ORIGINAL RESEARCH PAPER

Nursing

AN EXPERIMENTAL STUDY TO ASSESS THE EFFECT OF PLANNED TEACHING ON THE KNOWLEDGE OF PARENTS ON IMPORTANCE OF PROTEIN SUPPLEMENTATION AND CHANGES IN THE DEMOGRAPHIC PARAMETERS OF CHILDREN (4 TO 6 YEAR) IN SELECTED URBAN COMMUNITY MUMBAI

KEY WORDS: Protein energy malnutrition, structured teaching, knowledge, Parents.

Dr. Varsha Kadam

ABSTRACT

Nutrition is an organic process of nourishing or being nourished: the process by which an organism assimilates food and uses it for growth maintenance. It is a source of material to nourish the body, the material necessary to support life. Many common health problems can be prevented or alleviated with good nutrition.Growing children are important vulnerable segment of our population. The dynamic period of growth and development at children Physical, mental, social and emotional during this stage. Malnutrition in its various forms, is a very vital health problem of today affecting half of the world population. Malnutrition leads not only to stunning of physical growth but also to sub optimal intellectual development. (1) Proteins are needed for the building blocks of the body, main managing metabolism and organ function. Amino acids are the versatile nutrients acting as the precursors for protein synthesis and the forming a wind range of other important metabolism. (2) Malnutrition especially among young children is a widespread problem in most developing countries. Malnutrition refers to disorders resulting from an inadequate diet or failure to absorb or assimilate dietary elements. (3)

Aim and Objectives: This study was mainly designed to assess the knowledge of parents regarding protein consumption of the children , also to assess gain in the knowledge of developmental milestones of their children, to improve overall health status of children along with importance of nutritional supplements and daily requirements and to find out the deviation from the normal growth & development among the children in urban community Mumbai.

Materials And Methods: A single group preintervention and post interventional design was chosen for the study. This type of design helped the investigator to assess knowledge of parents and changes in the demographic parameters of their children before and after planned teaching programme related to selected aspects BMI.

Betty Neumans concept of nursing interventions was the guiding framework for the study. This conceptual framework provides a way that how parents shall react towards relation to preventive aspects of health care. This model proposes that parents will adapt to preventive practices of protein energy malnutrition in their children and shall also accept and implement them in the long run. Permission to carry out the study was obtained from the respective review boards. A written informed consent was obtained from each of the parents prior to the study. Data was collected by conducting face to face interview in person with the parents following a structured questionnaire along with recording of the demographic parameters of there children on a regular basis. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version.

Findings: The findings arrived at the conclusion of this study was that parents bear varying degrees of knowledge on the different aspects of preventive measures of protein energy malnutrition. There is a need to provide a more details information of the consumption of protein for there children which might prevent them from physiological and psychological developmental problems in future. The study has shown significant difference between pre intervention and post intervention knowledge of parents in relation to selected aspects protein supplementation and changes in the demographic parameters of the child which shows that the structured teaching programme has been highly effective in bringing about the changes in the overall knowledge level of the participants.

INTRODUCTION

Growth and nutritional status of children profoundly infused by the diet consumed by them. Therefore, the children in their existing nutritional condition are in a great need of restoration to overcome the health improvement in their health status have become necessary for exact information about the prevalence of deficiency diseases among children so that appropriate steps are under taken. (4) Proteins are needed for the building blocks of the body, main managing metabolism and organ function. Amino acids are the versatile nutrients acting as the precursors for protein synthesis and the forming a wind range of another important metabolism. (5) Protein are vital and play important roles such as- growth and maintenance , initiation of biochemical reaction, act as a messenger, provides structural development, maintains proper pH level, helps in balancing fluids level, boosters immune health insurance, transport and stored nutrients, provide energy and science- backed reasons to eat more proteins (6) Nutritive Value as per ICMR Recommend Dietary Allowance of Children according to age groups in grams per day are - 1 to 3 years is 22 gms,4 to 6 years is 30 gms and 7 to 9 years is 41 gms respectively. Children who are well fed during the first two years of life are more likely to stay healthy for the rest of their childhood. During the first six month of a child life, breast milk alone is the ideal food. It contains all the nutrients needed for healthy growth as well as Immune factors that protect against common childhood infections. (7) Groundnuts also known as peanuts are consider very healthy snacks. Groundnuts is the member of the legume family and his native to regions of south America, Mexico and India. Groundnut is also known as different name like earth nuts, goobet peas, pindas, Jack nuts, Pinda smnails nuts and monkey nuts. Throughout the world they are known for the nutrition and health benefits. Groundnut chikki is popular all over the country amongst all age groups of children and rural areas are the main targeted groups. (1) Protein deficiency is defined as inadequate protein intake whereas protein depletion means insufficient body protein that is thinness. Protein depletion (wasting) occurs, when the body demand for energy and to recover from disease is met by breaking down protein, removing the nitrogen from the amino acids and oxidizing the carbon skeleton in much the same way as those derived from glucose and fat. Inadequate intake of energy and several other nutrients such as zinc and vitamin B may also lead to protein depletion. (8) Protein deficiencies occurs with diet in which only protein was inadequate. It leads to muscle wasting and growth retardation and mental impairment in children. Protein energy malnutrition is the medical term of severe protein deficiency. Severe PEM is often associated with AIDS, TB, Anorexia Nervosa and Cancer Cachexia. Malnutrition especially among young children is a widespread problem in most developing countries which refers to disorders resulting from an inadequate diet or failure to absorb or assimilate dietary elements. In Asia the prevalence of stunting (32.8 -

43.7%) a high, particularly in South and Central regions. (9) The millennium development goal is aimed at child survival and a reduction in malnutrition among children five. (10) A recent malnutrition study conducted by government agencies under ICDS program shows about 5000 children in the district of Ghazipur alone suffer from severe malnutrition. Good nutrition is the converstone for survival, health and development for current and succeeding generations. Well - nourished children perform better in school, grow into healthy adults and in turn give their children a better start of life. (11)

MATERIALS AND METHODS

Research Approach- In this study an experimental interventional approach was used. The approach helped the researcher evaluate the effect of a planned teaching programme on knowledge of parent to children on importance of protein supplementation.

Research Design- A single group pre-test and post-test design was chosen for the study. This type of design helped the investigator to assess knowledge of parent of the children before & after planned teaching programme on the importance of protein supplementation. It also helped the researcher to assess the post interventional changes in the demographic parameters of children. It was therefore an appropriate & acceptable research approach for present study.

Variables

Dependent Variables

Knowledge of parent regarding importance of protein supplementation and intervention with protein supplementation to children (4-6 year) age group and observing changes in the selected demographic variables.

Independent Variables

Independent variable is planned teaching programme about importance of protein supplementation among parents of selected urban community Mumbai.

Provision of groundnut chikki

Setting of the study: In order to carry out the study the investigator selected parents to children (4-6year) from the urban community, Mumbai.

Sample: In this study, sample considered were parents and their children ages 4 - 6 years who were from a selected urban community of Mumbai and who fulfilled the criteria of inclusion in the study.

Sample size: Sample size on the basis of calculation was 30 parents and 10 children to assess the changes in their demographic parameters. This procedure was adopted to ensure getting adequate number of participants for the study.

Sampling Technique

In this study non-probability, convenient sampling technique was used. Parents & children from selected community Mumbai who meet criteria for selection were chosen according to their availability.

Criteria For Selection Of Participants

Inclusion criteria

1.Parents of children who are willing to participate in the study.

2. Parents of children who are available to participate at the time of study.

Exclusion criteria

1. Parents of children who were suffering from any chronic illness.eg asthama, COPD etc.

2. Parents of children who are less than 4 years and above the age group of 6 years.

Ethical Aspects

Ethical approval was obtained from the Ethical committee of the nursing college before commencement of the data collection. Informed consent of the subject was obtained prior to conducting the study. Confidentiality of collected data and privacy of the subject was maintained throughout the study.

Study Period

The study was started in the month of February 2019 and field work was completed in the month of April 2019. The analysis was completed in the month of June 2019.

Study Tool

Semi-structured questionnaire was used for data collection along with in person interview technique along with measurements and recording of the demographic parameters of children for the purpose of data collection.

Feasibility Of The Study

The area from the nursing college which was selected was feasible in terms of

- Geographic proximity and ethical clearance
- Economy in terms of time
- Administration approval
- Cooperation and availability of the subjects

Validity

To establish content validity of the tool suggestions were taken by the experts from the field of pediatric medicine, preventive and social health department and also from the field of nursing. After receiving the suggestions and opinions from the experts, relevant changes were incorporated in the tool with due modifications.

Reliability

In this study, the reliability of questionnaire was assessed by the test retest method.

The formula used for reliability was Karl Pearson product – movement method that is as follows: -

It is denoted by r_{xy} and calculated by using the formula-

$$r_{xy} = \frac{\frac{1}{n}\Sigma(x-\bar{x})(y-\bar{y})}{\sqrt{\frac{1}{n}\Sigma(x-\bar{x})^2}\sqrt{\frac{1}{n}\Sigma(y-\bar{y})^2}}$$

$$= \frac{Cov(xy)}{SD(x)SD(y)}$$

Where, X= Pre-test Y= Re-test
Standard Deviation of pre data = SD (X) = 5.16
Standard Deviation of post data = SD (Y) = 6.07
Hence Karl Pearson's Corr. Coeff.

$$= \frac{Cov(xy)}{SD(x)SD(y)}$$

Co-variance between X and Y = Cov (x,y) = 0.494
The values suggest that the tool is highly reliable to be incorporated for the final study.

Pilot study

A pilot study was conducted prior to the main study on three participants which was not included in the main study. A sample consisting of three parents from selected urban community of Mumbai.

Data Compilation And Analysis

Analysis of Demographic data, knowledge regarding

selected aspects of substance abuse was done with the help of frequency, percentage, and f–test. Appropriate tests like Non-Parametric Tests, Anova test and paired 't' test for difference were used. The conventional level of significance was set at 0.01.

RESULTS

There was apparent difference in the mean and standard deviation of knowledge scores among various aspects of importance supplementation and its various effects. Effective education and mass follow up are necessary for successful implementation of educational program in India especially within the sectors of young growing children is the need of an hour.

This study revealed that there is limited knowledge among parents about the importance of supplementary protein consumption imposing ill effects on the health status of their children.

SECTION I

Comparison Of Mean Knowledge Score Of Pre Intervention And Post Intervention Among Parents Regarding Protein Supplementation n=30

Sr. No	Knowledge Score	Mean Score	Standard Deviation	SEMD	"t" Value	LOS
1	Pre-intervention	8.70	1.636	0.517	6.725	0.001
2	Post-intervention	14.30	3.268	1.033		

The mean knowledge score of pre intervention among women was only 8.70 which showed a significant rise in post intervention of 14.30 after implementing the planned teaching programme among the participants. The pre intervention knowledge score SD was 1.636 which in comparison to post intervention is 3,268. From the mean score it is seen that there are significant differences between the pre-test and post-test scores depicted by paired t-test which depicts that null hypothesis is rejected and alternate hypothesis is accepted. Which also depicts that there is considerable difference between the scores of pre intervention and post intervention suggesting that the research study has proved to be highly effective.

SECTION II

This section mainly concentrates on the comparison between the demographic variables of the selected children

Variation in demographic parameters of children pre interventional & post-interventional at end of 15th day (sample- 1 to sample -5)

S.no	Parameters	Sample -1		Sample -2		Sample -3		Sample -4		Sample -5	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	Height (cms)	107	107	92	92	86	86	98	98	85	85
2	Weight (kg)	16.10	16.65	12.22	12.90	11.26	11.55	14.85	15.12	11.42	11.66
3	Head circumference (cms)	52	52	17.5	17.5	44	44	49	49	47	47
4	Chest circumference (cms)	50	50	19	19	48	48	52	52	48	48
5	Mid arm circumference (cms)	16	16	6	6	13	13	14	14	14	14
6	Abdominal circumference (cms)	51	51	19.2	19.2	52	52	50	50	48	48
7	Skin Turgor	Turgid		Turgid		Turgid		Turgid		Turgid	
8	Cyanosis	Absent		Absent		Absent		Absent		Absent	
9	Edema	Absent		Absent		Absent		Absent		Absent	
10	Growth Stunting	Present		Present		Present		Present		Present	
11	Body Mass Index	14.1	14.5	14.4	15.2	15.2	15.6	15.5	15.7	15.8	16.8

Variation in demographic parameters of children pre interventional & post-interventional at end of 15th day (sample-6 to sample -10)

S.no	Parameters	Sample -6		Sample -7		Sample -8		Sample -9		Sample -10	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	Height (cms)	104	104	107	107	108	108	105	105	107	107
2	Weight (kg)	13.67	13.92	13.40	13.65	14.44	14.72	12.13	12.51	12.82	13.12
3	Head circumference (cms)	50	50	49	49	50	50	48	48	47	47
4	Chest circumference (cms)	53	53	52	52	53	53	50	50	51	51
5	Mid arm circumference (cms)	14	14	13	13	15	15	14	14	15	15
6	Abdominal circumference (cms)	49	49	46	46	51	51	47	47	53	53
7	Skin Turgor	Turgid		Turgid		Turgid		Turgid		Turgid	
8	Cyanosis	Absent		Absent		Absent		Absent		Absent	
9	Edema	Absent		Absent		Absent		Absent		Absent	

10	Growth Stunting	Present		Present		Present		Present		Present	
11	Body Mass Index	12.6	12.9	11.7	11.9	12.4	12.6	10.8	10.9	11.2	11.5

SECTION III

This section mainly concentrates to know the association between knowledge scores of the participants with selected demographic variables of child

Paired Sample Statistics

A – Weight of the children– Preintervention and Post intervention Comparison

Sr. No	Demographic parameter	Mean Score	N	Standard Deviation	SEMD	t test value	LOS
1	Weight Pre intervention	13.250	10	1.5534	0.491	6.675	<0.001
2	Weight Post-intervention	13.580	10	1.5931	0.503		

Mean Weight between pre and post is significant by paired t-test. Values are mentioned in the above table which suggest that the scores are not dependent on the weight of the children.

B– B M I– Pre-intervention and Post intervention Comparison

Sr. No	Demographic parameter	Mean Score	N	Standard Deviation	SEMD	t test value	LOS
1	BMI- Pre intervention	13.370	10	1.8565	0.587	5.237	< 0.001
2	BMI- Post-intervention	13.690	10	1.9445	0.614		

Mean BMI between pre and post is significant by paired t-test. Values are mentioned in the above table which suggest that the scores are not dependent on the demographic variable of BMI of the children.

RESULTS

Age group wise distribution of the parents among 26-30 years who participated in the study were 40 percent, 21-25 years were 26.66 percent, 30-35 years were 24.33 percent and 35 -40 years were 10 percent. About educational status the parents who bear education from 7^{th} to 10^{th} standard were 36.66 percent, graduation were 30 percent, education less than 7th standard were 20 percent and post-graduation were 13.33 percent.

Participants who were knowledgeable about importance of protein energy supplement was 50 percent in pretest and 90 percent in posttest. Only 16 percent parents group knew the richest sources of protein in pretest, which increased to 46 percent in the post-test. About 50 percent of parents know that protein supplements can be derived from various byproduct in pre-test, which increased to 93 percent in the post test. About 56 percent of parents responded correctly about the importance of protein for the growth of their child in the pretest, which increased to 86 percent in posttest. About 16 percent parents answered the various roles of protein in your daily life in pretest, the knowledge increased to 56 percent in post intervention.

The natural sources of protein were correctly responded by 63 percent participants in pre-test but the score changed to 100 percent in post-test. Only 43 percent parents were able to answer that protein supplement can be given in various forms to human body in various forms in pre-test but the score changed to 53 percent in post-test. About 70 percent respondents were able to tell the role of supplementary food items to prevent protein deficiency in pre-test and 90 in post-test. The knowledge about primary causes of protein deficiency was correctly scored by 53 percent in pretest and 73 percent in posttest. Knowledge behind the important causes of protein deficiency in children was correctly said by 50 percent in pre-test and 63 in post-test. Knowledge about diseases caused due to deficiency of protein was correctly answered by 20 percent in preintervention and 56 percent in post intervention. Knowledge of symptomatic condition in which child appears very thin with distended abdomen was responded by 36 percent in pre-test and 40 percent in post-test. The pretest knowledge related to symptom of muscle wasting in children was 33 percent in pretest and 46 percent in posttest. Symptom of dry and scaly skin in protein deficient children was correctly responded by 50 percent in pretest and 83 percent in posttest among the respondents. Reduction in the weight of children was correctly scored by only 33 percent in preintervention and 76 percent in post intervention. The preventive aspect of protein deficiency was scored correctly in pretest by 40 percent and 60 percent in posttest. Variety of measures to prevent protein deficiency was responded by 56 percent in preintervention and 66 percent in post intervention. Knowledge about food items which can be given to children for prevention of protein deficiency was 66 percent in pretest and 86 percent in posttest. As per the RDA recommendation the requirement of daily protein intake was correctly answered by only 13 percent in pretest and 60 percent in posttest. About 30 percent participants were knowledgeable of the important function of protein for human body in pre-test and 40 percent in posttest.

Demographic Data Of Children

Majority of the children i.e.60 percent were from the age group of 4 years, 13 percent of 5 years and 27 percent of 6 years. Gender wised data showed that female children selected for the study were 40 percent and male 60 percent. Distribution of weight of the children ranged from 10-15 kg were 40 percent, 15- 20 kg - 53 percent and 20 – 25 kg -7 percent. The height of the children ranged from 80 – 90 cm were 23 percent, 90 -100 cm were 10 percent ,100 -110 cm 46 percent, and 110 cm and above were 21 percent respectively. The abdominal girth parameter among the children selected for study shows 25 – 30 cm were 10.1 percent, 35- 40 cm were 26.6 percent, 40 cm and above were 63.3 percent. The mid-arm circumference of children ranges is less than 11.5cm was 23.33 percent, 12.5- 13 .5cm was 16.6 percent and 13.5cm and above was 60 percent. The head circumference of children ranges between less than 30 cm were 6.86 percent, 30- 40 cm were 6.66 percent, 40-50 cm was 60 percent and 50 - 55cm was 26.6 percent. The chest circumference among children ranges as follows- less than 45cm were 26.66 percent, 45- 50 cm were 23.33 percent, 50 - 55cm were 6.66 percent and 55 - 60 cm were 43.33 percent. Among the various demographic parameters weight of the children was the main parameter in which changes have been recorded. Altogether increase in the weight is seen among each child by 300gm to 500gm after providing the supplementary proteins to them on a continuous basis for the duration of fifteen days.

About 0.4 to 0.9point increases are observed in the weight of the selected children after giving protein supplementation among the age group of 4 to 6years. Also changes in Body Mass Index have been observed of the children due to the changes in weight.

CONCLUSION

The primary focus of the study was to provide knowledge to the parents of these children about importance of giving adequate amount of proteins to the children and observe the

changes in the demographic parameters of the children after consumption of the nutrients. Additionally, we attempted to identify association between the knowledge scores of the participants with selected demographic parameters of the children.The findings arrived showed that the participants bear varying degrees of knowledge on the various aspects of importance of protein supplementation. There is a need to provide a more details information about importance of providing protein supplementation and to avoid the ill effects of protein deficiency which might endanger the life of the growing young generation.The study chiefly concentrated on the variety of food items which can be given to children to uptake the requirement of growing needs of their growth and prevent the long-term adverse effects of protein deficiency which might hinder with the proper growth and development of the children in the long run.

From the findings of the study it can be concluded that implementation of planned teaching programme with periodic guidance sessions among the parents plays an important role against the prevention of various diseases of the children are very effective tool in imparting the knowledge and encouraging the parents to deal with these problems at the earliest .The change in the post intervention scores of the participants indicates a significant effect of planned teaching on the knowledge of the group. This research hence will be useful among the participants to share this knowledge among their friend's neighbors and relatives hereafter which in turn can prevent a major societal problem affecting the young generation of todays and the future students of tomorrow.

Source of support: Nil
Conflict of interest: Nil

Final Objectives Of The Study:

1) To assess the level of knowledge of parent of children regarding importance of protein supplement before and after planned teaching in selected urban community Mumbai.
2) To assess the pre-interventional nutritional status of children (4 to 6 year) of selected urban community Mumbai.
3) To compare the effectiveness of protein supplement inflicting changes in demographic parameters of children (4 - 6 year) in urban community Mumbai.
4) To find out the association between the knowledge scores of participants with their selected demographic variables among children. e.g. Weight, BMI

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