A Study among Mother's of Under-five Children to evaluate knowledge of Protein-Energy Malnutrition in Selected Rural Area of Gwalior District with a view to Develop Health Education Module

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Abstract: Protein-Energy Malnutrition has been identified as a major public health and nutritional problem in India. It not only leads to childhood morbidity and mortality but also leads to impairment of physical and possibly of mental growth of those who survive. Protein-Energy Malnutritionis a most lethal form of malnutrition; children are its most visible victims of malnutrition. "The silent emergency is an accomplice in at least half of the 10.9 million deaths is there in each year. Protein-Energy Malnutrition is a global problem. Nearly 150 million children under 5 years in the world and 70 - 80 million in India suffer from protein-energy malnutrition, nearly 20 million in the world and 4 million suffer from severe forms of Protein-Energy Malnutrition like Kwashiorkor and Marasmus, Khokar. A *et al*., [5]. The study was based on Rosenstock's and Becker's health behaviour model. The data was collected by descriptive method, 150 mothers were selected from the urban slum area by simple random sampling technique. Data was collected by using structured interview schedule for a period of 4 weeks. Both descriptive and inferential statistics were used for data analysis. The study findings revealed that the majority of mothers were illiterates. Hence there is a need to educate the mothers regarding correct feeding practices and that helps in. After the detailed analysis of this study shows that Nurses can adopt the health education module to educate the mothers about Protein-Energy Malnutrition. They can impart the knowledge to the care givers regarding do's and don'ts of feeding practices which leads to the occurrence of Protein-Energy Malnutrition and can educate the mothers regarding prevention and control of Protein-Energy Malnutrition.
Keywords: Protein-Energy Malnutrition, Mothers, Knowledge, Health Education Module.

INTRODUCTION

"To look into some aspects of the future, we do not need projections by super computers. Much of the next millennium can be seen in how we care for our children today. Tomorrow world may be influenced by science and technology, but more than anything. It is already taking shape in the bodies and minds of our children" Dorothy. R. Marlow, Barbara [2].

For centuries, India has been a country which faced a number of natural calamities and epidemics that manifested into a series of health problems for the country. While the British ruled India, a number of draughts and famines plagued the country side that resulted in giving us a history of poverty and malnutrition particularly of women and children.

India's children still languish in malnutrition in spite of lot of progress in terms of food production, procurement and food security P.M. Udani [11]. One of the most dominant problems declining the quality of life of the most Indian citizens is the malnutrition.

According to the voluntary Health Association of India, the term malnutrition implies imperfect nourishment occurs when the demands of the body for certain nutrients are not met, results in Protein-Energy Malnutrition or met in excess leads to over nutrition, Mathur [6].

The prevalence of Protein-Energy Malnutrition among children in South Asia is the highest in the world. It is almost double the prevalence in sub Saharan Africa. This high prevalence together with the large population of the region explain why more than half of all malnourished children live in South Asia, 101 million out of 184 million. On average there has been a small decrease in the prevalence of underweight children in South Asia during the last fifteen years. This decrease however is smaller than the

increase in the child population. The number of malnourished children in South Asia has in fact increased from about 90 million in 1975 to about 100 million in 1990. This is far below the rate of improvement required to meet the world summit for children and ICN year 2000 goal of reducing Protein-Energy Malnutrition by 50 per cent from the 1990 level Dwivedi. S. N, Banerjee. N, Yadav. O. P [3].

In developing world in 1995 the estimated 10.4 million deaths are among children under 5 years of age, Protein-Energy Malnutrition was associated with causative factor in 5.1 million of these deaths.

The state of the world's children National Family Health Survey 1993 states that the effects of Protein-Energy Malnutrition are; multidimensional, which includes reduced activity, reduced growth, increased susceptibility to infection, reduced intellectual capability and performance, reduced work efficiency and increased mortality Nandan. D, Singh. J.V, Srivastava. B. C [9].

Malnutrition begets infection and infection begets malnutrition, both are common among poor children, Protein-Energy Malnutrition is found to account for about four million deaths in children. It is still the first killer disease 54 per cent, followed by acute respiratory infection 20 per cent and diarrhoea 18 per cent in the global perspective O. P. Ghai [10].

Objectives of the study were- 1) To assess the knowledge of mothers' of under-five children on Protein-Energy Malnutrition. 2) To identify the relationship between the knowledge of mothers' of under-five children with selected socio-demographic variables. 3) To develop Health education module.

MATERIALS & METHODS
A descriptive study was carried out on 150 mothers of under five children about knowledge of Protein Energy Malnutrition of selected rural area of Gwalior district.

The sample who met sampling criteria and available at the time of data collection were selected as the subject for the study. They were selected by non-probability convenient sampling technique.

A descriptive survey approach was adopted to assess the background characteristics of the subjectsand knowledge of Protein Energy Malnutrition among mothers of under five children.

A self-structured interview questionnaire on knowledge of Protein Energy Malnutrition among mothers of under five children was used that includes;

Section I: This section contained (05) questions about the demographic profile of sample such as age, qualification, occupation, type of family, monthly income.

Section II: This section contained (27) questions about knowledge of Protein Energy Malnutrition among mothers of under five children.

The content validity of questionnaire was established by experts. The experts were selected on the basis of their expertise, experience and interest in the problem being studied. They were from different specialties i.e. Child Health nursing, Community health nursing, Education, Research, Statistics. They were requested to give their opinions on the appropriateness and relevance of the items in the tool. Necessary modifications were made as per the expert's advice. The reliability of the questionnaire was established by Split Half method and was found to be r-0.83.

A final study was carried out on 150 mothers of under five children. Data was collected from Aug.2016to Dec 2016. The sample for the study comprised of the mothers of under five children, who met the designated criteria were selected through purposive sampling technique. Objectives of study was discussed and obtained consent for participation in study. Knowledge of Protein Energy Malnutrition among mothers of under five children assessed by administering a structured assessment questionnaire. Based on the objective and the hypothesis the data was analyzed by using various statistical tests i.e. percentage, mean, and standard deviation. Statistical methods The significance was calculated by using mean, Standard deviation, and the Chi-square statistics is used to find the independence of difference. Significance was accepted at 0.01 and 0.05 level of probability.

RESULTS
Section I: Description of Socio demographic data
Findings of section I show that out of 150 samples more than one- third of mothers were fallen in the age group of 26 - 30 years (38%), and negligible percentage of the sample were fallen in the age group of less than 20 years (6%). It is evident that more than half of them others were illiterate (56%) It is found from the Table that more than half of the mothers were coolies (56%), and most (35.0%) of the mothers were having high school educationand 10% of mothers were illiterate.It is clearly describes that more than one third of the sample had monthly family income between Rs. 3001/- to 5000/- (37.33%), it is also evident that nearly half of the mothers had family size as six and above (42%).

Table-1: Description Socio Demographic data

Demographic Variable	Frequency	Percentage
1. Age of Mother		
<20 Years	09	06
21-25 Years	16	10.66
26-30 Years	57	38
31-25 Years	28	18.66
>35 Years	40	26.66
2. Educational Status		
Illiterates	84	56
Primary School	32	21.33
Middle School	23	15.33
High School	11	7.33
3. Occupation of Mother		
Coolie	84	56
House wife	53	35.33
Petty Business	13	8.66
Any other specify	-	-
4. Monthly Family Income		
Less than Rs. 1000/-	16	10.66
Rs. 1001 – 3000/-	50	33.33
Rs. 3001 – 5000/-	56	37.33
Rs. 5001 and above	28	18.66
Family Size		
Three	21	14
Four	37	24.66
Five	29	19.33
Six and above	63	42

Section II: Description of distribution of knowledge score of mothers of under-five children regarding Protein-Energy Malnutrition.

Section II represents over all knowledge score levels, the tool consists of 27 items and the total knowledge score of the mothers was 27.If the mothers knowledge falls between 1 - 14 (< 50%), they were categorized as mothers with low knowledge, if they scored 15 – 23(50 - 75%) they were considered as having average knowledge and if above 23 they were considered as having High knowledge (>75%). More than two third of the sample were having low knowledge (68%). Nearly one third of samples had average knowledge (32%). No one had high knowledge related to Protein-Energy Malnutrition. The mean knowledge score was 12.91 and S.D. 3.11. This shows that there is a need for enhancement of knowledge of mothers regarding Protein-Energy Malnutrition.

Table-2: Description of distribution of knowledge score of mothers of under-five children regarding Protein-Energy Malnutrition

Knowledge Levels	Frequency	%	Mean	SD
Low Knowledge	102	68		
Average Knowledge	48	32	12.91	3.11
High Knowledge	--	--		

Section III: Description of Item wise analysis of knowledge of mothers' regarding Protein-Energy Malnutrition.

Findings depict that knowledge of mothers' of under-five children in hierarchical order. In general, nearly three fourth of the mothers knew common cause of protein-energy malnutrition as poverty (74%), More than half of mothers explained that skin changes were the common signs of protein-energy malnutrition (56%).

More than half of the mothers (52%) explained that under-five children were prone to get protein-energy malnutrition, followed by 75mothers explained that Hyderabad mix was best food for the management of protein-energy malnutrition (50%) and 48 per cent of mothers knew the indicators of malnutrition followed by 47.33 percentage of mothers responded that malnourished child looks small for age.

Nearly half of the mothers explained that the best treatment for the child can be given at home (45.33%) and equal per cent of mothers were aware of duration of treatment was 2–3 weeks. Nearly half of the mothers responded that weight of the child is recorded by maintaining growth chart (44.66%), followed by 44.66 percentage of mothers responded that the management of Protein-Energy Malnutrition is by giving protein and energy rich foods.

Table-3: Description of Item wise analysis of knowledge of mothers' regarding Protein-Energy Malnutrition

Items	Correct responses frequency	Percentage
Duration for providing breast feeding exclusively • 6 months	49	32.66
Weaning along with breast feeding • 4 - 6 months	63	42
Measure while buying foods • Locally available rich foods	71	47.33
Frequency in providing foods • Small and frequent feeds	62	41.33

More than one-third of mothers were aware of taking the children to hospital when there is a loss of weight (42%), 40.66 percentage of mothers responded that dehydration was the common complication of Protein-Energy Malnutrition, 38 percentage of mothers listed the types of Protein-Energy Malnutrition and only 37.33 percentage of mothers were able to tell the meaning of Protein-Energy Malnutrition.

Table-4 describes the knowledge of the mothers regarding prevention of protein-energy malnutrition. One third of mothers(32.66%) responded the duration for providing breast feeding exclusively was for 6 months, followed by mothers (42%) described that weaning should be started at 4 - 6 months.

Nearly half of the mothers (47.33%) were aware to buy energetic foods which are locally available and 41.33 percentage of mothers explained that small and frequent amounts of feeds can be given to child when sick.

Kwashiorkor

Table-5 indicates the knowledge of the mothers regarding Kwashiorkor. More than one third of mothers were aware that the Kwashiorkor child was edematous (40.66%), followed by 57.33 percent of mothers responded that main sign of Kwashiorkor was stunted growth.

More than one third of mothers explained about Kwashiorkor child as red boy (38%), followed by 44.66 per cent of mothers responded moon face was the main observation which aids in diagnosis and nearly half of the mothers (49.33%) were aware of foods which has to be supplemented for the management of kwashiorkor child i.e. Dhal, groundnut and milk.

Table-4: Distribution of mothers' knowledge about prevention of Protein-Energy Malnutrition.

Items	Frequency of responses	%
Meaning of malnutrition i. Excess nutrition and least nutrition	94	62.66
Meaning of protein-energy malnutrition ii. Lack of carbohydrate and protein	56	37.33
Types of protein-energy malnutrition iii. Kwashiorkor and Marasmus	57	38
Major cause of protein-energy malnutrition iv. Poverty	111	74
Children prone for protein-energy malnutrition v. Under five children	78	52
Child with Protein-Energy Malnutrition looks vi. Small for age	71	47.33
Common signs of protein-energy malnutrition • Skin changes	84	56
Indicators of malnutrition vii. Height, Weight and Mid arm circumference	72	48
Child is taken to the hospital when there is viii. Weight loss	63	42
Duration of treatment ix. 2 - 3 weeks	68	45.33
Weight is recorded by maintaining x. Growth chart	67	44.66
Best treatment of protein-energy malnutrition at xi. Home	68	45.33
Management of protein-energy malnutrition xii. By giving protein and energetic foods	68	44.66
Best food for protein-energy malnutrition xiii. Hyderabad mix	75	50
Common complication of protein-energy malnutrition xiv. Dehydration	61	40.66

Table-5: Distribution of mothers' knowledge on Kwashiorkor.

Items	Correct responses Frequency	Percentage
Kwashiorkor child looks • Oedematus	61	40.66
Main sign of Kwashiorkor • Stunted growth	86	57.33
Diagnosis of Kwashiorkar child • By observing moon face	57	38
Kwashiorkor child is red boy due to • Pigmentary changes	67	44.66
Foods for Kwashiorkor child • Dhal, Groundnut and Milk	74	49.33

Table-6 clearly describes the knowledge of mothers regarding Maramus. Half of the mothers (48.66%) responded that marasmic childlooks very thin, followed by nearly half of mothers (42%) gave a response that the marasmic child has old man appearance due to wrinkled and loose skin and 41.33 percentage of mothers responded that foods like rice, ragi, sweets which has to be supplemented for Maramus child.

Table-6: Distribution of mothers' knowledge regarding Marasmus.

Items	Correct responses Frequency	Percentage
Marasmus child looks • Very thin	73	48.66
Marasmic child has 'old man' appearance • Due to wrinkled and loose skin	60	42
Foods for marasmic child • Rice, Ragi and Sweets	62	41.33

Section IV: Association between the knowledge of the mothers' about Protein-Energy Malnutrition by their age, Educational status, Occupation of Mother, Family Monthly Income and Family.

From table number 7 it indicates that 48 percentages of mothers had average knowledge. In that nearly half of the mothers (13.33%) belong to the age group of 26 - 30 years. More than half of the mothers had low knowledge (102). Among them 24.66 percentage of mothers were belonging to the age group of 26 - 30 years.

Chi-square test was done to find out the association between the knowledge of mothers with their age at 5% level of significance with 4 DF Table value is 9.49 which was more than calculated value i.e. 1.633.Hence there was insignificant relationship between knowledge of mothers and their age. Hence the research hypothesis H_1 was rejected.

Table also describes 102 mothers had low knowledge regarding Protein-Energy Malnutrition among them 55 mothers were illiterates, 29mothers studied upto Primary school and 19 mothers studied middleschool.48 mothers had average knowledge among them 29 mothers' were illiteates, 11 mothers' studied high school followed by 5 mothers' studied middle school and 3 mothers were from primary school.

Chi-square test was done to find out the association between the knowledge of mothers by their educational status at 5% level of significance with df (3). Table value is 7.82 which show that there was significant relationship between knowledge of mothers by their educational status; the calculated value (32.21) was more than the Table value. Hence the researcher accepted the research hypothesis H_2.

Table signifies that 54 mothers (36%) had low knowledge and were coolies, 41 mothers House wives (27.33%), followed by 7 mothers were doing petty business (4.66%). Majority of mothers had low knowledge score (102).30 mothers (20%) had average knowledge regarding Protein-Energy Malnutrition and they were coolies, followed by 12 mothers were House wives (8%) and 6 mothers were doing petty business (4%). The critical value of x^2 from the Table value at 5% level of significance with2 df is 3.85, the calculated value was less than the Table value 5.99.Hence the researcher rejected the research Hypothesis H_3.

Table describes that 48 mothers had average knowledge. Among them 22 mothers (14.66%) had monthly family income of Rs.3001-5000/-, 16 mothers had income of Rs. 5001 and above, (10.66%),followed by 6 mothers from less than Rs. 1000/- (4%) and 4 mothers had family income of Rs. 1000-3001/- (2.66%).102 mothers had low knowledge, among them 46 mothers had income of Rs. 1001 - 3000/- (30.66%), 34 mothers had income of Rs.3001 - 5000/- (22.66%), followed by 10 mothers from income of Rs. Lessthan 1000/- (6.66%) and 12 mothers of Rs. 5001/- and above (8%). At the5% level of significance with DF (3) the calculated value 22.95 which was more than the Table value 7.82. Hence the research hypothesis H_4 was accepted.

Table indicates that only 48 mothers had average knowledge when compared to low knowledge (102 mothers). Among the mothers with low knowledge nearly, 42 mothers were having the family size as six and above (28%) and 21 mothers of the same age group had average knowledge i.e. (14%).

The critical value of chi-square test from the table value 7.815 at5% level of significance with 3 df the calculated value = 0.116 was less than the table value and it showed that there was insignificant relationship between the knowledge of mothers and size of the family. Hence the researcher failed to accept the hypothesis H_5.

Table-7: Association between the knowledge of the mothers' about Protein-Energy Malnutrition by their age, Educational status, Occupation of Mother, Family Monthly Income and Family.

Demo Variable	Low Knowledge		Average Knowledge		High Knowledge		Chi Square (df)
1. Age of Mother	Freq	%	Freq	%	Freq	%	
<20 Years	06	04	03	02	--	--	
21-25 Years	10	6.66	06	04	--	--	
26-30 Years	37	24.66	20	13.33	--	--	1.633(4)
31-25 Years	20	13.33	08	05.33	--	--	
>35 Years	29	19.33	11	07.33	--	--	
2. Educational Status							
Illiterates	55	36.66	29	19.33	--	--	
Primary School	29	19.33	03	02	--	--	32.21(3)*
Middle School	19	12	05	03.33	--	--	
High School	--	--	11	07.33	--	--	
3. Occupation of Mother							
Coolie	54	36	30	20	--	--	
House wife	41	27.33	12	08	--	--	03.85(2)
Petty Business	07	04.66	06	04	--	--	
Any other specify	--	--	--	--	--	--	
4. Monthly Family Income							
Less than Rs. 1000/-	10	06.66	06	04	--	--	
Rs. 1001 – 3000/-	46	30.66	04	2.66	--	--	22.95(3)*
Rs. 3001 – 5000/-	34	22.66	22	14.66	--	--	
Rs. 5001 and above	12	08	16	10.66	--	--	
5. Family Size							
Three	15	10	06	04	--	--	
Four	25	16.66	12	08	--	--	0.116(3)*
Five	20	13.33	09	06	--	--	
Six and above	42	28	21	14	--	--	

* Significant

DISCUSSION

The present study revealed that One hundred and fifty mothers were included as sample in the study. The age group of mothers varied from less than 20 to above 35years. Above one third of mothers were fallen in the age group between26 - 30 years (38%). 26.66 per cent were fallen in the age group of above35 years, 18.66 per cent of mothers were fallen in the age group of 31-35years, 10.6 percentage of mothers were from the age group of 21 to 25years and only 6 percentage were in the age group of less than 20 years. Majority of mothers who were fallen in the age group of 26-30 years were having under-five children.

84 mothers were illiterates (56%), 21.33 per cent studied upto primary school, followed by 23 mothers were from middle school(15.33%) and only 11 mothers were from high school (7.33%). It was

inferred from the study that education status is poor in the selected area.

Regarding occupation of the mothers 56 percentage of mothers were collies followed by house wives (35.33%) and only 8.66 percentage of mothers' were doing petty business. It was clear that 84 illiterate mothers too were coolies.

Related to monthly family income more than one third of mothers' had monthly income between Rs. 3001 - 5000/- (37.33%), followed by33.33% percentage of sample had income of Rs. 1001 to 3000/-. Nearly one fifth of the families (18.66%) had income of Rs. 5000/- and above and only 10.66 per cent of mothers had income of less than Rs. 1000/-. It is clear that majority of the mothers families had average income.

Regarding size of the family, nearly half of the mothers had family size as six and above, (42%) followed by family size as four (24.66%)family size as five (19.33%) and few percentage of mothers had size of the family as three (14%). It is evident that larger families are nearly half in selected area. It was indicating that many mothers have large families which may implies the cause for Protein-Energy Malnutrition.

The knowledge levels were assessed by means of percentage, mean, standard deviation, chi-square based on their knowledge score and of structured interview schedule.

Results showed that major percentage of mothers had low knowledge score (68%), followed by 32 percentage of mothers had average knowledge not even single mother was possessed high knowledge score. The mean knowledge score was 12.91 and standard deviation was 3.11.

Association between the knowledge of the mothers with selected socio demographic variable was calculated by means of chi-square test. The various selected variable were age, educational status, occupation, monthly family income and size of the family.

Chi-square test was done to find out the association between the knowledge of the mothers and their age. At 5% level of significance with4 df. Table value 9.49, was more than the calculated value 1.633, which signifies that there was no significant relationship between the knowledge of mothers and their age.

The critical value of $x2$ from the Table at 5% level of significance with df, 3 is 7.82. Since the calculated value 32.21 which was more than the Table value, there was significant relationship between the knowledge of mothers with their education status.

Chi-square test was done to find the relationship between the knowledge of mothers and their occupation. At 5% level of significance the Table value 5.99 with df, 2 the calculated value 3.85 which was less than the Table value. Insignificant relationship was found between the knowledge of mothers by their occupation.

The table value of x2 at 5% level of significance with 3 df, is 7.82since the calculated value 22.95 was more than the table value. Significant relationship was found between the knowledge of mothers by their monthly family income.

The critical value of $x2$ from the Table at 5% level of significance with df 3 is 7.81. As the calculated value 0.116 was less than the Table value, there was insignificant relationship between the knowledge of mothers with their size of the family.

The findings revealed that there was significant relationship between knowledge regarding Protein-Energy Malnutrition with mother's education status and monthly family income. Insignificant relationship was observed between knowledge of mother with their age, occupation and family size.

Mother's education can generate a host of health, related factors; thereby improving child health in turn reduces the risk of malnutrition. Hence there is need for the improvement of mother's knowledge regarding Protein-Energy Malnutrition.

One of the targets of United Nation International children's emergency fund is to turn away from campaigns for the eradication of specific disease unless they are of direct benefit to mothers and children. The health status of the children can be improved through imparting the knowledge on prevention and control of Protein-Energy Malnutrition Mishra. V.K, Retheford. R.D [7].

Above all the Investigator motivated to prepare a health education module on care, prevention and control of Protein-Energy Malnutrition. The Investigator planned to distribute the module to all mothers in selected urban area who are able to read Hindi. The Investigator felt that there is need to keep the module in PHC and sub centers where the health care professional can utilize in health education campaigns to educate the public in general and mothers in specific.

Following studies finding supports present study findings:

In an experimental study was conducted to assess the knowledge of mothers with regard to nutritional status of under-five children in selected rural areas of Tamil Nadu and the results of the study revealed that the knowledge level of control group was higher (59%) when compared to experimental group (35%), Surabi Sinha Mathur [14].

A descriptive study was conducted to assess the knowledge and attitude of mothers regarding child weight and feeding patterns in preventing Protein-Energy Malnutrition, Burma. Study results showed that mothers of well nourished children were practicing feeding timely and appropriately Department of health. National Nutrition Center Burma [1].

A descriptive study was conducted to assess the knowledge and perception of mothers towards Marasmus in selected areas of Karachi, Pakistan. They selected 105 mothers of under-five children, Results showed that the majority of the mothers had inadequate knowledge about Marasmus (85%) and they perceived that diarrhea was the common cause of Marasmus, Mull. DS [8].

A descriptive study was conducted to assess the mothers' knowledge about malnutrition in some regions of Guinea, They study result revealed that all mothers recognized a malnourished child as being sick. More percentage of mothers believed that general or specific lack of food to a be the cause for malnutrition (80%).

An experimental study was conducted to assess the mothers' ability about the child care and children malnutrition in Brazil. Results revealed that mean score of cases was higher ($P > 0.20$) when compared to that of control group ($P > 0.05$). It was indicated that mothers' ability of child care affects the child's nutritional status.

A descriptive study was conducted to assess the impact of maternal knowledge and practices on nutritional status of infant in selected child health clinics at Srinagar. Results showed that mothers whose infants were well nourished had a higher level of nutritional knowledge (27.18) than those mothers whose infants were suffering from protein - energy malnutrition (16.01).

A longitudinal study was conducted to assess the feeding pattern of children with Protein-Energy Malnutrition in selected hospitals of Nigeria. Results of the study revealed that 30.4 per cent mothers stopped breast feeding before children were 1 year old and 69.5 per cent stopped before 17 months and 83.5 per cent of mothers believed that meat and fish would cause stomach pain and 69.6 per cent of mothers believed that egg would make the child steal. It was indicated that with appropriate nutrition education and demonstrations, parent's beliefs about food might be changed.

A comparative study was conducted to determine lay perceptions, beliefs and cultural practices that contribute to malnutrition and impact of maternal child health services on Protein-Energy Malnutrition in Kasama District of Northern Zambia. Results revealed that rural areas have higher rates (46%) of Protein-Energy Malnutrition than urban areas (35%) respectively Heywood. P.F, Yapac. N. (1979) [4].

A cross sectional study was conducted to assess the knowledge and magnitude of Protein-Energy Malnutrition and its associated factors in Calcutta 435 under-five children were selected. Results revealed that 69.43 per cent of children were undernourished and 16 per cent of them were suffering from severe malnutrition, Protein-Energy Malnutrition was noted to be three times higher in female children (24.76%) than males (8.45%). It was indicated that children of illiterate parents and non-working mothers had higher incidence of severe Protein-Energy malnutrition Ray. S. K, Mishra. R. Biswas. R, Kumar. S; Halder. A, Chatterjee T [12].

A descriptive study was conducted to assess the effect of mother's knowledge and other demographic variable in relation to child's malnutrition in selected areas of rural India. They had selected mothers' of under 4 year children and used interview method and children were clinically examined. Findings revealed that 74 per cent children whose mothers have little or no education tend to have lower nutritional status and prone of getting Protein-Energy Malnutrition when compared to 26 per cent children whose mothers were educated. It was evidenced that strong impact of maternal education, literacy programs could play an important role in preventing malnutrition [16].

A comparative study was conducted to assess the mothers' knowledge in reducing Protein-Energy Malnutrition and test the knowledge gain on part of mothers in health and nutrition in Kota, Emesu. Results of the study indicated that 87 per cent of mothers had understanding how to provide good nutrition to reduce Protein-Energy Malnutrition during 1-3 years of life. When compared to mothers who do not know to provide a good nutrition (43%) [15].

A descriptive study was conducted to assess the level of awareness on infant feeding, weaning practices of mothers which causes malnutrition in selected area of Bihar. Results revealed that large number of mothers (16%) fed the babies within 3 hours of birth and 45.5 percentages [13].

CONCLUSIONS

The present study explore that Mother's education can generate a host of health, related factors; thereby improving child health in turn reduces the risk of malnutrition. Hence there is need for the improvement of mother's knowledge regarding Protein-Energy Malnutrition.

Implication & recommendation

The findings of study have implication at various level of nursing like nursing practice, nursing

education, nursing administration and nursing research in following ways:-

- Nurses can adopt the health education module to educate the mothers about Protein-Energy Malnutrition.
- They can impart the knowledge to the care givers regarding do's and don'ts of feeding practices which leads to the occurrence of Protein-Energy Malnutrition and can educate the mothers regarding prevention and control of Protein-Energy Malnutrition.
- 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 on Protein-Energy Malnutrition.
- 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. So that in future nurses themselves will become more knowledgeable and can be helpful to their own selves and as nurse to the others.
- Varied type of audio-visual aids regarding Protein-Energy Malnutrition should be prepared.
- In-service and continuing education programmes may be conducted for the staff to enhance the knowledge on Protein-Energy Malnutrition.
- 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.
- 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.

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