

A Experimental Study to Evaluate the Effectiveness of Protein Diet Supplementation among Pre-School Children with Various Degree of Protein Energy Malnutrition at Selected Community in Mysore

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Abstract

Globally 10-11 million under five deaths occur each year out of which around 60% are due to malnutrition. In India 2.5 million under fives die each year. By keeping this data in mind this study was conducted among preschool children who is already malnourished with various degree and a easily available protein rich diet like milk, egg and ground nut was supplemented for a period of 15 days to 10 malnourished children and result was found reliable. The protein diet supplementation improved anthropometry of the children. This study concludes that daily protein diet supplementations are having positive impact in improving the child from various degree of protein energy malnutrition.

Keywords: Protein Supplementation; Protein Energy Malnutrition and Pre-School Children.

Introduction

Nutrition is an input and foundation of growth and development. Better nutrition provides strong immune system, less illness and better health. In developing and under developed countries childhood malnutrition is a multi-dimensional problem. An increase in household income is not sufficient to reduce childhood malnutrition if children are deprived of food security, education, access to water, sanitation and health services. The highest prevalence of protein-energy under-nutrition is observed during early childhood, being also a time in which the presence of dental caries can be unusually aggressive. All systems in an organism are affected by protein-energy malnutrition (PEM), but one of the worst affected is the hematopoietic system. Globally 10-11 million under five deaths occur each year out of which around 60% are due to

malnutrition In India 2.5 million under fives die each year. Prevalence of under five malnutrition in various states of India reveals that Orissa as the highest prevalence (55%) of fives in Orissa are under nourished out of which 25% are severely under nourished. Protein is an important component of every cell in the body. Hair and nails are mostly made of protein. Body uses protein to build and repair tissues and protein helps to make enzymes, hormones, and other body chemicals. Protein is an important building block of bones, muscles, cartilage, skin, and blood and improve height and weight. Protein comes from a variety of sources, including meat, milk, fish, soy, and eggs, as well as beans, legumes, and nut butters. When proteins are digested, they leave behind amino acids, which the human body needs.

Whey, a high quality protein source naturally found in milk, is a complete protein and contains all of the amino acids your body needs. In general, proteins derived from animal sources (i.e. milk, eggs & meat) are complete. So daily protein diet supplementation for children with various degree of malnutrition will improve the health condition better.

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By keeping this in view this study was undertaken.

Title: "A experimental study to evaluate the effectiveness of protein diet supplementation among pre-school children with various degree of protein energy malnutrition at selected community in Mysore."

Objectives of the Study

1. To assess the degrees of protein energy malnutrition among pre-school children with protein energy malnutrition at selected community in Mysore.
2. To evaluate the effectiveness of protein diet supplementation among pre-school children with various degree of protein energy malnutrition at selected community in Mysore.
3. To associate the degree of protein energy malnutrition among pre-school children with selected demographic variables at selected community in Mysore.

Delimitation

Study is limited to preschool children with various

degree of protein energy malnutrition.

Study is limited to those children fulfil the inclusion criteria.

Hypothesis: Protein diet supplementation will demonstrate significant improvement in the levels of protein energy malnutrition.

Score and Interpretation

Score Interpretation

Gomez criteria

>90% body weight	No malnutrition
76-90% body weight	1 st degree malnutrition
60-75% body weight	2 nd degree malnutrition
>60% body weight	3 rd degree malnutrition

Conceptual Frame Work

The conceptual framework for the study was derived from General Systems Theory. According to this theory, a system consists of a set of interacting components within a boundary that filters the type and rate of exchange within the environment.

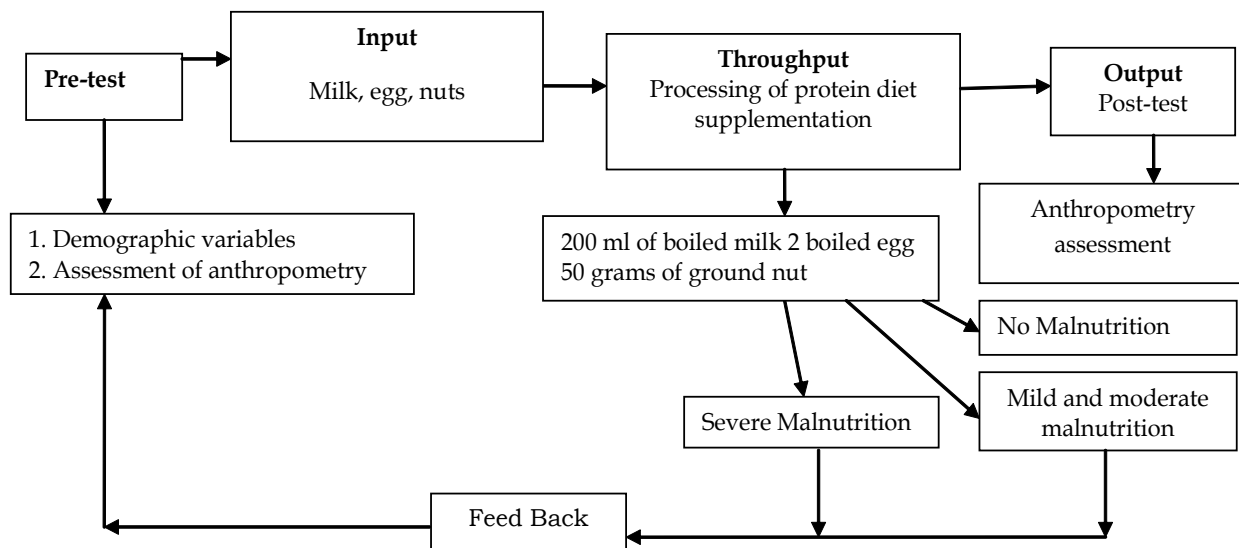


Fig. 1: Conceptual frame work based on General System Theory modified Ludwing von Bertalanffy's model (1968)

Methodology

Quantitative approach the pre experimental study design was adopted to evaluate the effectiveness of protein diet supplementation in difference of anthropometric measurement among pre-school children with PEM. The General System Theory was adopted for conceptual frame work.

A total of 10 pre-school children with PEM were selected by using non probability purposive sampling techniques in the Balwadi of Mysore. Concern was obtained from the parents and Balwadi teacher.

The instrument used for the study was a standard scales for measuring anthropometry. Tool consists of two sections. The first section consists of the demographic variables of the pre-school child with

PEM and the second section consists of weight, height, mid-arm circumference, head and chest circumference. Standard weighing scale and Non stretchable inch tape was used and same weighing machine and tape were used through out the study. Gomez classification was used to classify degree of malnutrition. Data collection method adopted was Bio-physiological method (in-vivo). Height, weight,

head circumference, mid-arm circumference, and chest circumference was obtained 1st day of data collection and 200 ml of milk, 2 boiled eggs and 50 gm of boiled ground nut was supplemented daily for 15 days and 16th day anthropometrics was obtained from the same group. The data were analyzed using the descriptive and inferential statistics.

Result

Degree of malnutrition	Pre test		Post test	
	Frequency	Percentage	Frequency	Percentage
No malnutrition	0	0	0	0
1 st degree malnutrition	2	20	4	40
2 nd degree malnutrition	3	30	4	40
3 rd degree malnutrition	5	50	2	20

According to Gomez Criteria of Degree of Malnutrition was Calculated; It was found that in pre-test 2 children were belongs to 1st degree PEM, 3 children were 2nd degree PEM and 5 children were in 3rd degree PEM. In post test 4 children belongs to 1st degree PEM, 4 children were 2nd degree PEM and remaining children were in 3rd degree PEM.

There was significant difference exit between pre test and post test score of anthropometric measurements of preschool children with various degrees of PEM. It was statistically tested by paired 't' value and the result found to be significant at $p < 0.001$ level.

There was significant association exit between sex of the child, economic status of the family and past history of diarrhoeal disease with degrees of protein energy malnutrition.

Discussion

Nearly one in five children under age five in the developing world is underweight (MDG report, 2012) 1 and it continues to be a primary cause of ill health and mortality among children. The World Health Organization (WHO) has reported hunger and related malnutrition as the greatest single threat to the world's public health. One in every three malnourished children of the world lives in India and under-nutrition is a major cause in more than half of under-five deaths. In India, around 43% of under five children were underweight according to the report of third national family health survey (NFHS- 3) conducted during 2005-06 whereas in rural Uttar Pradesh, it was 44.1%. (1) Malnutrition has shown to be an important concern in children

because of rapid growth and development. (2) Pre-school children are most vulnerable to the effect of protein energy malnutrition (PEM) and their nutritional status is considered to be a sensitive indicator of community health. The present study shows that there is improvement in anthropometric measurement of pre-school children with PEM after protein supplementation.

Conclusion

Study concludes that daily protein supplementations are having positive impact in improving the child from various degree of protein energy malnutrition.

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