

Research article

A study to assess the effectiveness of planned health teaching programme on knowledge regarding protein-energy malnutrition among mothers of under five children in selected area of Sangliwadi**Aparna B. Kale**

Bharati Vidyapeeth University College of Nursing, Sangli, Maharashtra, India

Abstract

The World Bank estimates that India is ranked 2nd after Bangladesh, in the number of children suffering from malnutrition in the world. The prevalence of underweight children in India is among the highest in the world. The objectives of the study were 1) to assess the existing knowledge of mothers of under five children on Protein-energy malnutrition and 2) to evaluate effectiveness of planned health teaching programme about Protein-energy malnutrition. Quasi experimental one group pre-test and post-test design was used. Sixty mothers of under five children included using simple random sampling method from Sangliwadi area. The subjects' pre-existing knowledge was recorded through a structured questionnaire. The subjects were provided a planned teaching programme and the knowledge was re-assessed after 8 days. Data were expressed as mean \pm SD and paired t-test was used to analyze the normative data. Planned teaching programme significantly increased the mothers' knowledge as compared before the teaching programme ($p<0.05$). The study concluded that planned teaching was effective in increasing the mothers' knowledge related to protein-energy malnutrition.

Keywords: Mothers of infant, protein energy, malnutrition, planned teaching health programme***Corresponding author:** Aparna B. Kale, Bharati Vidyapeeth, University College of Nursing, Sangli, India Email: baparnakale@gmail.com**1. Introduction**

India is one of the fastest growing countries in terms of population and economics, sitting at a population of 1,139.96 million (2009), and growing at 10-14% annually (from 2001-2007). India's gross domestic product growth was 9.0 % in 2007-2008; since independence in 1947 and its economic status has been classified as a low income country with majority of the population at or below the poverty line. On the global hunger index, India is placed at 67 among the 80 nations with the worst hunger situation, which is worst than nations such as North Korea or Sudan [1]. A quarter of all hungry people worldwide reside in India. It is estimated that in India, approximate 44% of children under the age of 5, are underweight [2]. Children are the most important segment for a nation for the optimal physical, mental, emotional development of its future worthy citizens [3].

Children below the age of 5 years who constitute over 20% of our population are the most vulnerable group of under nutrition. The foundation of good health and sound mind are laid during this period of life [4].

Citizens of developing countries are the main victims of poor nutrition. As many as 800 million children worldwide are affected by malnutrition. More than half of the childhood deaths in developing countries are related to malnutrition [5].

Malnutrition covers a broad spectrum of illness including protein-energy malnutrition (PEM) and impairs human development on a truly massive scale worldwide [6].

Previous studies reveal impact of housing, hygiene, socio-economic variables upon acute malnutrition

in children aged 1-5 years [7,8]. Worldwide there is no consistence difference in PEM prevalence rates between boys and girls. On average the prevalence of underweight is 60% higher in rural areas than urban areas [9]. It has been suggested that the role of mother as a provider of health and nutritional care undervalued and there is an urgent need to step-up nutritional education to mothers particularly in malnourished communities [10,11].

Need of the study

According to the Voluntary Health Association of India, the term malnutrition implies imperfect nourishment when demands of the body for certain nutrients are not met, resulting in PEM or met in excess leading to over nutrition [3]. Malnutrition is the outcome of many factors such as inadequate food intake (arise from poor access to food), frequent illness,, inappropriate feeding, caring practices, insufficient health services, and poor environment sanitation and poverty [12].

Previous studies have pointed out significant role of women's education in prevention of infants and children mortality; widespread women's education is an important determinant factor in unusually low mortality and yet low income regions [13].

Education to mothers can generate different types of intra household effects and thereby reducing the risk of nutritional deficiency like PEM. The effects which can be brought through mothers education are improved health and nutritional knowledge, psychological changes and improved nutritional behavior, shift of power relations within the household in favor of better nutrition which includes breastfeeding, weaning practices, child feeding and pregnancy diets may lead to more effective dietary behavior on the part of mothers who manage food resources within the household [14]. The commission on the nutrition challenges of the 21st century in its report entitled "Ending Malnutrition by 2020", suggest requirement of special efforts to reach mothers, since they are the most unreached at present [15].The various studies revealed that there is a strong relationship between nutritional status of children associated with the knowledge of mothers' in preventing PEM.

Statement of the problem

The study was planned to assess if there is positive impact of planned health teaching programme on knowledge regarding PEM among mothers of under five children in selected area of Sangliwadi, Maharashtra.

Objectives of the study

To fulfill the aim of the present study, two objectives were selected: 1) to assess the existing knowledge of mothers of under five children on Protein-energy malnutrition and 2) to evaluate effectiveness of planned health teaching programme about Protein-Energy-Malnutrition

Statistical hypothesis

The null hypothesis (H_0) suggests that there is no effect of planned health teaching programme on knowledge of mothers of under five children regarding Protein-Energy Malnutrition. Failure of the null hypothesis suggests significant effect of planned health teaching programme on knowledge of mothers of under five children regarding Protein-Energy Malnutrition (alternative hypothesis).

2. Patients and methods

The present study has a pre-test/post-test quasi experimental research design. This study was conducted in 2012 in selected areas of Sangliwadi, Maharashtra. Mothers (n=60) fulfilling inclusion criteria were selected using simple random sampling and enrolled in the study. The inclusion criteria including: 1) Mothers with children under age of 5 years 2) resident of selective area of Sangalwadi 3) Availability at the time of data collection 4) understanding of Marathi and Hindi language and 5) willingness to participate in the study. Those who were not fulfilling the inclusion criteria were excluded from the study. Written consent was obtained from the study participants. Additionally, the subjects were assured to maintain confidentiality and storage of the data.

Data collection technique and tool

Data collection tool consisted of a structured knowledge questionnaire which was developed based on the objectives of the study and thorough review of literature. The tool had two sections:

Section I containing demographic details (age, education, occupation, family monthly income and family size) and section II containing items related to participants' knowledge about protein-energy malnutrition (meaning, type, cause, signs and symptoms, diagnosis, and management and prevention of protein-energy malnutrition).

Data were collected in 3 steps. In Pre test Phase, a self-administered structured questionnaire was provided to the subjects to assess their knowledge about PEM. It was followed by intervention phase, consisted of a planned teaching programme to the subjects. After 4 days of the planned teaching programme, the subjects' knowledge was re-assessed (post-test phase).

Statistical analysis

The data were expressed as mean \pm SD. Planned health teaching programme on Protein-energy malnutrition chosen as independent variable and knowledge of mothers of under five children regarding Protein-energy malnutrition is chosen as dependent variable. Normative data were compared using paired t-test. P value less than 0.05 considered as significant.

3. Results

On the basis of specific questionnaire, a mean score was calculated. The results demonstrated that calculated t-score was greater than tabled score and hence there is a significant difference in the subjects' knowledge about PEM after PTP, compared before PTP (13.61 ± 12.4 vs. 6.34 ± 7.31 , $P<0.05$) (figure 1).

Table1. Comparison of pre test & post test knowledge score of mothers

	Mean	SD	't' cal	Table 't' value	P value
Pre-test	6.43	7.31	15.9080	2.1314	< 0.05
Post-test	13.61	12.4			

SD: standard deviation

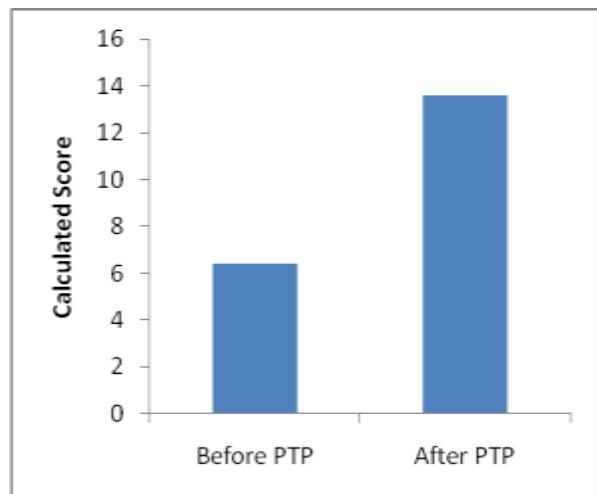


Figure1. Comparison of pre test and post test knowledge score of mothers. PTP: Planned teaching health programme

4. Discussions

There exist a number of factors which contribute to childhood malnutrition and ultimately results in millions of death annually. Some of the factors are inadequate food intake, childhood diseases, harmful child care practices, low socio economic status. WHO data suggests malnutrition contributing one third of all children death. However, its role is rarely listed as direct. Nearly half of all deaths in children under 5 are attributable to undernutrition. This translates into the unnecessary loss of about 3 million young lives a year. Undernutrition puts children at greater risk of dying from common infections, increases the frequency and severity of such infections, and contributes to delayed recovery. In addition, the interaction between under nutrition and infection can create a potentially lethal cycle of worsening illness and deteriorating nutritional status. Poor nutrition in the first 1,000 days of a child's life can also lead to stunted growth, which is irreversible and associated with impaired cognitive ability and reduced school and work performance [16].

The present study showed that there was a positive impact of planned teaching health programme on the knowledge of the mothers. The results are in consistent with study by Joseph et al, who reported increase in the knowledge following teaching programme in mothers of under five. They also discussed initial knowledge of mothers ad classified into inadequate, moderate adequate

and adequate knowledge and observed association between different demographic factors with knowledge of the mothers [17].

A recently published study by Rajan *et al* showed there is lack of knowledge in mothers with respect to nutritional deficiency and the difference was associated with demographic variables like education and socio-economic status [18].

It is very necessary to impart the knowledge to the mothers of the infants as they are the one who take care of children at home.

Mothers' education can generate different types of intra household effects and thereby reducing the risk of nutritional deficiency like protein-energy-malnutrition. The effects which will bring through mothers education are: improved health and nutritional knowledge, psychological changes and improved nutritional behavior. Shift of power relations within the household in favor of better nutrition which includes breastfeeding, weaning practices, child feeding and pregnancy diets may lead to more effective dietary behavior on the part of mothers who manage food resources within the household. Based on the present pre test knowledge score Special efforts have to be made to reach mothers, since they are the most unreached at present.

Implications and recommendations

Implication

Communicating the findings of research is a usual link in the research. The accumulation of new scientific knowledge is essential to guide nursing practice, nursing education and nursing administration. The findings of the study may have the following implications in the area of nursing practice, nursing education, nursing research and nursing administration

Nursing practice

The study results show positive impact on planned teaching health programme. Hence, nurses may adopt the health education module to educate the mothers about protein-energy malnutrition. They can also impart the knowledge to the care givers regarding do's and don'ts of feeding practices which lead to the occurrence of Protein-Energy

Malnutrition and can educate the mothers regarding its prevention and control.

Nursing Education:

The findings of the study indicated that more emphasis should be placed in the nursing curriculum about prevention and control of protein-energy malnutrition. Health education module can be used to reinforce learning needs of the mothers' knowledge. Students can be motivated to teach the mothers about the prevention and control of protein-energy malnutrition. The health care professionals should pay more attention on training the nursing students. In future nurses themselves will become more knowledgeable and it can be helpful to themselves and as nurse to the others. Varied type of audio-visual aids regarding the programme should be prepared. In-service and continuing education programme may be conducted for the staff to enhance the knowledge on protein-energy malnutrition.

Nursing Administration

Nurse as an administrator can plan and organize educational program. Administrators of rural health services should supervise and guide the health workers to work effectively and efficiently for the prevention and control of Protein-Energy Malnutrition. Nurse administrator can organize in-service education program for the nurses to abreast their knowledge on Protein-Energy Malnutrition.

Nursing research

Research studies may be conducted continuously on prevalence of protein-energy malnutrition which adds to the nursing body of knowledge. Based on the study results the mothers can be educated based on their learning needs. Dissemination of research knowledge helps to improve the general health status of the children there by reduces mortality and morbidity among them in turn enhances the strength of Nation.

Limitations

The present study provides an important recommendation; however, it is also not without

limitations. Some of the limitations are: mothers of under-five children of selected areas of Sangliwadi, language-specific subjects' enrollment, short duration of the study, limited sample size, and lack of comparative group, limitations to the effect on the weight and study design restrictions.

Recommendations

Similar studies with more robust design can be conducted on larger sample for the purpose of generalization. Experimental studies can also be conducted to assess the effectiveness of the module based on mothers' knowledge. Studies related to assessment of knowledge, attitude and practices of mothers on protein-energy malnutrition can also be conducted. There is also need to know different contributing factors to protein-energy malnutrition, which can be assessed in near future.

Reference

- [1] India 55th on global hunger index, lags behind Nepal, Lanka. The Times of India. <http://timesofindia.indiatimes.com/india/India-a-55th-on-global-hunger-index-lags-behind-Nepal-Lanka/articleshow/44804457.cms> Assessed 12-Jul-2015
- [2] Measham AR, Chatterjee M (1999). *Wasting away: the crisis of malnutrition in India*. World Bank Publications. ISBN 0-8213-4435-8
- [3] Kaur, M. H., Kaur, M. K., & Kaur, M. S. Assessment of Knowledge of Primary School teachers Regarding Malnutrition Among Children. *Age*, 1(1.1), 1-2.
- [4] Waterlow, J. C. (1976). Classification and definition of protein-energy malnutrition. *Nutrition in preventive medicine*, (62).
- [5] Rice AL, Sacco L, Hyder A, Black RE. Malnutrition as an underlying cause of childhood deaths associated with infectious diseases in developing countries. *Bulletin of the World Health Organization*, 2000, 78: 1207-1221
- [6] WHO Working Group. Use and interpretation of anthropometric indicators of nutritional status. *Bulletin of the World Health Organization*, 64: 924-941 (1986).
- [7] Jayasheela. L, Lakshman. M. Risk factors for the South Indian children, *Journal of Biosocial science*: 1977;29(1): 93-100
- [8] Wardlaw TM. Progress towards the world summit for children goal. New York. UNICEF. Planning & co-ordinating office. *Statistics and Monitoring section*: 1993 March. 31 p.
- [9] Elizabeth KE. Paras Medical Publisher, 5-1-473, Putlibouli, Hyderabad 500 095, India, IIInd Edition, 2002, Pages 341.
- [10] Hook JV, Altman C. Global Patterns in Overweight Among Children and Mothers in Less Developed Countries. *Public Health Nutr.* 2013;16(4):573-81.
- [11] Siddique AK, Abenowe CV. Protein-Energy-Malnutrition in Nigerian children in savanna belt. *J Trop Paediatrics*. 1984;30(1):45-7.
- [12] Iyengar SD, Iyengar K, Gupta V. Maternal Health:A Case Study of Rajasthan J Health Popul Nutr. 2009 Apr;27(2):271-92
- [13] Saito K, Korznik JR, Jekel JF, Bhattacharji S. A case control study of maternal knowledge of malnutrition & health care seeking attitudes in rural South India. *School of epidemiology & public health* 1997: 70: 149-60.
- [14] Ighogboja SI. Some factors contributing to Protein Energy Malnutrition in the middle belt of Nigeria. *East Afr Med J.* 1992;69(10):566-71.
- [15] Alford MM. A guide for nutrition educators at the work-site. *J Nutr Educ.* 1986;18(1):S19-S21.
- [16] Kane, A. V., Dinh, D. M., & Ward, H. D. (2014). Childhood malnutrition and the intestinal microbiome. *Pediatric research*.
- [17] Joseph T, Tata SH. A Study to Assess the Effectiveness of Health Education Program on Knowledge Regarding Control And Prevention of Protein Energy Malnutrition Among Mothers of Under Five Children From Selected Anganwadies, Karad Taluka. *Int J Sci Res.* 2012;3(7):2208-12
- [18] Rajan A, Pai MS, Margaret BE. Mothers' knowledge on nutritional deficiency disorders in children: A descriptive survey. *Asia pac J Res.* 2015;1(14):48-52