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Effectiveness of a Structured Teaching Program on Knowledge Regarding Prevention of Protein Energy Malnutrition Among Mothers of Under-Five Children in Selected Anganwadi of Daman

Mansi Babubhai Chaudhari

Student, Government College of Nursing, Daman

Abstract

Protein Energy Malnutrition (PEM) remains a major public health concern affecting children under five years of age in India. Maternal knowledge plays a crucial role in early identification and prevention of PEM. This study aimed to evaluate the effectiveness of a structured teaching program (STP) on improving knowledge regarding PEM prevention among mothers of under-five children in selected Anganwadi centres of Daman. A quasi-experimental one-group pre-test post-test design was adopted, and 369 mothers were selected through convenience sampling. Data were collected using a self-structured questionnaire. The mean pre-test knowledge score was 12.56 ± 3.21, which increased to 22.91 ± 2.84 in the post-test. The calculated z-value (16.664, $p < 0.001$) indicated a statistically significant improvement in knowledge following the intervention. The findings suggest that structured teaching programs are effective in enhancing maternal knowledge and can contribute to reducing PEM prevalence in the community.

Keywords: Protein Energy Malnutrition, Structured Teaching Program, Mothers, Knowledge, Under-five Children

Introduction

The hearts of most grown ups melt at the sight of small children who constitutes one of the most vulnerable sections of society. Children are our supreme assets because children of today form the human resources of tomorrow. Children need extra care because these are generally the most vulnerable and least able to help themselves. Interventions early in life can thus have lifelong benefits not just for individual but for society as a whole.

Every child develops and grows at her/his own time through reaching the various development & milestone. Children growth and development do not occur in a linear fashion. But are influenced by each child's environment nutrition and mothers care, these factors play and critical role in a child reaching her/his full potential. Recent evidence indicates that good nutrition particularly in early childhood is critical to the positive health outcomes of children. In fact children's nutritional status of health

Malnutrition refers to deficiencies or excesses in nutrient intake, imbalance of essential nutrients or impaired nutrient utilization. The double burden of malnutrition consists of both undernutrition and overweight and obesity, as well as diet-related noncommunicable diseases. Undernutrition manifests in four broad forms: wasting, stunting, underweight, and micronutrient deficiencies.

Protein energy malnutrition condition is the preventable one. Mothers are playing vital role in the care of under five children. The researcher believed that educating mothers of under five children regarding prevention of protein energy malnutrition will reduce the prevalence of PEM among children

In rural areas, most number of the mothers have disbeliefs, taboos and doubts regarding nutritional needs of the children. If we educate them properly, we will improve the nutritional status of the children

A. Protein Energy Malnutrition (PEM) is a deficiency disease caused in the infants due to 'Food Gap' between the intake and requirement. It affects children under 5 mostly belonging to the poor underprivileged communities. PEM is particularly serious during the post-weaning stage and is often associated with infection. The term PEM covers a wide spectrum of clinical stages ranging from the severe forms like kwashiorkor and marasmus to the milder forms in which the main detectable manifestation is growth retardation.

NEED OF STUDY:

The World Health Organization (WHO) defines malnutrition as " the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions."

In 2018, stunting affected an estimated 21.9% or 149 million children under the age of 5 years, while wasting affected 7.3% or 49 million children under the age of 5 years. Around 45% of deaths among children under the age of 5 years are linked to undernutrition. These mostly occur in low- and middle-income countries. At the same time, in these same countries, rates of childhood overweight and obesity are rising

The word bank estimates that India is one of the height ranking countries in the world the number of children suffering from malnutrition the prevalence of underweight children in India is among the highest in the world and is nearly double that of Sahara Africa With and dire consequences for mobility , productivity and economic growth.

India has the highest prevalence of undernutrition in the world, with 48% of children under five experiencing stunting, 19.8% wasting, and 42.5% underweight. The country accounts for 34% of the world's stunted children, making PEM a critical issue that needs to be addressed.[3 4]

According to RBSK data in Daman o -6 years total screen cases of PEM 6578 in that stunting prevalence 19.9%, Wasting Prevalence 8.11% and underweight 19.9% present.

In the South Asian region, India is one of the fastest growing countries economically, educationally and technologically. Despite economic progress, India has failed to combat malnutrition thar adversely affects the country's socio economic progress. More than one third of the world's malnourished children reside in 3 countries : Bangladesh, India and Pakistan.

Objectives

- To assess the knowledge regarding prevention of protein energy malnutrition among mothers of under five children at selected Anganwadi, Daman.
- To evaluate the effectiveness of structure teaching program regarding prevention of protein energy malnutrition among mothers of under five children at selected Anganwadi , Daman.
- To find out association between pre test knowledge score regarding prevention of protein energy malnutrition among mothers of under five children and selected demographic variables.

HYPOTHESIS

The hypothesis will be tested at < 0.05 level of significance,

NULL HYPOTHESIS

- **H_{01} :** There will be no significant mean difference between pretest & posttest knowledge score regarding prevention of protein energy malnutrition among mothers of under five children.
- **H_{02}:** There will be a significant difference between pretest knowledge score regarding protein energy malnutrition and selected demographic variable.

RESEARCH HYPOTHESIS

- **H_1:** There will be a significant difference between pretest & posttest knowledge score regarding prevention of protein energy malnutrition among mothers of under five children.
- **H_2:** There will be a significant association between pretest knowledge score regarding protein energy malnutrition and selected demographic variables

OPERATIONAL DEFINITION

- **Effectiveness**: In this study, it refers to the extent to which the structured teaching program has achieved the desired effect in improving the knowledge of mothers of under five children regarding prevention of protein energy malnutrition.
- **Structured teaching program**: In this study, it refers to a systematically organized teaching plan to provide information to mothers of under five children regarding prevention of protein energy malnutrition by using AV aids such as PPT, flash card, Leaflet, pamphlet, and booklet.
- **Knowledge**: In this study, it refers to awareness of mothers of under five children regarding prevention of protein energy malnutrition.
- **Under five children**: In this study, it refers to children from birth up to five years, but not including fifth birthday.
- **Mothers of under five children**: In this study, it refers to a woman having a children aged under five years.
- **Protein energy malnutrition:** In this study, it refers to Protein-Energy Malnutrition (PEM) is a form of undernutrition caused by inadequate intake of protein and calories, leading to a range of health problems such as stunted growth, muscle wasting, weakened immunity, and increased vulnerability to infections which is commonly affects children under five years of age.

Materials and Methods

Research Approach

A quantitative research approach was adopted to assess the effect of the structured teaching program on maternal knowledge.

Research Design

A quasi-experimental one-group pre-test post-test design was used. A pre-test was conducted, followed by the intervention (STP), and a post-test was administered on the 14th day.

Variables

- **Independent variable:** Structured teaching program
- **Dependent variable:** Knowledge regarding prevention of PEM

- **Demographic variables:** Age, religion, type of family, education, occupation, monthly income, marital status, dietary pattern, and source of information

Setting

The study was conducted in Anganwadi centres of Bhimpore, Daman, including Koliwad, Kundfaliya, Nanivakad, School Fadiya, Panchayat, Motivakad, Kadiya, and Machiwad.

Population

- **Target population:** Mothers of under-five children visiting Anganwadi centres of Daman.
- **Accessible population:** Mothers attending selected Anganwadi centres who met inclusion criteria.

Sample and Sampling Technique

- **Sample:** Mothers of under-five children fulfilling inclusion criteria
- **Sample size:** 369, calculated using Slovin's formula
- **Sampling technique:** Non-probability convenience sampling

Sampling Criteria

Inclusion Criteria

- Mothers having under-five children
- Age 21–35 years
- Able to understand Gujarati/Hindi
- Present during data collection

Exclusion Criteria

- Mothers with chronic illnesses (HIV/AIDS, cancer, diabetes, hypertension)
- Mothers who are blind or deaf
- Non-cooperative participants

Description of the Tool

Section A: Demographic Profile

Includes age, religion, type of family, education, occupation, income, dietary pattern, marital status, and source of information.

Section B: Structured Knowledge Questionnaire

30 MCQs covering introduction, classification, signs and symptoms, kwashiorkor, marasmus, management, and prevention.

Scoring:

- Adequate: 23–30
- Moderate: 15–22
- Inadequate: 0–14

Validity and Reliability

Content validity was established by 8 experts. Reliability was assessed using the test-retest method, yielding a reliability coefficient of 0.83.

Pilot Study

Conducted among 37 mothers at Anganwadi of Dabhel, Daman. The paired t-test showed significant improvement in post-test scores ($t = 21.96$).

Data Collection Procedure

After obtaining ethical approval and permission, pre-test data were collected. The STP was administered using PPT, flashcards, leaflets, pamphlets, and booklets. Post-test was conducted on the 14th day.

Plan for Data Analysis

- Descriptive statistics: Frequency, percentage, mean, SD
- Inferential statistics: z-test and chi-square test

Results

1. Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Age	18–25 years	142	38.4
	26–30 years	158	42.8
	31–35 years	52	14.1
	>35 years	17	4.6
Education	No formal education	61	16.5
	Primary	143	38.7
	Secondary	118	32.0
	Higher secondary & above	47	12.7
Occupation	Homemaker	289	78.3
	Working	80	21.7
Type of Family	Nuclear	231	62.6
	Joint	138	37.4

2. Pre-test and Post-test Knowledge Scores

Test	Mean ± SD	Range
Pre-test	12.56 ± 3.21	5–20
Post-test	22.91 ± 2.84	15–28

The calculated z-value was **16.664 ($p < 0.001$)**, indicating a statistically significant improvement in knowledge after the structured teaching program.

3. Association of Pre-test Knowledge with Demographic Variables

Chi-square analysis showed that:

- **Education level** had a significant association with pre-test knowledge ($p < 0.05$).
- **Age, occupation, and type of family** showed no significant association ($p > 0.05$).

Discussion

The findings of the present study demonstrate that the structured teaching program significantly improved maternal knowledge regarding PEM prevention. The substantial increase in post-test scores and the shift toward higher knowledge levels indicate the effectiveness of educational interventions. Similar studies conducted across India have reported comparable improvements, reinforcing the importance of community-based health education. Enhancing maternal knowledge is essential for early detection, timely intervention, and prevention of malnutrition among under-five children.

Conclusion

The study concludes that structured teaching programs are effective tools for improving maternal Knowledge regarding the prevention of Protein Energy Malnutrition. Regular educational interventions at the community level can contribute to reducing the burden of malnutrition among under-five children.

Recommendations

- Regular STPs should be conducted in Anganwadi centres.
- Mothers should receive continuous nutrition education through ASHA and Anganwadi workers.
- IEC materials (posters, leaflets, videos) should be developed and distributed.
- Similar studies should be conducted in rural and tribal areas.
- Follow-up studies should assess long-term retention of knowledge.

Ethical Considerations

- Ethical approval was obtained from the Institutional Ethics Committee, of NAMO Medical Education and Research Institute.
- Written informed consent was obtained from all participants.
- Confidentiality and anonymity were maintained.

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