

# A Study to Assess the Effectiveness of Instructional Programme on Knowledge Regarding Prevention of PEM among the Mothers of Under-Five Children from Selected Anganwadi Centres at Malur Taluk

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## ABSTRACT

Malnutrition is the most leading cause of mortality rates in children in India. Protein -energy malnutrition is an inadequate intake of protein and calories less than required for normal growth. According to family welfare statistics, in India 36 under five mortality in 1000 population and maximum is in Madhya Pradesh. Hence educating the under-five mothers children is necessary to prevent the PEM cases.

**Materials and Methods:** One group pre-test and post-test pre-experimental research design is adapted to assess the effectiveness of instructional module on prevention of PEM in 46 mothers of under five children, at Anganwadi centers of Malur Taluk. Samples for the study were selected through purposive sampling technique. Tool used to collect data are structured knowledge questionnaire along with demographic variables. After pre-test instructional module was implemented. Using the same tool post-test was conducted 7 days after the implementation of instructional module.

**Results:** An average score with SD was 10.63+5.26 during pre test. Post-test mean score with SD was 23.08\_3.74. the mean value of post-test was significantly more than the pre-test. Comparison of both scores was done by using paired 't' test in order to estimate the effectiveness of instructional module. The 't' test score was 13.097 at df 45.

**Conclusion:** The results of the study suggested that, under-five mothers have insufficient knowledge on PEM, instructional module enhanced their knowledge on prevention of PEM.

**Keywords:** Protein-Energy Malnutrition, Instructional Module, Under-Five Children.

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## INTRODUCTION

In developing countries like India, the most prevalent malnutrition is PEM, especially in underprivileged populations, under-five children are a vulnerable group. Under five is the crucial time for growth and development.1 PEM in under-five children can lead to physical and cognitive development. Malnutrition can adversely hamper the child's growth and development. It also increases the susceptibility to infection hindering the immune system.2

In India, PEM is a major nutritional problem and public health concern due to poor socio-economic background, unhealthy dietary habits, improper weaning techniques, negligence and lack of awareness.3

"According to WHO malnutrition is the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth maintenance and specific functions. The term protein-energy malnutrition applies to a group of related disorders that include marasmus, kwashiorkor and intermediate status of marasmus and kwashiorkor."4 PEM is measured in terms of underweight, stunting and wasting. Recent statistics suggest that the prevalence of growth stunting among under five is 48%, muscle wasting is 19.8% and under-weight is 42.5%. The highest rates are recorded in Rajasthan, UP, Bihar and Assam.4

Hence, it is evident that, improving the nutritional education program among parents can drastically impact the nutritional status of under-five children. Malnutrition includes under-nutrition (muscle wasting, growth stunting and under-weight) inadequate micronutrients like vitamins and minerals, overweight, and obesity leading to nourishment-related non-communicable diseases.<sup>5</sup>

In 2022 worldwide it was estimated that 149 million under-five children were growth stunted and 45 million under-five children had muscle wasting and 37 million were under-weight. Almost half of the deaths among under-five children are linked to undernutrition. In India, 42.5% of children are under-weight 48% of under-five children have stunted growth, and 19.8% of under-five children are suffering from wasting. The male-female ratio of PEM cases is 1:1.34.<sup>6</sup>

The prevalence of PEM in Karnataka state is around 41%. The global burden of malnutrition on the development, socio-economic, and medical aspects is severe and affects the individual, family and community. Given the above statistics, there is a need to evaluate the knowledge of under-five mothers and create awareness to the mothers regarding nutritious diets to eradicate PEM.<sup>7</sup>

### MATERIALS AND METHOD

One group pre-test and post-test pre-experimental design is adapted with the objectives to evaluate the effectiveness of the instructional programme on knowledge regarding the prevention of PEM among the mothers of under-five children from selected Anganwadi centers at Malur Taluk. Purposive sampling techniques were used to select samples. The tools used to collect data are structured knowledge questionnaires and demographic variables. An instructional module on protein energy malnutrition was prepared. The tool was sent to various experts to validate the content and instructional module. The scores of the mothers of under-five children were categorized as adequate (>75%) moderate (50-75%) and inadequate (<50%). Before conducting the study ethical committee clearance was obtained by the institution. Data was collected from the under-five mothers from various Anganwadi centers, Malur taluk. Results were presented as mean, frequency and percentages. The association between the knowledge score with their demographic data is determined by using the Chi-square test.

### RESULTS

#### Description of Demographic Variables

Demographic data revealed that the majority 18(39%) of under-five mothers were between the age of 22-25 years, 8(17.39%) under-five mothers were between the age 18-21 years, 8(17.39%) of under-five mothers were between the age of 26-29 years and 12(20.08%) under-five mothers were above the age of 29 years. With respect to religion, the majority 38(82.60%) of the under-five mothers belong to the Hindu religion, 6(13.04%) of under-five mothers were Muslims and 2(4.34%) of under-five mothers were Christians. Concerning education majority 18(39%) of under-five mothers were illiterate, 4(8.69%) of under-five mothers had primary education and 14(30.43%) of under-five mothers had higher education. In relation to the number of children majority 24(52.17%) of under-five mothers had two children, 12(26.08%) of under-five mothers had one child and 10(21.73%) of under-five mothers had three children. In respect to occupation majority 36(78.26%) of under-five mothers are housewives, 2(4.34%) of under-five mothers are employed in the Government sector, 6(13.04%) of under-five mothers are self-employed and 2(4.34%) of under-five mothers are working in private jobs. In relation to residential areas majority of 46(100%) of under-five mothers belong to rural areas and none of the mothers belong to urban areas. In relation to the majority 16(34.78%) of under-five mothers have the Internet as a source of information, 10(21.73%) of under-five mothers get information from the news, 14(30.34%) of under-five mothers use mass media and 6(13.04%) of under-five mothers gain information through professional sources.

**Table-1: Distribution of frequency and percentage of pre-test knowledge scores of under-five mothers.  
N=46**

Level of Knowledge	Category	Classification of under-five mothers based on pre-test knowledge score	
		F	%
Inadequate	< 50 % Score	34	73.9
Moderate	51-75% scores	12	26
Adequate	>75% scores	0	0
<b>Total</b>		<b>46</b>	<b>100</b>

The data presented in the first table suggested the classification of under-five mothers based on the pre-test knowledge scores regarding the prevention of PEM among Under-five children. Majority of the under-five mothers 34(73.9%) had inadequate knowledge levels and 12(26%) of under-five mothers had moderate knowledge scores. None of the under-five mothers had adequate knowledge on the prevention of PEM.

**Table-2: Distribution of frequency and percentage of post-test knowledge scores of under-five mothers.**  
N=46

Level of knowledge	Category	Classification of under-five mothers based on pos-test knowledge scores	
		f	%
Inadequate	<50% score	0	0
Moderate	51-75% score	24	52.1
Adequate	>75% score	22	47.8
<b>Total</b>		<b>46</b>	<b>100</b>

Data presented in the second table suggested the classification of under-five mothers based on post-test knowledge scores regarding the prevention of PEM among under-five children.

In the post-test, the majority 22(47.8%) of under-five mothers had adequate knowledge levels and 24(52.1%) of under-five mothers had moderate knowledge levels. None of the under-five mothers had inadequate knowledge regarding the prevention of PEM.

**Table-3: Comparison of mean pre-test and post-test knowledge scores with overall enhancement of knowledge scores of under-five mothers**  
N=46

Pre-test and post test knowledge scores					
Aspects	Max. score	Mean	Mean(%)	SD	Paired 't' Test
Pre-test	30	10.630	35.43%	5.26	<b>*13.097 df 45 at 0.05 HS</b>
Post test	30	23.086	76.95%	3.74	
Enhancement	<b>30</b>	<b>12.456</b>	<b>41.52%</b>	<b>±1.52</b>	

\* Highly Significant

Data given in the third table suggested that the mean pre-test score was 10.630 and the mean post-test score was 23.086. The obtained standard deviation of the pre-test is 5.26 and post-test is 3.74 and the overall knowledge enhancement of mothers of under-five children is 41.52%. The calculated paired 't' test value is 13.097 at df=45 hence the study is highly significant at the level of 0.05.

**Table 4: Association of pre-test knowledge scores with demographic variables of under-five mothers.  
N=46**

Sl.no	Characteristics	Category	Below median		Above median		Chi square test
			f	(%)	f	(%)	
1	Age in years	18-21	2	4.34	6	13.04	5.234 df=6 NS
		22-25	4	8.69	14	30.43	
		26-29	4	8.69	4	8.69	
		>29	4	8.69	8	17.39	
2	Religion	Hindu	12	26.08	26	56.52	8.03 df=6 NS
		Muslim	2	4.34	4	8.69	
		Christian	0	0	2	4.34	
		Others	0	0	0	0	
3	Education	Illiterate	8	17.39	10	21.73	14.79 df=8 NS
		Primary	0	0	4	8.69	
		Secondary	4	8.69	10	21.73	
		Higher	2	4.34	8	17.39	
		Graduation	0	0	0	0	
4	No. of children	1	4	8.69	8	17.39	4.29 df=6 NS
		2	10	21.73	14	30.43	
		3	2	4.34	8	17.39	
		>3	0	0	0	0	
5	Occupation	House wife	10	21.73	26	56.52	5.56 df=6 NS
		Govt employee	0	0	2	4.34	
		Self employed	4	8.69	2	4.34	
		Private	0	0	2	4.34	
6	Area	Rural	14	30.43	32	69.56	0 df=2 NS
		Urban	0	0	0	0	
7	Source of information	News	2	4.34	8	17.39	2 df=6 NS
		Internet	4	8.69	12	26.08	
		Mass media	4	8.69	10	21.73	
		Professionals	4	8.69	2	4.34	

Data given in the fourth table suggested that none of the demographic variables had a significant association with the pre-test knowledge levels of mothers of under-five children regarding the prevention of protein energy malnutrition.

### DISCUSSION

Current statistics depict that, there is a prevalence of PEM worldwide and measures to be taken to prevent it among under-five children. Awareness to mothers of under-five children might aid in decreasing the incidence of PEM by increasing the knowledge on the prevention of PEM.

Ayushi Sampathy et al (2021) concluded a systematic review, which shows that poverty, poor environmental sanitation, poor dietary practices, low socioeconomic status, maternal education, frequent infection, poor household food security, high consumption of rice, were the main reasons behind malnutrition. Emphasis should be given to strengthen the health extension programs to improve awareness and to develop better child feeding and caring practices. Nutrition education should be intensified by ASHA, ANM, Anganwadi Workers (AWWs) to reach the awareness and importance of nutrition regarding PEM to the remote areas.<sup>8</sup>

A similar study was conducted in India to assess the effectiveness of STP regarding the prevention of PEM among 46 mothers, where mothers had 10% of knowledge before the teaching program which was enhanced to 50% after STP.<sup>9</sup> Another study also had similar results of increased knowledge level after a planned teaching program among mothers of under-five children regarding the prevention of PEM up to 100%.<sup>10</sup> One more community-based education on the prevention and management of PEM was conducted among 60 mothers at Ballarpur. Results revealed that none of the mothers had good knowledge before education but after the awareness program 30% of mothers had improved knowledge regarding PEM.<sup>11</sup>

An intervention study results conducted by Ansuya et al (2023) on cognitive development among malnourished preschool children at Udipi district, Kanataka, revealed that, malnourished children had poor cognitive development compared to well-nourished children. There by it states that nutrition has direct effect on cognitive development of children.<sup>12</sup>

The present study results showed the same results as previous studies. In this study, majority of under-five mothers 73.9% had poor knowledge and only 26% had average knowledge before instructional program. Whereas in post-test, 47.8% of mothers had good knowledge and 52.1% had average knowledge on prevention of PEM. Overall, 41.52% knowledge enhancement was evident among mothers of under-five children. Hence, this study also proved that instructional modules enhanced the knowledge levels of under-five mothers regarding the prevention of PEM among under-five children.

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