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A Study To Explore The Factors Contributing To Under Nutrition And Evaluate The Effectiveness Of Nurse Lead Interventional Package On Knowledge And Attitude Of Mothers And Nutritional Status Of Under Five Children At Rural Areas Of Selected PHC, Vijayapur District, Karnataka.

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ABSTRACT

Introduction: Under nutrition is a serious health issue among majority of economically developing countries. It will be acting as silent factors which will be killing under five children day by day by deteriorating their health. Multiple factors are responsible for under nutrition mainly it is occurring because of imbalanced food in quality and quantity. Some of the factors like not feeding the child with breast milk, inappropriate information of child rearing and caring, uneducated mother, low socio economic condition of family , lack of government support, climate change, rituals, cultural restrictions of food are responsible for under nutrition. Based on various literatures researcher found that the incidence of disease, death with under nutrition are more evident among children bellow the age of five years. If mothers educated properly with any of the reliable nutrition education programmes like nurse lead interventional package it will be made great impact on improvement in maintaining nutritional status among children of age bellow five years.

Material and methods: quantitative approach one group pre-test- post-test of Pre-experimental design was used to identify the factors responsible for under nourishment and to measure impact of nurse lead intervention package in enhancing knowledge, changing attitude of mothers and in maintaining the nutritional status of their children. With non probability purposive sampling method total 15 mothers and their 15 children bellow the age

of five years are involved in the data collection. Study was carried out at Ghonasagi village belongs to Knamadi PHC, Vijayapur district for a period of one month. Nurse lead intervention package consist of (i) Structured teaching programme on under nutrition (ii) Exhibition of raw nutritious material (iii) Demonstration on Selected nutritional recipes (iv) Comprehensive nutritional counselling programme. Interpretation of data was done with Chi – square, Wilcoxon signed-rank test ,Spearman's rank correlation coefficient test, the matched Paired't' test, were used to analyse the data.

Result findings:

The result shows that in the list of 38 factors we found that poverty cause 100%, Economical factors cause 86.7%, less birth space from one child to another cause 80%, faulty feeding practices cause 73.3% are some of the leading factor to cause under nutrition. In the aspect of knowledge of mothers regarding under nutrition of children within the age of five years, mean knowledge % of post test found more with mean percentage that is 79.2 and standard deviation percent that is 6.95, when we compare with mean knowledge percentage of pre test with the mean percentage 41.3 and standard deviation percent was 9.97%. There is total 37.72% of improvement in knowledge was noticed in values of post test when matched with values of pre test. 't' test (paired) value of -19.898. In the aspect of attitude mothers of children with age bellow five years regarding under nutrition result revealed that attitude score in post-test was found more with the mean percentage 85.8 and standard deviation 2.5. Pre-test attitude score value with mean percentage 66.7 and standard deviation percentage of 6.6. On comparison there is an improvement in post test attitude score was noticed, with increase of mean percentage attitude score 19.8%. Statistically significance was found with difference in post test and pre test values at 0.05 level ($p<0.05$) with't' test (paired) value of -13.839. The improvement in post test scores of knowledge and attitude of mothers of children bellow age of five years signifies the effectiveness of nurse lead interventional package. Nutritional status of the under five is done by Clinical recording cum evaluation of Anthropometric measurements (height, weight, MUCA), Laboratory investigation (haemoglobin level estimation by invasive method), Dietary recall, physical examination on under five Children for nutritional assessment were carried out. The values indicate that mean pre test height was 82cm and mean post test height was 82.54 cm. The mean pre test weight found to be 9.6 kg and the mean post test weight found to be 9.94 kg. The mean pre test MUAC (mid upper arm circumference) was 13.22 cm and the mean post test MUAC was 13.32 cm. The mean pre test Hb level was 9.30 gm/dl and the mean post test Hb level found to be 9.59 gm/dl. The mean pre

test diet recall caloric consumption was 840.86 and the mean post test diet recall caloric consumption was 1297.11. This improvement in post test values indicates the nurse lead interventional programme effectiveness. Physical signs and symptoms as an evidence of nutritional status by physical examination shows that there is a recovery in the under nutrition clinical feature after intervention.

Conclusion: under nutrition remains one of the serious health consequences in India. Despite of all efforts made by various agencies still there is good number of under nutrition cases were present in most part of the country especially in rural areas. Nurse lead interventional programme to the mothers help them in maintaining nutritional status of their under five children. Further it recommends that study can be implemented on larger population. Various agencies can use nurse lead interventional programme to decline the incidences of under nutrition in children bellow five years.

Key words: Under Nutrition, Mothers, Under five children, Knowledge, Attitude, Nutritional status.

INTRODUCTION

India with 1.31 billion population occupies the second largest populous country next to china and acquires the 17.5% global population [1]. 29% of children belong to the age of under five in comparison with total children population[2]. Three out of ten children in India suffering with malnourishment in the world explains the severity. In India children of underweight with 43 % stunting with 48 % were noticed with advanced under nutrition [3]. The word under nutrition refers to deficiencies or lack of nutrients or less energy in food of the person[5]. Child grows very fast in his early life that is first 1000 days. Right food is basic key for attaining the chain of prosperous health and development. If good food is not provided in this period child growth will be affected, child height and weight are not proper[4]. Under nourishment is the major element which deteriorates the health condition of the child. Lack of balanced food, low earning of the family, cultural aspects and misconception about child food are most common factors of under nutrition[1].

Severe under nutrition leads to development of clinical feature like retarded growth, thin body built, often weakness in activities of daily living even oedema can notice in abdomen and legs [6]. The severe clinical feature of under nutrition like diarrhoea and respiratory problems become cause of death in children. With proper vigilance and timely right interventions can reduce the children disease and death rates [1].

Any remedy to tackle with under nutrition consumes long period of time, multidimensional and wide spreading approach. More founding is required to increase the nutrition specific intervention such as nutritional education fortification of food, exclusive breast feed, and supplementation of micronutrients[4].

With this background investigator conduct the study in one of the PHC rural areas of Vijayapur district. The intention of the study is to identify and mention the factors responsible to under nourishment and check how the intervention will help the mothers in gaining knowledge and favourable attitude in maintaining nutritional level of their children.

MATERIAL AND METHODS:

Project was conducted with Quantitative approach, one group pre-test- post-test of Pre-experimental design. 15 mothers and their 15 children bellow the age of five years were considered for the study with the help of non probability sampling method. Data is collected from both mothers of under five and under five children. Chi – square, matched 't' test (Paired), Wilcoxon signed-rank test, Spearman's rank correlation coefficient, were used to interpret them . The research is carried out in the fallowing phases.

I-Pre Test Assessment phase: which includes,

1. Nutritional status assessment of children with age between 1-5 years. Nutritional status data were collected by measuring **Height** in centimetres**, Weight** in kilograms, **Mid Upper Arm Circumference(MUAC)** in centimetres, **Haemoglobin level-** estimation by invasive method, total **diet pattern record** of the child for a week, **physical examination** for identify nutritional status.

2. Identifying the factors causing under nutrition in children with age between 1-5 years.

3. Knowledge and Attitude assessment: knowledge by structured knowledge questionnaire and attitude by Likert scale among the mothers of children with age group of 1-5 years.

II-Intervention or Treatment phase:

Nurse lead interventional package constitutes:

1. Structured teaching programme regarding under nutrition.
2. Exhibition or displaying the of raw nutritious material of the local vicinity.

3. Demonstration of some of the nutritional rich food preparation by using easily and locally available food stuff.

4. Comprehensive nutritional counselling programme

III-Phase of Post Intervention Assessment:

1. Post Test Assessment: after one month of interventional package all the parameters of pre test were assessed.

RESULT: Result was presented in the fallowing aspect.

- **Socio demographic data:**

Socio-demographic information of mothers and their children with age 1-5 years were collected and presented in frequency, percentage.

- **Factors Contributing to Under nutrition:**

To explore factors contributing under nutrition 38 factors were used results depict that poverty with 100% become the one of the leading factors of under nutrition in all the cases. Economical factors cause 86.7%, Less birth space from one child to another cause 80%, faulty feeding practices cause 73.3%, Poor quality of housing cause 66.7%, poor environmental sanitation cause 60.0%, these are some of the leading factors of under nutrition.

- **Clinical recording cum evaluation Performa of Anthropometric measurements (weight height, , MUAC), laboratory investigation (haemoglobin level estimation), diet recall pattern, physical examination for nutritional status asessmnt of under five Children:**

The result depict that the mean pre test height found to be 82cm and the mean post test height found to be 82.54 cm. The mean pre test weight found to be 9.6 kg and the mean post test weight found to be 9.94 kg. The mean pre test MUAC was 13.22 cm and the mean post test MUAC was 13.32 cm. The mean pre test Hb level found to be 9.30 gm/dl and the mean post test Hb level found to be 9.59 gm/dl. The mean pre test diet recall caloric consumption was 840.86 and the mean post test diet recall caloric consumption was 1297.11. When we see and compare the pre and post means of height, weight, MUAC, Hb level, diet recall we found that change in the values in one month period of time.

Nutritional assessment of the under five is done on the physical areas like Skin, Hair, Nails, Neck, Eyes, Mouth (Lips, Gums, Tongue), Abdomen, Musculoskeletal (Extremities, Muscle) the signs and symptoms of under nutrition were subsides to some extant after having the

intervention over a period of one month. These improvements in post test values indicate the nurse lead interventional programme effectiveness.

- **Knowledge level of mothers regarding under nutrition:**

Mothers on pre-test knowledge level regarding under nutrition indicates that none of the mothers had adequate knowledge, 20% had moderate or average knowledge and 80% had inadequate or lack of knowledge regarding under nutrition. Post test result indicates, no one had inadequate or lack of knowledge, 20% had moderate knowledge and 80% had adequate knowledge regarding under nutrition.

- **Attitude level of mothers regarding under nutrition.**

Attitude level of mothers about under nourishment depicts that in pre test none of mothers had unfavourable attitude, 93.3% of them had neutral attitude and 6.6% of them had favourable attitude. In the post test all that is 100% mothers had favourable attitude.

- **Impact of nurse lead interventional package on knowledge and attitude of mothers regarding under nutrition**

On comparison, post test values found to be more among the mothers. mean percentage of knowledge 79.2 and standard deviation percentage 6.95 of post test are quite higher than the pre test mean % knowledge score that was 41.3% with standard deviation of 9.97%. total 37.72% of knowledge improvement was seen among the mothers . 't' test (paired) values clearly depicts that there is a difference in pre test and post test values and found statistically significant at 0.05 level ($p<0.05$) with 't' test value of -19.898.

Aspects	Max. Score	Mothers Knowledge				't' Test(Paired)	p-value
		Mean	SD	Mean (%)	SD (%)		
Pre test	44	18.2	4.39	41.3	9.97	-19.898	* < .001
Post test	44	34.87	3.06	79.2	6.95		
Enhancement	44	16.6	3.24	37.72	7.36		

In the same way the post test values of mothers attitude found more with mean percentage attitude scores 85.8 and standard deviation percentage 2.5 on comparison with pre test attitude values with mean percentage attitude score 66.7 with standard deviation of 6.6. The total difference in mean percentage of attitude scores among pre and post test found to be 19.8 and found statistically significant at 0.05 level ($p<0.05$) with 't' test(paired) value of -13.839. The

improvement in post test values indicates the impact of nurse lead interventional package on mothers of children with age group of 1-5 years.

Aspects	Max. Score	Mothers Attitude				't' Test(Paired)	P value
		Mean	SD	Mean (%)	SD (%)		
Pre test	170	113.5	11.3	66.7	6.6	-13.839	* < .001
Post test	170	146.6	4.3	85.8	2.5		
Enhancement	170	33.66	9.3	19.8	5.4		

➢ **Correlation of mothers knowledge and attitude scores regarding under nutrition.**

The Correlation of mothes knowledge and attitude scores about under nutrition. In pre-test the mothers had 41.3% mean knowledge with 66.7% mean attitude scores. Whereas in post-test they had 79.2.0% mean knowledge with 85.8% mean attitude scores. There exists a positive relationship between knowledge and attitude of mothers in pre-test (r = +0.167, P = 0.552) and in post-test (r = + 0.656, P = 0.008) regarding under nutrition. That indicates higher the knowledge score more favourable is the attitude of mothers.

Aspects	Category	Max. Score	Mothers scores				Spearman's Rho Correlation Coefficient value	p-value
			Mean	SD	Mean%	SD%		
Pre-test	Knowledge	44	18.2	4.39	41.3	9.97	+0.167	0.552
	Attitude	170	113.5	11.3	66.7	6.6		
Post-test	Knowledge	44	34.87	3.06	79.2	6.95	+ 0.656	0.008
	Attitude	170	146.6	4.3	85.8	2.5		

➢ **Association between mothers pre-test knowledge and attitude scores with socio demographic variables.**

result depicts that significant association between socio demographic variables like religion (χ^2 =9.23, p-value 0.002) and education (χ^2=10.31, p-value 0.016) with pre test knowledge scores of mothers and there is no association found between age (χ^2= 2.500, p-value 0.28) with pre test knowledge scores of mothers. Hence it denotes that religion and education demographic variable may influence the knowledge, which shows importance for education to mothers. There is no significant association found in demographic variables like Occupation (χ^2 =4.28, p-value 0.117), Income of the family per month (χ^2=2.50, p-value 0.287), Type of family (χ^2 =0.41, p-value 0.519) Housing condition (χ^2 =0.93, p-value 0.62), Health care service (χ^2=0.26, p-value 0.60) and Source of information (χ^2 =1.198, p-value 0.549) with pre test knowledge scores of mothers.

There is significant association between Income of the family per month (χ^2 =6.96, p-value 0.031) and Type of family (χ^2=4.286, p-value 0.038) with pre test attitude score of mothers. There is no association found between variables such as age of the mother (χ^2 =1.607, p-value 0.448), religion (χ^2=0.165, p-value 0.685) and education (χ^2 =4.286, p-value 0.232), occupation (χ^2= 1.224, p-value 0.542), Housing condition. (χ^2 =2.94, p-value 0.229), Health care service (χ^2=0.938, p-value 0.333) and Source of information (χ^2 =1.607, p-value 0.448) with pre test attitude score of mothers.

DISCUSSION:

The outcome of the results finding were discussed based on supporting literature in the light of the objectives of this study.

In this study we found major factors responsible to Under nutrition shown that poverty with 100%. Economical factors cause 86.7%, Less birth space from one child to another cause 80%, faulty feeding practices cause 73.3%, Poor quality of housing cause 66.7%, poor environmental sanitation cause 60.0%, large family size cause 53.3%, uneducated mothers. Similar results found in the studies conducted in East Belesa District Ethiopia, Udupi district of Karnataka, and poor, average revenue generating countries. The main risk factors what we found are artificial food, low economic conditions, early pregnancy, less maternal education, no proper birth spacing, supplementary diet, cyclical food scarcity, poor supportive feeding practices [7,8,9,10]

Knowledge and attitude level of mother about under nutrition of this study results shows that none of the mothers had adequate knowledge, 20% had moderate or average knowledge and 80% had inadequate or lack of knowledge regarding under nutrition and in attitude none none of mothers had unfavourable attitude, 93.3% of them had neutral attitude and 6.6% of them had favourable attitude. Similar studies were conducted Nutrition Rehabilitation Centre (NRC), Tirupati, 57.5% have good knowledge followed by 30% have average, 12.5%have poor knowledge. The study conducted in Dehradun district Majority mothers had (56%) moderately knowledge, adequate knowledge (58%). Study conducted in Oman conducted shows lack of knowledge and unfavourable attitude are main cause of under nutrition[11, 12, 13].

Impact of nurse lead interventional package on mothers knowledge and attitude regarding under nutrition of this study results shows total 37.72% of mean knowledge score improvement and 19.8 mean attitude improvement was seen among the mothers. Similar study was carried out in Madagascar by essential nutrition actions programme and results found that there is an improvement in knowledge from 23% to 93% on various aspect of under nutrition[14]. Another study conducted in south west Nigeria by using nutritional education package and mothers showed good impact on their knowledge, attitude and practice on child nutrition[15].

In the aspect of correlation, a positive relationship between knowledge and attitude of mothers in pre-test ($r = +0.167$, $P = 0.552$) and in post-test ($r = + 0.656$, $P = 0.008$) regarding under nutrition. That indicates higher the knowledge score more favourable is the attitude of mothers. Similar study conducted in Dehradun district result revealed that proper knowledge of mothers regarding nutritional aspect of under-five children will improve exponentially the attitude and by have good practice to prevent malnutrition[12].

CONCLUSION:

Under nutrition among under five children is serious and hidden factor for child mortality and morbidity rates. The nurse lead intervention package was helped the mother to enhance their knowledge and attitude about under nutrition and also helps to maintain the nutritional status of their children. The interventional programs like nurse lead interventional package has to be carried out more in the rural and urban areas and can be done over larger population to have an effective decline of under nourishment rates in children with the age of 1-5 years.

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