A pre-experimental study to assess the effectiveness of low cost high protein diet on weight gain among malnourished preschool children in a selected rural area in Dehradun

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Abstract: *Malnutrition continues to be a major public health problem in developing countries. Malnutrition is condition that results from eating a diet in which nutrients are not enough. The nature of the study was pre experimental . The conceptual frame work used for this study is based on Imogene king goal Attainment Theory. The research design used for this study was one group pre-test post-test design. Data collected using Non probability purposive sampling. The data was collected to assess the effectiveness of 40 preschool children low cost high protein diet on weight gain among malnourished preschool children by standard tool "weight of the child/weight of a normal child of same age x 100". Highest percentage of preschool children in the age group of 3-4 years and most of preschool children were female. Most of the educational status of the mother is illiterate and occupation is mostly home maker. The highest percentage of family income is per months 4000-8000 and family is mostly nuclear. Highest percentage of any previous knowledge regarding low cost high protein diet is non. Pre- test revealed that 45% of sample weight between 11.1-13kg .After implementation of ragi ball and jagerry the weight gain is between 13.1-15 kg. While pre-test mean weight score is 477 and post test mean weight score is 528.8.Significant difference ($p<0.05$) is found between pre-test and post-test score.*

Key Words: *Assess, Experiment, Effectiveness, Low cost high protein diet, Gain Weight, Pre-schooler, Malnutrition.*

1. INTRODUCTION:

Malnutrition continues to be a major public health problem in developing countries. It is the most important risk factor for the burden of disease. Malnutrition is a state of nutrition in which a deficiency or excess (or imbalance) of energy, protein and other nutrients causes measurable adverse effects on tissue/body form (body shape, shape, size and composition) and function and clinical outcome. Malnutrition is condition that results from eating a diet in which nutrients are not enough. The nutrients involved calories, protein, carbohydrate, vitamins, or minerals. Malnutrition makes the child more susceptible to infection, recovery is slower and mortality is higher. Undernourished children do not grow to their full potential of physical and mental abilities.

2. OBJECTIVES:

- To assess the pretest weight among the preschool children.
- To assess the effectiveness of low cost high protein diet.
- To comparing pre-test and post-test weight among preschool children.
- To find out association between post test weight among preschool children with their selected demographic variable.

3. ASSUMPTIONS:

- Effectiveness of low cost high protein diet will be reduce malnutrition.
- Low cost high protein diet will increase the weight of malnourished children.
- Due to less educational status of mother the child will develop malnutrition.
- Low socio economical status of parents the child will develop malnutrition.

4. HYPOTHESIS

- **H_1** - There will be the significant difference between pre-test weight and post-test weight among preschool malnourished children.
- **H_2–** There will be significant association between the post-test weight among preschool children with their selected demographic variables (Age in year, Gender, Mother educational status, Occupation of mother, Family income, Type of family, Any previous knowledge regarding low cost high protein diet .)

5. RESEARCH APPROACH:

A quantitative research approach is used for this study.

Research Design

Pre experimental design (one group pre-test- post-test design was adopted for the study)

Setting

The study was conducted in rural area in Dehradun. These area were selected because of easy access to the population under study and availability of malnourished children's around the area.

Population

In the present study, the population is the preschool malnourished children.

Sample

In this study the sample comprised of 40 malnourished preschool children between the ages 3-6 year of age in the selected rural area of Dheradun.

Sample size

In this study, the sample size is 40 malnourished preschool children in the age group of 3-6 year in selected rural area.

Sampling Technique

A Non probability purposive sampling technique was used to select 40 preschool malnourished children.

Data collection instrument

In this study data collection instrument are:-

Section A: Demographic variables

Section B: standard tool

Name of the subjects no.	Weight	Mal Nutrition=Weight of child/Weight of a normal child of same age x 100	Malnourished Yes/No

Note= Age in year x2+8 in (2-5) years children.
Interpretation: According to" GOMEZ" classification of malnutrition.
91-100:- Normal.
76-90:-1st degree
61-75:-2nd degrees
<60:-3rd degree

Table (1) Frequency and percentage Distribution of Sample are according to demographic Variables.
N=40

S.NO	DEMOGRAPHIC VARIABLES	FREQUENCY (f)	PERCENTAGE (%)
1.	**Age(in years)**		
	(a) 3-4	26	65%
	(b) 4.1-5	12	30%
	(c) 5.16	2	5%
2.	**Gender**		
	(a)Male	18	45%
	(b)Female	22	55%
3.	**Educational status of mother**		
	(a)Illiterate	34	85%
	(b)Non formal education	-	-
	(c)Graduation	6	15%
	(d)post graduation	-	-

4.	**Occupation of mother** (a)Home maker (b)Daily wager (c)Business	 **33** **7** **-**	 **82.5%** **17.5%** **-**
5.	**Family income/month** (a)4000-8000 (b)8000-10,000 (c)10,000-12,000 (d)Above 12,000	 **29** **11** **-** **-**	 **72.5%** **27.5%** **-** **-**
6.	**Type of family** **(**a)Nuclear family (b)Joint family (c)Extended family (d)Broken family	 **30** **10** **-** **-**	 **75%** **25%** **-** **-**
7.	**Any previous knowledge regarding low-cost high protein diet** (a)yes (b)No	 **9** **31**	 **22.5%** **77.5%**

The table(1) shows that according to their age group depicts that preschool children (65%), in relation to their gender (55%) of female, relation to their educational status of mother that only (15%) of graduation, occupation of mother (82.5%) was home maker, family income per months that highest percentage (72.5%) was 4000-8000, type of family (25%) of joint, and previous knowledge regarding low cost high protein diet (77.5%) was No.

Table (2) Mean and SD of pretest and post test of score weight gain among the preschool children.

N=40

Preschool children	Mean	SD	t-value	Significance
Pre-test	477	1.689	2.53	Significant
Post-test	528.8	2.829	2.53	Significant

Paired “t” test table value 2.02 P< 0.05

The calculated ‘t’ value (2.53) was more than the table value at 5% level of significance .There it can be said that the effectiveness of low cost high protein diet was increasing the weight of preschool children. In this the hypothesis (H1) is accepted.

Table (3) Revealed that the effectiveness of Ragi ball application by comparing pre test and post test score of weight gain among preschool children.

N=40

S.NO	WEIGHT(kg)	PRE-TEST (%)	POST-TEST (%)
1	9-11	40%	10%
2	11.1-13	45%	37.5%
3	13.1-15	12.5%	45%
4	15.1-17	2.5%	5%
5	17.1-18	0%	2.5%

Table (4) Association between post test score and demographic variable among the preschool children.

N=40

S.NO	DEMOGRAPHIC VARIABLE	Post Test		Df	Chi-square value	Table value	Level of significance
		F	%				
1	Age in years						
	(a) 3-4	26	65%	8	39.206	15.51	*
	(b) 4.1-5	12	30%				
	(c) 5.1-6	2	5%				
2	Gender						
	(a) Male	18	45%	4	10.264	9.49	*
	(b) Female	22	55%				
3	Educational status of mother						
	(a) illiterate	34	85%	4	29.563	9.49	
	(b) non formal education	0	-				*
	(c) Graduation	6	15%				
	(d) Post graduation	0	-				
4	Occupation of mother						
	(a) Home maker	33	82.5%	4	7.006	9.49	#
	(b) Daily wager	7	17.5%				
	(c) Business	0	-				
5	Family income/ month						
	(a) 4000-8000	29	72.5%	4	5.063	9.49	
	(b) 8000-10,000	11	27.5%				#
	(c) 10,000-12,000	0	-				
	(d) Above 12,000	0	-				
6	Type of family						
	(a) Nuclear	30	75%	4	8.64	9.49	
	(b) Joint	10	25				#
	(c) Extended	0					
	(d) Broken	0					
7	Any previous knowledge regarding low cost high protein diet						
	(a) Yes	9	22.5%	4	5.122	9.49	#
	No	31	77.5%				

*Significant at p<0.05 level #Not significant at p<0.05 level

There was significant association between the age, gender, and educational status of mother .

6. RECOMMENDATIONS:

On the basis of present study the following recommendations are formed for future study:-

- A study can be conducted to find out the effectiveness of low cost high protein diet on preschool children regarding mal nutrition
- A future study can be conducted in urban and school setting.
- A comparative study can be carried out to ascertain low cost high protein diet among preschool children regarding with a control group design
- A study can be conducted to find out the knowledge and skill of parents and healthcare workers regarding ragi to reduced malnutrition.
- A similar study can be conducted in school and anganwadi.
- Knowledge and practice of parents and anganwadi workers on ragi among rural and urban can be compared.

7. CONCLUSION:

On the basis of the findings of the study, The weight of preschool children was decreased when assessed during pre-test, were as the (Ragi ball with jaggery application)given post test weight was increased. The significant difference between per-test post-test weight score was demonstrated by using "t" test it was found that intervention was effectiveness for preschool children to reduced malnutrition. This study proved that there was significant association between the per-test weight score and post-test weight score and selected variables such as age, gender, and educational status of mother.

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