study is being conducted to develop a motherhood information guide for the prevention of protein energy malnutrition among mothers of under-five children in selected areas of Gujarat. This study aims to design strategies to alleviate malnutrition and improve the health of under-five children and their families.

2. Methodology

The research was conducted in specific areas of Gujarat, using a cross-sectional approach and involving the community. The participants were provided with information about the study and gave their consent before being included. The study included residents who had been living in the area for at least three months, regardless of their place of origin. However, individuals who had been living in the area for less than three months were excluded from the study. To collect data on socio-demographic characteristics, knowledge, and practices, a pre-designed interview schedule, self-structured knowledge questionnaire, and an expressed practice checklist were used. These tools were pretested and modified as necessary. The self-structured checklist was also pretested and modified to overcome any difficulties encountered during the pretesting phase.

To determine the appropriate sample size, a formula was used.

The sample size was calculated on the basis of following formula:

$$n = \frac{(SD)^2 \times p \times q}{(df)^2}$$

To estimate the sample size, researchers were considered to generalize the findings.

$$n = \frac{(SD)^2 \times p \times q}{(df)^2}$$

$$P = 0.48$$

$$q = 1 - p$$

$$q = 1 - 0.48$$

$$q = 0.52$$

$$n = \frac{(1.96)^2 \times 0.48 \times 0.52}{(0.05)^2}$$

$$n = \frac{3.8416 \times 0.2496}{0.0025}$$

$$n = \frac{0.95886336}{0.0025}$$

$$n = 383.54$$

$$n = 384$$

The study on the prevention of protein-energy malnutrition was conducted by interviewing 384 participants in certain areas of Gujarat. Before administering the tools, the participants were informed about the purpose of the study, and confidentiality was ensured. The interview started with a general discussion to gain confidence and gradually moved to specific points. The collected data was entered into Microsoft Excel and checked for discrepancies, and then recorded in the format developed for the study. Statistical analysis was performed using SPSS version 16, where data was coded and tabulated according to their level of measurement. Categorical variables were presented in frequency and percentage tables, and the Chi-square test was used to find the association between variables, with a significance level of 0.05.

3. Result:

The study found that most of the participants, 177 individuals (46.1%), were between the ages of 21-25 years, and only 13 participants (3.4%) had a higher education status. A majority of the participants, 198 individuals (51.0%), were homemakers, and 341

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Sr. No	Demographic Variable	f	%
1.	Mother's Age (in years)	a. 21-25 years	177 46.1%
		b. 26-30 years	170 44.3%
		c. 31-35 years	37 9.6%
2.	Child's age in Months	a. 0-17 months	124 32.3%
		b. 18-41 months	206 53.6%
		c. 42-60 months	54 14.1%
3.	Gender	a. Male	198 51.6%
		b. Female	186 48.4%
4.	Educational status of mother	a. No formal education	202 52.6%
		b. Primary education	102 26.6%
		c. Secondary education	67 17.4%
		d. Higher education	13 3.4%
		e. Graduate	0 0.0%
		f. Postgraduate	0 0.0%
5.	Occupational status of mother	a. House wife	198 51.6%
		b. Private Employee	179 46.6%
		c. Govt. Employee	7 1.8%
		d. Others	0 0.0%
6.	Family monthly income in rupees	a. Below 5,000	20 5.2%
		b. 5,000-10,000	145 37.8%
		c. 10,000-15,000	183 47.7%
		d. 15,000-20,000	35 9.1%
		e. More than 20,000	1 0.3%
7.	Religion	a. Hindu	384 100%
		b. Muslim	0 0
		c. Christian	0 0
8.	Type of family	a. Nuclear family	234 60.9%
		b. Joint Family	125 32.9%
		c. Extended family	25 6.5%

participants (88.8%) had a monthly family income of less than 25000 Rs. Additionally, all 384 participants (100%) belonged to the Hindu religion. In terms of family types, 234 respondents (60.9%) were living in nuclear families, and 239 under-five children (62.2%) were the first-born. Overall, the study provides valuable insight into the demographics of the population under investigation, which can help in developing effective interventions and policies for the prevention of protein-energy malnutrition.

Table -2: Distribution of subjects based on level of knowledge regarding prevention of Protein Energy Malnutrition.

Sr.No	Level of Knowledge	f	%	Mean	Sd
1.	Poor	6	1.6%	2.32	5.00
2.	Average	249	64.8%		
3.	Good	129	33.6%		

Table 2 presents information on the knowledge level of mothers who have children under the age of five regarding preventing Protein Energy Malnutrition. The table shows that out of the 384 participants, 249 (64.8%) had an average level of knowledge, which was the highest percentage of participants, while only 6 (1.6%) had poor knowledge about preventing Protein Energy Malnutrition. This means that most of the participants had a reasonable understanding of the prevention methods for Protein Energy Malnutrition. The average knowledge score was 2.32, and the standard deviation was 5.00. The mean and standard deviation provide information on the central tendency and spread of the data, respectively. The mean knowledge score indicates the average level of knowledge among the participants, while the standard deviation indicates how much the participants' knowledge scores varied from the mean. These results can be used to evaluate the effectiveness of the interventions aimed at increasing the knowledge of

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mothers regarding preventing Protein Energy Malnutrition

Table 3: Distribution of subjects based on expressed practice regarding prevention of Protein Energy Malnutrition.

Sr. No	Interpretation	f	%	Mean	Sd
1.	Yes	121	31.5%	1.68	4.65
2.	No	265	68.5%		

Table 3 presents the distribution of the practice score of mothers with children under the age of five regarding the prevention of Protein Energy Malnutrition. The table shows that a majority of the participants, 263 (68.5%), followed adequate practices, while 121 (31.5%) had inadequate practices. The mean and standard deviation for the practice score were 1.68 and 4.65, respectively. This implies that although most participants had an average knowledge level, they were able to practice appropriate preventive measures for Protein Energy Malnutrition.

Furthermore, the correlation coefficient value of 0.356 was found between the knowledge and practice scores of the participants. This value is higher than the table value of 0.113 at a 0.05 significance level, indicating that there is a statistically significant relationship between knowledge and practice in preventing Protein Energy Malnutrition. Hence, it can be concluded that improving mothers' knowledge of Protein Energy Malnutrition could lead to better preventive practices.

Finally, no significant association was found between the level of knowledge of mothers and their demonstrated practices, with regards to specific demographic variables, at a significance level of $p=0.05$. Therefore, it can be suggested that knowledge regarding Protein Energy Malnutrition prevention may be equally important for all mothers, regardless of their demographic background.

4. Discussion:

The study aimed to evaluate the knowledge and practices of mothers of under-five children regarding protein energy malnutrition (PEM) in rural areas of Vadodara, Gujarat. The results showed that 94% of the respondents had heard about PEM, indicating a need to educate under-five mothers about it. Based on knowledge scores, the majority of mothers had good to excellent knowledge about PEM. However, only 31.5% of the mothers were practicing preventive measures, which is lower than in some other studies^{10,11}. Interestingly, there was a positive correlation between knowledge and practice in this study, which contrasts with a previous study that found no correlation¹². The study did not find any significant association between knowledge and practice scores and the selected socio-demographic variables. Similar results were reported in the other study¹². The findings of this study highlight the need to enhance the knowledge of under-five mothers regarding the prevention of PEM and to promote preventive practices to reduce the prevalence of this condition.

5. Conclusion:

In conclusion, India is in a vulnerable position with high rates of under-nutrition, despite improvements in food availability and poverty reduction. Under-nutrition cannot be addressed solely by focusing on age, as poor feeding practices also contribute to the problem. Socio-cultural factors also play a role in shaping caregiver attitudes towards feeding and care practices. Surprisingly, states with low per capita income have better under-nutrition rates than richer states, indicating that family income is not always the main cause of under-nutrition. Malnutrition is a serious issue, with Protein Energy Malnutrition being particularly prevalent in developing countries, despite efforts to address the issue through initiatives like the National Nutrition Health program for young children. While the study found that the majority of participants had sufficient

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knowledge about under-nutrition, they needed to adopt better strategies in their daily practices to prevent Protein Energy Malnutrition.

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