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A Study to Assess the Effectiveness of Low-Cost Dietary Supplementation among Malnourished Children in the Age Group Between 1-5 Years, at Pilkhuwa, Hapur

Prof. Himadri Kalita[1], Ms. Sumbul Nisha[2], Ms. Blessy Mathew[3]

[1]*Vice Principal, Department of Child Health Nursing, GS College of Nursing, Pilkhuwa, Hapur, Uttar Pradesh, India*
[2]*Department of Paediatrics, GS Medical College & Hospital, Pilkhuwa, Hapur, Uttar Pradesh, India*
[3]*Associate Professor, Department of Obstetrics, LLRM Medical College, Meerut, Uttar Pradesh, India*

Abstract: Malnutrition remains a major public health concern among under-five children in India. This experimental study evaluated the impact of a locally formulated, low-cost dietary supplement on the nutritional status of 60 malnourished children aged 1–5 years in Pilkhuwa, Hapur. Participants were randomly allocated to an experimental group (n=30), which received daily supplementation for 21 days, or a control group (n=30) with no supplement. Anthropometric and clinical assessments were performed at baseline and after intervention. The experimental group showed a significant improvement in nutritional status (mean pre-score 77.80±4.81 vs post-score 83.76±4.87, p<0.01), whereas the control group did not improve significantly (mean 77.80±5.11 vs 78.20±5.15, p>0.05). Post-intervention nutritional status was significantly higher in the experimental group than in controls (p<0.01). Significant gains were also observed in weight, BMI, mid-arm circumference, and skin-fold thickness in the experimental group (all p<0.01), but not in the control group. No demographic factors were significantly associated with nutritional outcomes. The findings suggest that this affordable dietary supplement effectively enhances short-term nutritional recovery among malnourished children. Integrating such interventions into community health programs could help address child malnutrition.
Keywords: Malnutrition; Dietary supplementation; Nutritional status; Preschool children; Community health; India

I. INTRODUCTION

Malnutrition among children under five years of age continues to be a significant public health issue in India, contributing heavily to childhood illness and mortality. India records one of the highest rates of undernutrition globally, with levels nearly twice as high as those in sub-Saharan Africa. Globally, poor nutrition is linked to 40–50% of all deaths in children under five, highlighting its critical role in early childhood survival. Despite national initiatives and global efforts—such as the Millennium Development Goals—progress in reducing undernutrition remains slow and uneven across the country.

Many children suffering from malnutrition live in economically disadvantaged communities, including urban slums, where access to nutritious food is limited. To address this, community-level interventions that are practical and affordable are essential. Simple and locally available dietary supplements may provide a cost-effective way to enhance nutrient intake and support healthy growth among malnourished children.

This study focuses on evaluating the effectiveness of a low-cost, home-prepared nutritional supplement in improving the nutritional status of children aged 1–5 years in the urban slum area of Pilkhuwa, Hapur. By assessing the supplement's impact, this research aims to explore its potential as a community-based solution to combat early childhood malnutrition.

A. Statement Of The Problem
"A study to assess the effectiveness of low-cost dietary supplementation among malnourished children in the age group between 1-5 years at Pilkhuwa, Hapur."

B. Objectives

- To assess pre and post interventional levels of nutritional status of children in the age group between 1-5 years among experimental and control groups.
- To compare pre and post interventional level of nutritional status of children age group between 1-5 years among experimental and control group
- To associate the post interventional scores of malnourished children in the age group between 1-5 years with selected demographic variables.

C. Hypothesis

1-There will be a statistically significant increase in the nutritional status of malnourished children in the age group between 1-5 years after administration of low cost dietary supplementation with selected demographic variables.

II. METHODOLOGY

In This Study Research Approach used is A Quantitative Approach, Research Design: An Experimental Design and Setting of the Study selected is Plikhuwa, Hapur and Variables Both Independent Variable and Dependent Variable Was Been Used Independent Variable the Independent Variable in the Study Was Low-Cost Dietary Supplementation and The Dependent Variable in the Study Was Nutritional Status of Malnourished Children. The Population of the Study Includes All Malnourished Children in the Age Group Between 1-5 Years Who Are Residing at Pilkhuwa, Hapur. The Samples of the Study Includes All Malnourished Children in the Age Group Between 1-5 Years Who Are Residing at Pilkhuwa and Who Are Fulfilling the Inclusion Criteria of Sample Selection. The Samples Were Selected by Using the Lottery Method of Simple Random Sampling Technique. Sample Size 60 Malnourished Children Are Selected Among Them 30 In the Experimental Group And 30 In the Control Group Who Are Residing at Pilkhuwa.

A. Criteria For Sample Selection

1) Inclusion criteria

- Children who are suffering from protein energy malnutrition.
- Children who are not willing to participate in the study.
- Both the male and female children.

2) Exclusion Criteria

- Children already receiving other nutritional therapies.
- Children whose caregivers could not communicate in the local language.

B. Methods Of Data Collection And Analysis

Tool Description

Data were collected using a structured instrument developed by the researcher**.**

Part I- Recorded socio-demographic information (age, sex, parental education/income, family type, birth order, dietary pattern).

Part II- comprised a nutritional assessment tool including anthropometric measurements (weight, height, mid-upper arm circumference, chest and head circumference, skin-fold thickness) and clinical examination for nutritional signs

III. DATA ANALYSIS AND STATISTICAL METHODS USED

The data was analysed in terms of objectives of the study by using:-

S.No	DATA ANALYSIS	METHOD	REMARKS
1	Descriptive statistics	Frequency, percentage, mean and standard deviation	Distribution of the demographic variables To assess the nutritional status of malnourished children aged between 1-5 years.
2	Inferential statistics	Paired t- test Un-Paired t- test	To assess the effectiveness of low cost dietary supplementation among malnourished children aged between 1-5 years.
		Chi-square test	To associate the nutritional status of the malnourished children aged between 1-5 years with selected demographic variables

IV.   RESULTS

The data obtained was mainly classified into four sections-

Section I   :

Description of the malnourished children age group between

1-5 years based on socio-demographic variables.

Section II :

Description of the frequency and percentage of degree of malnutrition, and clinical examination.

Section III:

Comparison of nutritional status of malnourished children age group between 1-5 years among the experimental and control group.

Section IV:

Association of post interventional scores of malnourished children aged between 1-5 years with selected socio-demographic variables.

1) Section-I

TABLE -1   N=60

FREQUENCY AND PERCENTAGE DISTRIBUTION OF MALNOURISHED
CHILDREN ACCORDING TO DEMOGRAPHIC VARIABLES

S.n o	Demographic variables	Experimental		Control	
		Frequency	Percentage	Frequency	Percentage
1	Age				
	1-2 years	4	13.33%	7	23.33%
	2-3 years	6	20%	6	20%
	3-4 years	7	23.33%	6	20%
	4-5 years	13	43.33%	11	36.67%
2	Sex				
	Male	18	60%	14	46.67%
	Female	12	40%	16	53.33%
3	Religion				
	Hindu	16	53.33%	14	46.67%
	Muslim	9	30%	7	23.33%
	Christian	5	16.67%	9	30%
	Others	-	-	-	-
4	Education of parents				
	Illiterate	7	23.33%	4	13.33%
	Primary schooling	11	36.67%	11	36.67%
	Higher secondary	7	23.33%	4	13.33%
	Intermediate	3	10%	9	30%
	Degree & above	2	6.67%	2	6.67%
5	Income of parents per month				
	Rs.<2000	5	16.67%	4	13.33%
	Rs.2001-4000	4	13.33%	6	20%
	Rs.4001-6000	9	30%	6	20%
	Rs.6001-8000	5	16.67%	5	16.67%
	Rs.8001-10000	4	13.33%	7	23.33%
	Rs.10001 and above	3	10%	2	6.67%
6	Type of family				
	Nuclear	21	70%	20	66.67%

	Joint	9	30%	10	33.33%
7	Order of birth				
	First child	11	36.67%	10	33.33%
	Second child	14	46.67%	16	53.33%
	Third child	4	13.33%	2	6.67%
	Above third child	1	3.33%	2	6.67%
8	Dietary pattern for a day				
	Once	1	3.33%	4	13.33%
	Twice	18	60%	21	70%
	Thrice	10	33.33%	5	16.67%
	More than three times	1	3.33%	-	-
9	Type of diet				
	Vegetarian	6	20%	7	23.33%
	Non vegetarian	24	80%	23	76.67%

Table 2 -FREQUENCY AND PERCENTAGE OF DEGREE OF MALNUTRITION

N=60

S.No	CRITERIA	PRE TEST								POST TEST							
		Mild		Moderate		Severe		Profound		Mild		Moderate		Severe		Profound	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
1	Experimental group	-	-	18	60%	12	40%	-	-	7	23.3%	23	76.6%	-	-	-	-
2	Control group	-	-	22	73.3%	8	26.6%	-	-	-	-	21	70%	9	30%	-	-

Among the experimental group pretest 18(60%) children suffered with moderate degree of malnutrition and 12 (40%) children suffered with severe degree of malnutrition. In the post test 7 (23.3%) children suffered with mild degree of malnutrition and 23 (76.6%) children suffered with moderate degree of malnutrition.

In the case of control group pre test 22 (73.3%) children suffered with moderate degree of malnutrition and 8 (26.6%) children suffered with severe degree of malnutrition. In the post test 21 (70%) children suffered with moderate degree of malnutrition and 9 (30%) children suffered with severe degree of malnutrition

Table-3 , Frequency And Percentage Of Clinical Examination : Experimental Group

S.No	CLINICAL EXAMINATION	PRE TEST		POST TEST	
		FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
1	General Impression				
	Active	-	-	25	83.33%
	Dull	10	33.33%	5	16.67%
	Apathy	13	43.33%	-	-
	Pallor	7	23.33%	-	-
2	Hair				
	Black	2	6.67%	7	23.33%
	Sparse	9	30%	13	40%
	Discoloured	11	36.67%	6	20%
	Easily piucked	8	26.67%	5	16.67%

3	Face				
	Bright	-	-	26	43.33%
	Dull	18	60%	2	6.67%
	Puffiness	4	13.33%	2	6.67%
	Moon face	8	26.67%	-	-
4	Eyes				
	Clear	1	3.33%	12	40%
	Pale conjunctiva	17	56.67%	9	30%
	Conjunctival xerosis	7	23.33%	4	13.33%
	Corneal xerosis	5	16.67%	5	16.67%
5	Lips				
	Red	3	10%	17	56.67%
	Angular stomatitis	9	30%	4	13.33%
	Cheilosis	11	36.67%	5	16.67%
	Glossitis	7	23.33%	4	13.33%
6	Tongue				
	Red	2	6.67%	16	53.33%
	Pale	12	40%	11	36.67%
	Raw	10	33.33%	1	3.33%
	Fissured	6	20%	2	6.67%
7	Teeth				
	White	2	6.67%	10	33.33%
	Discolored	11	36.67%	9	30%
	Caries	12	40%	9	30%
	Moltted enamel	5	16.67%	2	6.67%
8	Gums				
	Redness	2	6.67%	23	76.67%
	Spongy	4	13.33%	5	16.67%
	Bleeding	6	20%	2	6.67%
	Gingivitis	18	60%	-	-
9	Skin				
	Smooth	3	10%	20	66.67%
	Dry	15	50%	5	16.67%
	Fissures	8	26.67%	3	10%
	Pellagrous dermatitis	4	13.33%	2	6.67%
10	**Nails**				
	Pink	2	6.67%	20	66.67%
	Pale nails	20	66.67%	5	16.67%
	Brittle nails	8	26.67%	5	16.67%
	Koilonychia	-	-	-	-
11	**Gland**				
	Thyroid gland visible	5	16.67%	12	40%
	Thyroid glandpalpable	14	46.67%	8	26.67%
	Thyroid gland movable	9	30%	8	26.67%
	Thyroid gland enlargement	2	6.67%	2	6.67%

Table -4 Frequency And Percentage Of Clinical Examination: Control Group

		PRE TEST		POST TEST	
S.No	CLINICAL EXAMINATION	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
1	General impression				
	Active	3	10%	3	10%
	Dull	6	20%	2	6.67%
	Apathy	15	50%	14	46.67%
	Pallor	6	20%	11	36.67%
2	Hair				
	Black	2	6.67%	2	6.67%
	Sparse	8	26.67%	4	13.33%
	Discoloured	15	50%	15	50%
	Easily piucked	5	16.67%	9	30%

3	Face				
	Bright	2	6.67%	2	6.67%
	Dull	17	56.67%	11	36.67%
	Puffiness	4	13.33%	8	26.67%
	Moon face	7	23.33%	9	30%
4	Eyes				
	Clear	2	6.67%	2	6.67%
	Pale conjunctiva	14	46.67%	10	33.33%
	Conjunctival xerosis	10	33.33%	9	30%
	Corneal xerosis	4	13.33%	9	30%
5	Lips				
	Red	1	3.33%	1	3.33%
	Angular stomatitis	14	46.67%	11	36.67%
	Cheilosis	8	26.67%	11	36.67%
	Glossitis	7	23.33%	7	23.33%
6	Tongue				
	Red	1	3.33%	1	3.33%
	Pale	13	43.33%	10	33.33%
	Raw	11	36.67%	13	43.33%
	Fissured	5	16.67%	6	20%
7	Teeth				
	White	2	6.67%	2	6.67%
	Discolored	14	46.67%	12	40%
	Caries	12	40%	13	43.33%
	Moltted enamel	2	6.67%	3	10%
8	Gums				
	Redness	1	3.33%	1	3.33%
	Spongy	5	16.67%	5	16.67%
	Bleeding	13	43.33%	11	36.67%
	Gingivitis	11	36.67%	13	43.33%
9	Skin				
	Smooth	3	10%	3	10%
	Dry	16	53.33%	13	43.33%
	Fissures	7	23.33%	10	33.33%
	Pellagrous dermatitis	4	13.33%	4	13.33%
10	Nails				
	Pink	2	6.67%	2	6.67%
	Pale nails	24	80%	21	70%
	Brittle nails	4	13.33%	7	23.33%
	Koilonychia	-	-	-	-
11	Gland				
	Thyroid gland visible	9	30%	9	30%
	Thyroid gland palpable	17	56.67%	17	56.67%
	Thyroid gland movable	4	13.33%	4	13.33%
	Thyroid gland enlargement	-	-	-	-

Table -5 mean, standard deviation and t value for the nutritional status of malnourished children among experimental group N=30

S.No	CRITERIA	MEAN	SD	't' VALUE
1	Pre - test nutritional status of malnourished children	77.803	4.811	10.673 **
2	Post -test nutritional status of malnourished children	83.76	4.874	

**= Significant at 0.01 level

*= Significant at 0.05 level

NS= Not significant

Table -6 MEAN, STANDARD DEVIATION AND t VALUE FOR THE NUTRITIONAL STATUS OF MALNOURISHED CHILDREN AMONG CONTROL GROUP

N=30

S.No	CRITERIA	MEAN	SD	t VALUE
1	Pre - test nutritional status of malnourished children	77.797	5.111	2.014 NS
2	Post -test nutritional status of malnourished children	78.197	5.154	

Table 7-MEAN, STANDARD DEVIATION AND 't' VALUE OF ANTHROPOMETRIC MEASUREMENT FOR EXPERIMENTAL GROUP

N=30

S.No	ANTHROPOMETRIC MEASUREMENTS	PRE TEST		POST TEST		't 'VALUE
		MEAN	SD	MEAN	SD	
1	Height in cms	87.083	10.232	88.4	10.213	6.984**
2	Weight in kgs	11.277	2.169	11.96	2.173	12.354**
3	BMI in kgs	14.497	1.03	15.383	1.581	3.747**
4	Mid Arm Circumference in cms	13.47	2.537	13.807	2.464	4.367**
5	Chest Circumference in cms	47.077	4.69	47.283	4.726	2.954NS
6	Head Circumference in cms	44.37	4.722	44.487	4.716	2.341NS
7	Skin Fold Thickness in cms	0.403	0.091	0.443	0.099	4.397**

**= SIGNIFICANT AT 0.01 level

*= Significant at 0.05 level

NS= Not significant

Table 8 -MEAN, STANDARD DEVIATION AND 't' VALUE OF ANTHROPOMETRIC MEASUREMENT OF CONTROL GROUP

N=30

S.No	ANTHROPOMETRIC MEASUREMENTS	PRE TEST		POST TEST		't' VALUE
		MEAN	SD	MEAN	SD	
1	Height in cms	86.267	11.73	86.527	11.646	2.991NS
2	Weight in kgs	10.94	2.55	10.943	2.506	0.078 NS
3	BMI in kgs	14.59	1.297	14.567	1.306	0.318 NS
4	Mid Arm Circumference in cms	12.46	2.302	12.5	2.307	3.247NS
5	Chest Circumference in cms	43.467	6.813	43.53	6.82	4.535NS
6	Head Circumference in cms	40.673	6.528	40.703	6.512	2.523NS
7	Skin Fold Thickness in cms	0.377	0.08	0.377	0.08	0 NS

**= SIGNIFICANT AT 0.01 level

*= Significant at 0.05 level

Table-9 MEAN, STANDARD DEVIATION AND 't' VALUE OF CLINICAL EXAMINATION

N=60

CRITERIA	PRE TEST		POST TEST		't' VALUE	
	MEAN	SD	MEAN	SD		
GENERAL IMPRESSION						
Experimental	2.9	0.746	1.167	0.373	13.73	**
Control	2.8	0.872	3.067	0.964	2.283	NS
HAIR						
Experimental	2.833	0.898	2.3	1.005	3.395	**
Control	2.767	0.803	3.033	0.836	2.283	NS
FACE						
Experimental	2.667	0.869	1.2	0.542	8.93	**
Control	2.533	0.921	2.7	0.971	1.54	NS
EYES						
Experimental	2.533	0.806	2.067	1.093	5.037	**
Control	2.533	0.806	2.833	0.934	2.34	NS
LIPS						
Experimental	2.733	0.929	1.867	1.118	4.292	**
Control	2.7	0.862	2.8	0.833	0.902	NS

TONGUE						
Experimental	2.667	0.869	1.633	0.836	6.656	**
Control	2.667	0.789	2.8	0.792	2.112	NS
TEETH						
Experimental	2.667	0.83	2.1	0.943	3.195	**
Control	2.467	0.718	2.567	0.761	1.361	NS
GUMS						
Experimental	3.333	0.943	1.3	0.586	10.446	**
Control	3.133	0.806	3.167	0.898	0.239	NS
SKIN						
Experimental	2.433	0.844	1.567	0.92	5.277	**
Control	2.4	0.841	2.5	0.847	1.361	NS
NAILS						
Experimental	2.2	0.542	1.5	0.764	5.46	**
Control	2.067	0.442	2.033	0.547	0.441	NS
GLANDS						
Experimental	2.267	0.814	2	0.966	2.504	*
Control	1.833	0.637	1.767	0.616	0.812	NS

**= significant at 0.01

*= Significant at 0.05 level

NS= Not significant

The above table shows that there is a significant level of 't' value at p=0.05 in the experimental group in case of all elements and in the control group all elements are not significant at p=0.01 level.

TABLE-10

ASSOCIATION OF NUTRITIONAL STATUS OF CHILDREN WITH DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP

N=30

S.No	Demographic variables	Mild 90-110%		Moderate 75-89%		Severe 60-74%		Profound <60%		Chi square
		F	%	F	%	F	%	F	%	
1	Age									
	1-2 years	2	6.67%	2	6.67%	-	-	-	-	4.138
	2-3 years	-	-	6	20%	-	-	-	-	df=9
	3-4 years	1	3.33%	6	20%	-	-	-	-	Ns
	4-5 years	4	13.33%	9	30%	-	-	-	-	
2	Sex									
	Male	5	16.67%	13	43.33%	-	-	-	-	0.497
	Female	2	6.67%	10	33.33%	-	-	-	-	df=3 Ns
3	Religion									
	Hindu	2	6.67%	14	46.67%	-	-	-	-	2.33
	Muslim	3	10%	6	20%	-	-	-	-	df=9
	Christian	2	6.67%	3	10%	-	-	-	-	Ns
	Others	-	-	-	-	-	-	-	-	

		F	%	F	%	F	%	F	%	Chi square
4	Education of parents									14.076
	Illiterate	0	-	7	23.33%	-	-	-	-	df=5
	Primary schooling	3	10%	8	26.68%	-	-	-	-	S
	Higher secondary	-	-	7	23.33%	-	-	-	-	
	Intermediate	2	6.67%	1	3.33%	-	-	-	-	
	Degree & above	2	6.67%	-	-	-	-	-	-	
5	Income of parents									
	0-1000	-	-	5	16.67%	-	-	-	-	
	1001-2000	0	-	4	13.33%	-	-	-	-	14.62
	2001-3000	6	20%	3	10%	-	-	-	-	df=5
	3001-4000	-	-	5	16.67%	-	-	-	-	S
	4001-5000	1	3.33%	3	10%	-	-	-	-	
	5001 & above	-	-	3	10%	-	-	-	-	
6	Type of family									3.203
										df=3
	Nuclear	3	10%	18	60%	-	-	-	-	Ns
	Joint	4	13.33%	5	16.67%	-	-	-	-	
7	Order of birth									
	First child	2	6.67%	9	30%	-	-	-	-	2.885
	Second child	5	16.67%	9	30%	-	-	-	-	df=9
	Third child	-	-	4	13.33%	-	-	-	-	Ns
	Above third child	-	-	1	3.33%	-	-	-	-	
8	Dietary pattern for day									
	Once	1	3.33%	-	-	-	-	-	-	3.665
	Twice	4	13.33%	14	46.67%	-	-	-	-	df=9
	Thrice	2	6.67%	8	26.67%	-	-	-	-	Ns
	More than three times	-	-	1	3.33%	-	-	-	-	
9	Type of diet									0.419
	Vegetarian	2	6.67%	4	13.33%	-	-	-	-	df=3
	Non vegetarian	5	16.67%	19	63.33%	-	-	-	-	Ns

2) Section-III

TABLE-11   N=30 ASSOCIATION OF NUTRITIONAL STATUS OF CHILDREN WITH DEMOGRAPHIC VARIABLES IN CONTROL GROUP

		Mild 90-110%		Moderate 75-89%		Severe 60-74%		Profound <60%		
S.No	Demographic Variables	F	%	F	%	F	%	F	%	Chi square
1	Age									
	1-2 years	-	-	5	16.67%	2	6.67%	-	-	2.511
	2-3 years	-	-	4	13.33%	2	6.67%	-	-	df=9
	3-4 years	-	-	6	20%	-	-	-	-	Ns
	4-5 years	-	-	9	30%	2	6.67%	-	-	
2	Sex									
	Male	-	-	13	43.33%	1	3.33%	-	-	2.712
	Female	-	-	11	36.67%	5	16.67%	-	-	df=3

									Ns
3	Religion								
	Hindu	-	-	10	33.33%	4	13.33%	-	-	1.231
	Muslim	-	-	6	20%	1	3.33%	-	-	df=9
	Christian	-	-	8	26.67%	1	3.33%	-	-	Ns
	Others	-	-	-	-	-	-	-	-	
4	Education								
	Illiterate	-	-	4	13.33%	-	-	-	-	4.842
	Primary schooling	-	-	9	30%	2	6.67%	-	-	df=12
	Higher secondary	-	-	2	6.67%	2	6.67%	-	-	Ns
	Intermediate	-	-	8	26.67%	1	3.33%	-	-	
	Degree & above	-	-	1	3.33%	1	3.33%	-	-	
5	Income of parents								
	0-1000	-	-	3	10%	1	3.33%	-	-	
	1001-2000	-	-	6	20%	-	-	-	-	4.122
	2001-3000	-	-	5	16.67%	1	3.33%	-	-	df=15
	3001-4000	-	-	3	10%	2	6.67%	-	-	Ns
	4001-5000	-	-	6	20%	1	3.33%	-	-	
	5001 & above	-	-	1	3.33%	1	3.33%	-	-	
6	Type of family									0.938
										df=3
	Nuclear	-	-	15	50%	5	16.67%	-	-	Ns
	Joint	-	-	9	30%	1	3.33%	-	-	
7	Order of birth								
	First child	-	-	7	23.33%	3	10%	-	-	1.641
	Second child	-	-	13	43.33%	3	10%	-	-	df=9
	Third child	-	-	2	6.67%	-	-	-	-	Ns
	Above third child	-	-	2	6.67%	-	-	-	-	
8	Dietary pattern for day								
	Once	-	-	3	10%	1	3.33%	-	-	0.075
	Twice	-	-	17	56.67%	4	13.33%	-	-	df=9
	Thrice	-	-	4	13.33%	1	3.33%	-	-	Ns
	More than three times	-	-	-	-	-	-	-	-	
9	Type of diet									0.419
	Vegetarian	-	-	5	16.67%	2	6.67%	-	-	df=3
	Non vegetarian	-	-	19	63.33%	4	13.33%	-	-	Ns

C. Major Findings Of The Study

● Among the malnourished children, the majority of them are between 4-5 years, both sexes are equally affected, most of them belong to nuclear families and non-vegetarian.

● In the experimental group pre test, nutritional status mean was 77.803 and SD was 4.811 and in post test nutritional status mean is 83.76 and SD is 4.874. Paired 't' test value was 10.673 which is significant at p=0.01.

● In the control group pretest nutritional status mean was 77.797 and the SD was 5.111 and the post test nutritional status mean was 78.197 and SD was 5.154. And the paired 't' test value was 2.074 which was not significant.

● In the case of Post - test nutritional status of malnourished children in an experimental group and control the unpaired 't' test value is 2.973 which shows significance at p<0.01.

● Anthropometric measurements in an experimental group that is Height, Weight, BMI, Mid Arm Circumference, Chest Circumference, Head Circumference and Skinfold Thickness shows significance at p=0.01 level.

- In case of general examination there is a significant level of 't' value at p=0.05 in the experimental with regards to all elements and in the control group all elements are not significant at p=0.01.
- There is a significant association between nutritional status of malnourished children with the income of parents and education of parents at $p > 0.05$ level in the experimental group.

Hypothesis framed was accepted by the study results

V. CONCLUSION

The main conclusion drawn from the present study was both the children in the experimental and control group are suffering with mild to profound degree of malnutrition but after giving the low cost diet supplementation for the experimental group there was an increase in the nutritional status of the malnourished children but the control group children remains same and even some children condition became more worsen. This understood that the low cost dietary supplementation for the malnourished children will surely improve their nutritional status.

VI. IMPLICATIONS OF THE STUDY

According to Tolsma (1995) the section of the research report that focuses on nursing implication usually includes specific suggestions for nursing practice, education, administration and nursing research.

A. Nursing Practice

- Assessment of the nutritional status of the malnourished children between 1-5 years will help the community health nurse to pay more attention on the nutritional aspects.
- Knowing how to conduct the screening for malnutrition will help the community health nurse to practice during her home visits for the early detection and prompt treatment.
- The present study indicated that improving nutritional status is essential for malnourished children to prevent further complications.
- Knowing about the various menus available in the specific community will be useful to educate the community.

B. Nursing Education

- Nursing curriculum has to focus on nutritional needs of the children, their assessment and various treatment modalities.
- During the training period the students must learn the importance of maintaining the nutritional levels.
- Student nurses have to update their knowledge on nutritional needs of malnourished children to practice evidence based nursing in community settings.
- Students must be encouraged to attend various conferences, workshops, panel discussions on child malnutrition.

C. Nursing Administration

- Nurse administrators should plan for the conduction of various screening programmes in the community for the children.
- Involve the parents, health workers in monitoring and rendering care to the malnourished children.
- The present study proposed to help the health care delivery system to plan for the better nutritional programmes for the malnourished children.

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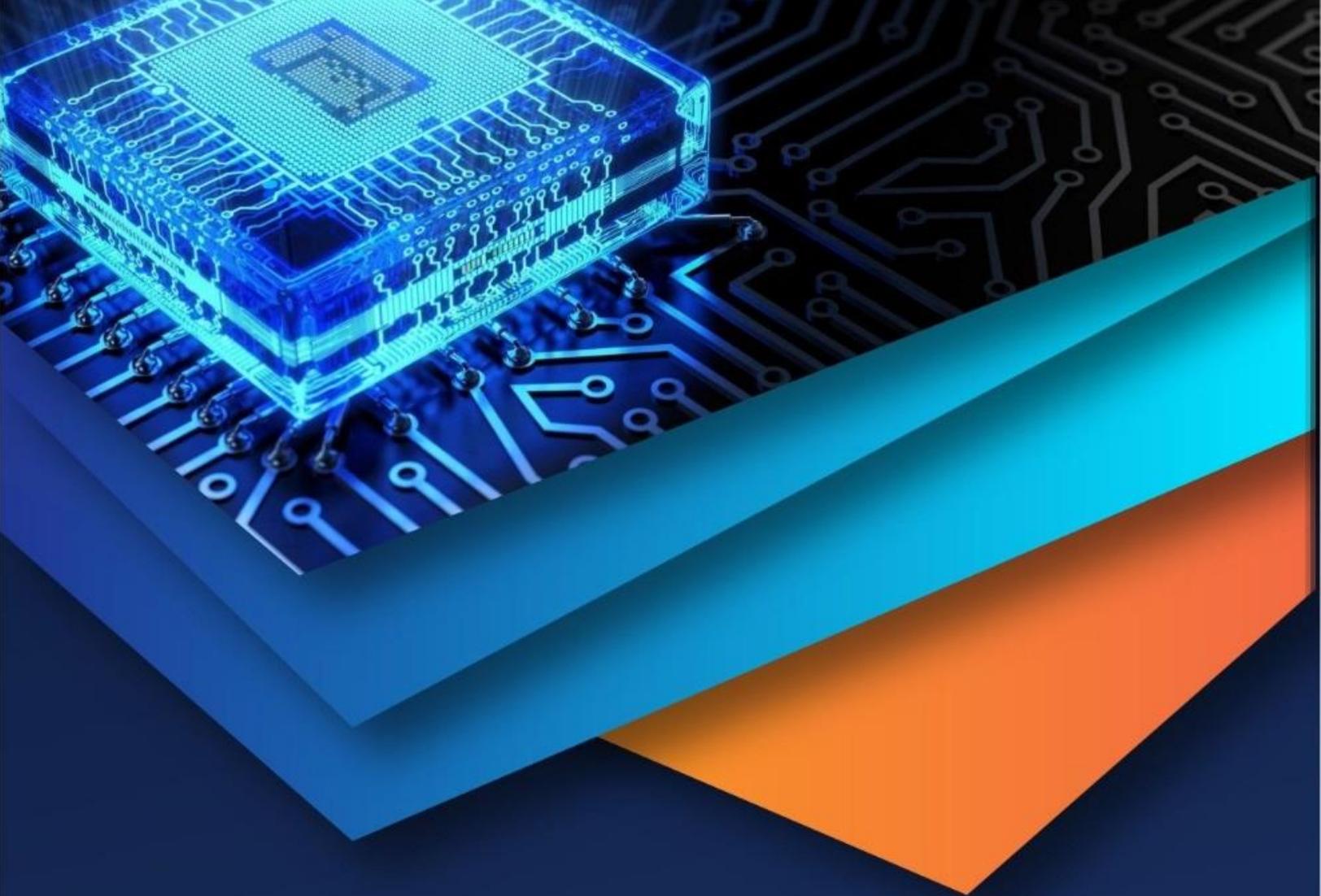
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