



TO ASSESS THE EFFECTIVENESS OF NURSE-LED NUTRITIONAL INTERVENTIONS ON SELECTED NUTRITIONAL PARAMETERS IN MALNOURISHED CHILDREN IN SELECTED COMMUNITY AREAS AT BENGALURU

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ABSTRACT

Background and objectives: Malnutrition continues to be a significant public health and development concern in developing countries and the world. It is the most widespread condition affecting the health of children. Therefore, the present study aims to assess the effectiveness of Nurse-led nutritional interventions on selected nutritional parameters in malnourished children in selected community areas at Bengaluru. **Methods:** A quasi-experimental pretest-posttest research design, with purposive sampling method was used. Data was collected from 90 children using structured interview schedule and observation. The Nurse-led interventions was implemented and post test was conducted after 30 days for both groups to find the effectiveness. **Results:** Majority of the children were from 1-3 years were 1st born, Hindus, belongs to nuclear family, have 1 sibling, completed primary education, occupation being unemployed, monthly income below Rs. 3000, mostly are nonvegetarian with 3 times/day meals and no history of any recent hospitalization. Majority of the children were mildly malnourished in both groups. Regarding effectiveness of Nutritional interventions, the status of malnutrition of both groups was 100% and 80% and it was significant at 5% level. Analysis of sociodemographic variables showed significant association with the employment status of the mother with selected Nutritional parameters of children. **Interpretation and Conclusion:** The result has proved that nurse led nutritional intervention was effective in improving and promoting nutritional parameters such as height and weight.

KEYWORDS: Nurse-Led Nutritional Intervention, nutritional parameters, malnourished children of 1-5 years of age.

INTRODUCTION AND BACKGROUND

Nutrition continues to be a key global development agenda under the Sustainable Development Goals (SDGs) after the completion of the Millennium Development Goals (MDGs) era.^[1] In a developing country like India, the child health care givers are facing a large number of problems. One of the major health problems is malnutrition. It is one of the most widespread conditions affecting health of children. "Malnutrition is a condition wherein every cell is starving and eventually our bodies start getting sluggish due to anaemia, poor muscle mass, decreased immunity to name a few."^[2]

Malnutrition is one of the most devastating problems worldwide and is inextricably linked with poverty.^[3] Each individual requires a minimum amount of nutritious food to keep himself/herself healthy. When this minimum requirement is not met the human body

becomes weak and susceptible to infection. Therefore, to recover from this problem it is very important to supplement the diet with protein and energy rich food supplement.^[4]

Globally, child malnutrition is a public health problem with major consequences for child survival, damaging the cognitive and physical development of children and the economic productivity of individuals and societies. Malnutrition contributes to 50 percent of all child deaths and 11 percent of the total global disability-adjusted-life-years worldwide.^[3]

OBJECTIVES OF THE STUDY

1. To assess the selected nutritional parameters in malnourished children before and after intervention in the experimental and control group.
2. To determine the effectiveness of nurse-led nutritional interventions on selected nutritional

parameters in malnourished children in the experimental and control group.

- To find out the association between selected nutritional parameters with selected socio-demographic variables.

Hypotheses

- H01:** There will be no significant difference in the selected nutritional parameters in malnourished children before the intervention in experimental and control group.
- H02:** There will be no significant difference in the selected nutritional parameters in malnourished children after the intervention in experimental and control group.
- H03:** There will be no significant association between selected nutritional parameters with selected socio-demographic variables.

Assumptions

- Children from 1-5 years may suffer from malnutrition.
- As Davanagere mix is low cost, locally available and culturally relevant food, it will be well received by the mothers.

Variables under study

- Independent variable:** Nurse Led Nutritional Interventions-Davanagere mix and dietary education.
- Dependent variable:** Selected nutritional parameters of the children.

Demographic variables

Age, gender, religion, Number of siblings, birth order, type of family, educational level of the mother, employment of the mother, family monthly income, mother's health status, dietary pattern, number of meals taken/day, any recent history of hospitalization and child on medication.

Delimitation

The study is limited to the malnourished children aged 1-5 years in Kothanur dinne and Konanakunte area at Bengaluru.

Conceptual Framework

The conceptual framework of the present study is based on King's Goal attainment theory with action, reaction, interaction and transaction and feedback. This theory represents an expansion of king's original ideas to incorporate the concept of the nurse and the client mutual communications, information, establishing goals, and taking actions to attain goals.

METHODOLOGY

Research approach and design

A quantitative, experimental research approach with quasi-experimental pretest- posttest with control group

research design was used for this study. The study consists of children of 1-5 years of age from Kothanur dinne and Konanakunte Primary Health center, Bangalore. Ninety children were selected by purposive sampling technique.

Criteria for Selection of Samples Inclusion criteria

- Children who are in mild and moderate categories of malnutrition.
- Children between 1-5 years of age.
- Children who are living in a particular area.
- Children and parents who can speak Kannada or Hindi or English.
- Children and Parents who are willing to participate in the study.

Exclusion Criteria

- Children who are sick at the time of data collection.
- Children who are having food allergies.
- Children who are taking nutritional supplements for malnutrition.

Tool used for the study

A structured interview schedule and observation were prepared to collect data to achieve the objectives of the study. The tool was developed by the investigator after reviewing the related literature and guidance from the experts in the field.

Part A: It consists of demographic variables with 14 items such as age of the child, gender of the child, religion, number of siblings, birth order, type of family, educational level of the mother, employment of mother, family monthly income, mother's health status, dietary pattern, number of meal/days, recent hospitalization, and child's on medications.

Part B: It consists the observation of nutritional parameters such as height, weight, chest circumference and mid arm circumference by using calibrated weighing scale and measuring tape.

Procedure for the data collection

Formal administrative permission was obtained from the District Health Officer and Medical Officer of Konanakunte primary health centre and oral consent was taken from the parents. Socio-demographic data was collected from the parents through structured interview schedule. The nutritional parameters such as height, weight, mid-arm circumference, and chest circumference were assessed using calibrated scales and using IAP classification of children with mild and moderate malnutrition were selected for the study. The Nurse-led interventions for experimental group included the administration of Davanagere mix for 30 days and education on protein energy malnutrition and its management on 1st day. The control group was given health education. Then the post test was conducted after 30 days for both groups.

RESULTS

Table 1: Status of malnutrition of both groups before and after intervention. (N=90).

Group	Changes in malnutrition (pre-post)		
	No changes	Worst	Improved
	N (%)		
Experimental group	-	-	50 (100)
Control group	8 (20)	-	32 (80)

Table 2: Pretest and Posttest Comparison of nutritional parameters in children in experimental and control Group.

Age group	Variables		Experimental group (N=25)	Control group (N=27)	t value	p value
			Mean \pm SD	Mean \pm SD		
1-3 years	Weight	Pretest	9.64 \pm 1.43	8.64 \pm 1.58	2.360	.011*
		Posttest	11.28 \pm 1.56	9.94 \pm 1.66	2.970	.002*
	Height	Pretest	81.76 \pm 7.90	78.59 \pm 7.30	1.502	.070**
		Posttest	81.76 \pm 7.90	78.59 \pm 7.30	1.502	.070**
	MAC	Pretest	15.84 \pm 1.37	15.77 \pm .93	0.192	.424**
		Posttest	16.62 \pm 1.17	16.65 \pm .88	1.643	.053*
	CC	Pretest	48.10 \pm 2.65	47.00 \pm 1.68	1.798	.039*
		Posttest	48.10 \pm 2.65	47.00 \pm 1.68	1.798	.039*
BMI	Pretest	14.40 \pm 1.30	13.80 \pm 1.21	1.528	0.67**	
	Posttest	16.76 \pm 1.49	16.01 \pm 1.44	1.528	0.67**	
4-5 years	Weight	Pretest	12.54 \pm 1.41	11.84 \pm 1.23	1.497	.072**
		Posttest	14.10 \pm 1.33	13.39 \pm 1.12	1.997	.027*
	Height	Pretest	97.00 \pm 7.15	97.76 \pm 6.11	.330	.372**
		Posttest	97.00 \pm 7.15	97.76 \pm 6.11	.330	.372**
	MAC	Pretest	16.58 \pm 1.00	16.84 \pm 1.06	.757	.227**
		Posttest	16.62 \pm 1.17	16.65 \pm .88	.407	.343**
	CC	Pretest	51.08 \pm 2.21	51.23 \pm 1.78	.212	.417**
		Posttest	51.08 \pm 2.21	51.23 \pm 1.78	.212	.417**
	BMI	Pretest	13.39 \pm 1.12	12.41 \pm .90	2.702	.005*
		Posttest	15.05 \pm 1.36	13.73 \pm .98	2.995	.003*

*significant ** not significant

Table 3: Association between degree of malnutrition of children with the selected socio-demographic variables.

Variables	Degree of malnutrition		Df	Chi square	P value
	Mild (n=59)	Moderate (n=31)			
Age in years					
1-3	38	14	1	3.086	0.079**
4-5	21	17			
Gender					
Male	35	16	1	0.49	0.483**
Female	24	15			
Religion					
Hindu	46	20	1	1.88	0.170**
Muslim	13	11			
Number of siblings					
No sibling	10	3	2	0.93	0.626**
1 sibling	38	21			
2 siblings	11	7			
Birth order					
1 st	22	10	2	0.43	0.806**
2 nd	30	18			
3 rd	7	3			
Type of family					
Nuclear	47	24	1	0.061	0.804**

Joint	12	7			
Educational level of mother					
Primary	26	11	2	2.32	0.312**
Secondary	19	15			
Undergraduate	14	5			
Employment status of mother					
Employed	22	18	1	3.55	0.059*
Unemployed	37	13			
Monthly income					
11,516-19,515	35	17	1	0.16	0.682**
3,908-11,707	24	14			
Dietary pattern					
Vegetarian	9	4	1	0.091	0.763**
Non vegetarian	50	27			
Number of meal taken/day					
3 times/day	24	8	2	5.50	0.064**
4 times/day	25	21			
5 times/day	10	2			
Any recent history of hospitalization					
Yes	6	3	1	0.005	0.941**
No	53	28			

*significant ** not significant

Findings of the Study

Based on the age equal proportion 50% and 67.5% belongs to the age group of 1-3 years, 82 % and 75 % belongs to nuclear family, 62% and 70% have 1 sibling, 66% completed primary education and 47.5% completed undergraduate, 100% has no history of any recent hospitalization. Findings related to categorization of malnutrition, 64% and 67.5% were mildly malnourished while 36% and 32.5% were moderately malnourished.

Pretest Weight (experimental group mean 9.64, SD±1.43 control group mean 8.64, SD±1.58, t=3.20. p 0.002). Posttest weight (experimental group mean 11.28 SD±1.56 control group mean 9.94, SD± 1.66, t=3.78. p 0.001. Pretest Mid arm circumference (experimental group mean 16.21, SD±1.25 control group mean 16.13, SD± 1.09, t= 0.192. p 0.424) Posttest Mid arm circumference (experimental group mean 15.77, SD±1.37 control group mean 15.77, SD± .93, t= 1.643. p 0.053).

There was no significant difference in the height, chest circumference, and BMI. Pretest and Posttest height (experimental group mean 81.76 SD±7.90 control group mean 78.59, SD± 11.39, t=1.502. p 0.070). Pretest and posttest Chest circumference (experimental group mean 48.10, SD±2.65 control group mean 47.00, SD± 1.68, t=1.798. p 0.039 Pretest and posttest BMI (experimental group mean 13.91, SD±1.25 control group mean 13.43, SD±1.32, t=1.528. p 0.067).

There was a significant association between the selected Nutritional parameters of children with the employment status of the mother and there was no significant association between the selected Nutritional parameters of children with other demographic variables such as the age of the child, gender, religion, number of siblings,

birth order, type of family, educational level of the mother, monthly income, dietary pattern, number of the meal taken/day, recent hospitalization.

DISCUSSION

A report of findings is never sufficient to convey their significance. The meaning that researchers give to the results plays a rightful and important role in report. The discussion section is devoted to a thoughtful and insightful analysis of the findings, leading to a discussion of their clinical and theoretical utility.^[5]

Finding of the present study is supported by a study which assess the effectiveness of Hyderabad mix for improving weight in malnourished children found the average age of children in age group of 1-5 years.^[6]

The findings are supported by a study the effectiveness of nutrition intervention on degree of malnutrition. Result shows that the mean score of severe malnutrition had reduced from 26.2 to 24 .8, mean score of moderate malnutrition had reduced from 20.5 to 18.2.^[7]

Another interventional study showed a difference in degree of malnutrition before and after intervention. 81 percent of malnourished children turned out to nourished whereas in the control group, 64 percent of them became nourished.^[8]

CONCLUSION

There was a significant difference in the nutritional parameters in children after the intervention in experimental and control Group. There was a significant association between the selected Nutritional parameters of children with employment status of mother and there

was no significant association between the selected Nutritional parameters of children with other demographic variables such as age of child, gender, religion, number of siblings, birth order, type of family, educational level of mother, monthly income, dietary pattern, number of meal taken/day, previous hospitalization and child's on any medication.

RECOMMENDATIONS

Based on the findings of the study the following recommendations are put forward for futurere search

- A large-scale study can be conducted on more number of samples from different settings.
- A longitudinal study on nurse led nutritional intervention with nutritional parameters in malnutrition could be done.
- A comparative study on effectiveness of nurse led nutritional intervention on nutritional parameters in malnourished children in rural and urban areas.
- A study can be done to assess the knowledge level of nurses regarding different nurse led nutritional intervention.

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