

**INVESTIGATING THE UNDERSTANDING OF PROTEIN ENERGY  
MALNUTRITION AMONG MOTHERS OF UNDER-FIVE CHILDREN  
IN SELECTED RURAL AREAS OF YAMUNA NAGAR.**

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**Abstract**

**Background and objective:** One of the most significant health issues that is prevalent in the rural areas of Haryana is the lack of protein and energy reserves. The condition is most common in infants and young children who are in their first year of life. **Objective:** This study intends to detect mothers' knowledge on protein energy malnutrition for children under the age of five years in chosen rural areas in Yamuna Nagar City. **Materials and method:** A pre-experimental study was conducted in the pastoral area of Yamunanagar (Haryana), located in North India. Samples were collected using a non-probability purposive sampling technique in this investigation. This sample was composed of thirty mothers who had infants under the age of five. The questionnaire was developed and distributed to mothers of children under the age of five. A panel of experts was used to verify the validity of the questionnaire instrument. A pilot study was conducted to assess the reliability of statistical evaluations. Six mothers were arbitrarily selected (and excluded from the study results). The data was collected using the interview method, and the analysis was conducted using descriptive and inferential statistics. **Results:** The study's main conclusions show that there was a difference in the mean knowledge score of 56.6% and SD of 4.36 % between the pre- and post-tests for cardiac rehabilitation. In contrast to the pre-test mean knowledge score of 33.76% with a standard deviation of 2.34%. The statistical t test indicates that there was a statistically significant 5% level  $p < 0.01$  difference in the knowledge score between the pre- and post-test. Additionally, the enhancement score had a mean of 34.6% and an SD of 15.1%. The statistical significance of the enhancement scores, which indicate the impact of the success of the video assisted programme among the respondents, is revealed by the paired t test result of 8.017. **Conclusions:** There is a notable disparity between the level of knowledge mothers

of children under the age of five have before and after a test, specifically in relation to protein energy deficiency. This demonstrates that the structured training programme was a successful teaching intervention in enhancing the mothers' understanding of protein energy deficiency.

**Keywords: Assessment, Mother's knowledge, protein energy malnutrition.**

## **Introduction**

Children represent our future hopes. With care, potters can turn wet clay into something lovely, or they crack and are abandoned. The most vulnerable group in society. The most essential part of our population is children, who deserve attention from family, society, and government. Carefully planned education, health, and nutrition policies address their requirements. For optimal physical, mental, and emotional development of future citizens, children are the most crucial component of a nation.<sup>1</sup> Family and nation wealth depend on child health. Good diet is essential for growth and lifelong health. Nutrition involves a dynamic process that uses food for nourishment, structure, and function in every cell of the body. National growth and economic prosperity demand healthy under-5s with adequate diet.<sup>2</sup>

Malnutrition is like an iceberg, affecting most developing country children. Malnutrition can be caused by a lack of a balanced diet, a digestive system disorder that prevents food nutrients from being properly absorbed, or when the body does not get enough vitamins, minerals, and other nutrients to maintain healthy tissues and organ function.<sup>3</sup> Well-nourished women are healthy and can care for their families. Pregnancy and lactation improve with health. Women who are pregnant or breastfeeding have higher nutritional needs. Food helps the mother meet the baby's nutritional demands during pregnancy. Food helps mothers produce breast milk during lactation.<sup>4</sup> About 60% of mortality in developing country children under five are due to malnutrition, according to WHO data. Almost 90% of the 50.6 million under-5 hungry children were from developing countries.<sup>5</sup>

Food and Agriculture Organisation estimates that 925 billion people are malnourished as of October 2010. The estimated proportions of diarrhoea 61%, malaria 57%, pneumonia 56%, and measles 45% mortality due to starvation are similar.<sup>6</sup> Malnutrition causes more than half of all paediatric fatalities in India, but it is rarely identified as the direct cause. More than 6000

children under five die daily from infectious diseases worsened by it.<sup>7</sup> In the 2001 Karnataka census, under-5 mortality was 69/1000 live births. The census also found 6.2% of children with severe undernutrition, 39.0%, and 9.4% normal. These findings show that Karnataka's under-5s are malnourished.<sup>8</sup> Protein needs vary by age, sex, physical, physiological, and other characteristics. ICMR 1981 advised 1.83 mg per kg of body weight of protein for 1-3 years and 1.56 for 4-5 years, or 22 and 29 gm of total need. 2.3 grams per kg for 3 months, 1.8 for 3-9 months, 1.5 for 9-12 months is the daily protein allowance for infants. Children's mental and social growth depends on their mothers. Mother and kid are viewed as one because the mother is the child's first teacher.<sup>9</sup>

### **Statement of the Problem**

A Study To Evaluate The Impact Of A Structured Teaching Programme On The Knowledge Of Mothers Of Under Five Children Regarding Protein Energy Malnutrition In A Selected Rural Area Of Yamuna Nagar.

### **Objectives**

- ❖ To evaluate the pre-test and post-test knowledge of mothers of under-five children regarding protein energy malnutrition.
- ❖ To assess the effectiveness of a structured teaching programme about protein energy malnutrition.
- ❖ To correlate mothers' awareness of their children under the age of five with certain demographic characteristics.

### **Methods**

#### **Research Approach: Quantitative approach**

**Research Design:** Pre-Experimental Design (One Group Pre-Test Post-Test Design)

**Settings:** Selected rural area, Yamuna Nagar (Haryana) North India

**Population:** Mothers having children under five years of age in selected rural areas in Yamuna Nagar.

**Sampling Technique:** Non – Probability (Purposive Sampling Technique)

**Sample Size:** 30 Mothers

**Research Tool:** Structured Knowledge Questionnaire on Protein Energy Malnutrition

**Validity:** Content validity was obtained from five experts in the field of pediatric nursing. The suggested corrections were done.

**Reliability:** Test-Retest method was used to test the reliability of the questionnaire and the calculated ‘r’ value was 0.78 which was found to be reliable.

**Data Collection Process:** The interview method was used to collect data. On day 1, a pre-test was given to see how much the students knew. On day 7, all of the samples were given a structured training programme, and on day 8, a post-test was given to these samples.

**Data Analysis:** Data analysis was done through descriptive and inferential statistics.

### Results and Interpretations

**Table – I: Distribution of Samples according to Socio-Demographic Variables**

(n = 30)

S. No	Socio-Demographic Variables	Frequency	Percentage	
1.	Age (Years)	21-25	15	50 %
		26-30	11	36.6 %
		31-35	04	13.3 %
		35 and above	00	00 %
2.	Family Income (Rupees)	Less than 1000	4	13.33 %
		1001 - 3000	6	20 %
		3001 – 5000	16	53.33 %
		Above 5000	4	13.33 %
3.	Mothers Education	Illiterate	8	26.66%
		Primary	10	33.33%
		Secondary	5	16.66%
		Graduate	7	23.33%
4.	Type of Family	Nuclear	17	56.66%
		Joint	13	43.33 %
		Broken	0	0%
		Extended	0	0%
5.	Mothers Occupation	House wife	20	66.66%
		Labor	4	13.33%
		Petty Business	4	13.33%
		Any other specific	2	6.66%
6.	Family Members	Three	4	13.33%
		Four	10	33.3%

		Five	12	40%
		Six or above	4	13.33%
<b>7.</b>	<b>Living Area</b>	Rural	12	40%
		Urban	16	53.3%
		Tribal and backward	1	3.33%
		Slum	1	3.33%

The data presented in the table 1 reveals that the proportion of mother were in the age group of 15(50%) in the group of 21-25 years, 11(36.6%) in the age group of 26-30 years, 4(13.3%) in the age group of 31-35 years. The data presented in the table one reveals that the proportion of mothers family income were 4 (13.33%) is > than 1000, 6 (20 %) is 1001 – 3000, 16 (53.33%) is 3001 – 5000, 4 (13.33%) is above 5000. The data presented in table 1 reveals that the proportion of the mother education were 8 (26.66%) are illiterate, 10 (33.33%) are primary, 5 (16.66%) are secondary, 7 (23.33%) are graduate. The data presented in the table 1 reveals that the proportion of mothers were in the type of family 17(56.66%) in nuclear family, 13 (43.33%) in joint family. The data Presented in the table 1 reveals that the proportion of mother were in occupation 20 (66.66%) are house wife, 4 (13.33%) are labor, 4 (33.33%) are petty business, 2 (6.66%) are other specific. The data persented in the table 1 reveals that the proportion of mother were family member 4 (13.33%) have three, 10 (33.3%) have four, 12 (40%) have five, 4 (13.33%) have six and above. The data presented in the table 1 reveals that the proportion of the mother were in the living area 12 (40%) in rural, 16 (53.3%) in urban, 1 (3.33%) are in tribal and backward remaining 1 (3.33%) in slum.

**Table – II Pre-test and Post-test on knowledge level regarding protein energy  
malnutrition among mothers of under five children**

**(N = 30)**

<b>Aspect</b>	<b>Respondent knowledge level</b>			
	<b>PRE-TEST</b>		<b>POST-TEST</b>	
	<b>NUMBER</b>	<b>PERCENTAGE</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
<b>Inadequate</b> (<50%)	21	70%	3	10%
<b>Moderate</b> (51%- 75%)	4	13.3%	3	10%
<b>Adequate</b> (>75%)	5	16.67%	24	80%

The analysis of the pretest and posttest results indicates a significant improvement in knowledge levels among the respondents. Prior to the intervention, 70% of the respondents had inadequate knowledge, while 13.3% had moderate knowledge and 16.67% had adequate knowledge. Following the intervention, the percentage of respondents with inadequate knowledge decreased to 10%, those with moderate knowledge remained at 10%, and the percentage of respondents with adequate knowledge increased to 80%.

**Table – III: Effectiveness of Teaching on Protein Energy Malnutrition Among Mothers of Under Five Children.**

Aspect	Max Score	Respondent knowledge			Paired t - test
		Mean	Mean%	SD	
Pre-test	30	10.76	33.76%	2.34	8.017*
Post-test	30	17.00	56.5%	4.36	

N=30

Significant at level.t(8.017,57df)=1.091

The results presented in Table-3 demonstrate the difference in knowledge scores of cardiac rehabilitation between the pre-test and post-test. The post-test mean percentage score of 56.5% (SD=4.36) was significantly higher compared to the pre-test mean score of 33.7% (SD=2.34). The paired t-test yielded a statistically significant difference ( $p < 0.01$ ) between the pre-test and post-test knowledge scores, with a calculated t-value of 8.017\*. This indicates a statistically significant effectiveness of the video-assisted teaching program.

**TABLE 1V: Associations Between the Levels of Knowledge In Post-Test With Selected Demographic Variables.**

Variables	Level of Knowledge			Total	Chi-square	P Value
	Moderate	Inadequate	Adequate			

N=30

<b>Family type</b>						
Nuclear	1	0	16	17	5.57	N.S.
Joint	2	3	8	13		
Broken	0	0	0	0		
Extended	0	0	0	0		
<b>Age (in years)</b>						
21-25	2	1	12	15	2.15	N.S.
26-30	1	2	8	11		
30-35	0	0	4	4		
<35	0	0	0	0		
<b>Education</b>						
Illiterate	0	0	8	8	13.23	S
Primary	0	0	7	7		
Medium	3	2	3	8		
High	0	1	6	7		
<b>Occupation</b>						
House Wife	1	3	16	20	26.94	N.S.
Labor	1	0	3	4		
Petty Business	1	0	1	2		
Other Specific	0	0	4	4		
<b>Family members</b>						

Three	0	0	4	4	6.73	N.S.
Four	2	1	7	10		
Five	1	2	9	12		
Six and above	0	0	4	4		
<b>Habitat</b>						
Rural	2	0	10	12	3.87	N.S.
Urban	1	3	11	15		
Tribal and Backward	0	0	2	2		
Slum	0	0	1	1		
<b>Family income</b>						
>3000	0	0	4	4	25.39	S.
1001-3000	0	0	6	6		
3000-5000	2	2	11	15		
5000<	2	0	3	5		

**Table IV** - Inferred that there are two significant and five nonsignificant association between post-test level of knowledge with demographic variables.

### **Discussion**

The study aimed to assess the effectiveness of teaching about protein energy malnutrition in improving the knowledge of mothers with children under five. The findings indicated that the teaching was effective in increasing knowledge among mothers in rural areas.

In this study, the demographic findings reveal that out of the respondents, 8 (26.6%) mothers are illiterate, 10 (33.3%) have primary education, 5 (16.6%) have middle school education, and the remaining 7 (23.3%) are graduates. As for the age of the patients, 15 (50%) are aged between 21-25 years, while 11 (36.6%) are in the 26-30 age range. In terms of occupation, 20 (66.6%) are housewives, 4 (13.3%) are laborers, 4 (13.3%) are involved in petty business, and 2 (6.66%) have other occupations. Regarding family income, 4 (13.3%) earn less than 1000, 6 (20%) earn between 1001 to 3000, 16 (53.53%) earn between 3001 to 5000, and 4 (13.3%) earn above 5000. For family size, 4 (13.3%) have three members, 10 (33.3%) have four



members, 12 (40%) have five members, and 4 (13.3%) have six or more family members according to the respondents.

The aforementioned findings mirror those of a study conducted by **Prashant V. Pawar and Veerabhadrapa G. Mendagudli (2019)**. The study aimed to assess the effectiveness of a planned teaching program on the prevention of protein-energy malnutrition among mothers of children under the age of five. The study involved the analysis of demographic data of mothers in selected rural communities, focusing on the frequency and percentage distribution. The results indicated that the majority (58%) of mothers of children under five years old were in the 21-25 age group, with 30% below 20 years, 12% in the 26-30 age group, and none in the 31 and above age group. In terms of religion, 58% were Muslim, 34% were Hindu, and 8% were Christian. Regarding dietary habits, 52% consumed a mixed diet, 26% consumed non-vegetarian food, and 22% consumed a vegetarian diet. Furthermore, 76% of the mothers came from nuclear families, while 24% were from joint families. In terms of income, 62% had a monthly family income of 1000-3000, 38% had an income of 3001-5000, and none reported an income of 50001 and above. Education-wise, 50% of the mothers had primary education, 34% had education up to higher secondary, 16% had education up to a degree, and none were illiterate. Additionally, 92% of the mothers had one child, while 8% had two children. In terms of immunization, 88% of the children were partially immunized, 12% were completely immunized, and none were not immunized. The study also highlighted that 30% of mothers acquired knowledge from the media, 30% from family members, 28% from newspapers, and 12% from health personnel.

In this study the analysis indicates the overall knowledge score of protein energy malnutrition in the pretest and post-test which reveals that post test mean percentage score was found higher (56.5%) and SD of (4.36%) when compared with the pretest mean knowledge score value which was 33.76 % with SD OF 2.34%. The statistical paired t: test implies that the difference in pre-test and post-test knowledge scores was found statistically significant 5% level  $p < 0.01$ . The paired t-test worked out (8.01 ) reveals that there exist a statistical significance of the effectiveness of the teaching program.

**J.C, FRANK & Chaudhary, Dr. & Rajwant, Dr. (2022)** conducted a study using a pre-experimental one-group pre-test and post-test method. The sample consisted of 40 participants selected using purposive sampling technique. A structured questionnaire was used to assess the participants' knowledge regarding the prevention of protein energy malnutrition. In the pre-test, 34 (85%) participants had inadequate knowledge, 4 (10%) had moderate knowledge, and 2 (5%) had adequate knowledge. Following a structured teaching program, the post-test results showed that 20 (50%) participants had adequate knowledge and 20 (50%) had moderate knowledge.

## **Conclusion**

The study revealed a significant knowledge deficit in all aspects of preventing malnutrition. The findings suggest that the organized teaching program successfully brought about positive changes in the cognitive and behavioral patterns of mothers with children under the age of five in selected areas of Yamuna Nagar, Haryana. The data indicates that the mothers experienced a notable increase in knowledge pertaining to the prevention of malnutrition, demonstrating the effectiveness of the teaching program. The structured teaching program focused on preventing malnutrition proved to be an acceptable and valuable method for educating mothers with young children.

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