



Research Article

## A STUDY TO EVALUATE THE EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWLEDGE REGARDING SELECTED MICRONUTRIENT DEFICIENCIES AND ITS PREVENTION AMONG MOTHERS OF UNDER FIVE CHILDREN

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### ARTICLE INFO

**Article History:**

Received 6<sup>th</sup> September, 2019

Received in revised form 15<sup>th</sup>

October, 2019

Accepted 12<sup>th</sup> November, 2019

Published online 28<sup>th</sup> December, 2019

**Key words:**

PTP, VAD, NA, WHO, UNICEF, TSH, IDA

### ABSTRACT

**Background:** Nutritional condition is an important factor for optimum growth and it should neither be inadequate nor excessive, special micronutrients those we need in small amount. Improving nutrition and health enhance the learning ability of the children.<sup>1</sup>

**Objectives:** To assess the knowledge and effectiveness of planned teaching programme on micronutrients deficiencies and its prevention among mother's of under five children and to find out association between pretest knowledge score with demographic variables.

**Methods:** The present study was conducted among 100 mothers of under five children, at four Anganwad is in Belgaum city, with one group pre-test and post-test, Pre-experimental design. The pre validated structured questionnaire were prepared on knowledge of micronutrients deficiency among mothers of under five children.

**Findings:** Among the participants the pretest knowledge scores/percentage were 24(24%) had poor knowledge, 49(49%) had average knowledge and 27(27%) had good knowledge. After the Planned teaching Programme the posttest scores percentage were 7(7%) had poor knowledge, 29(29%) had average knowledge, 64(64%) had good knowledge scores. Source of information and family type has significant association with micronutrient deficiency and its prevention.

**Conclusion:** The Planned Teaching Programme (PTP) was highly significant in enhancing the knowledge on micronutrient deficiencies and its prevention among the mothers of under-five children.

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### INTRODUCTION

Nutrition status of the child today reflects a healthy and productive generation in future.<sup>1</sup> Nutritional condition is a important factor for optimum growth and it should neither be inadequate nor excessive special micronutrients those we need small amount. Improving nutrition and health enhance the learning ability of the children.<sup>1</sup> Nutrients are classified in to two groups that are macronutrients and micronutrients. Macronutrients which constitute carbohydrate, fat, and proteins are required in large quantities and are the building block of the body. Micronutrients consist of vitamins and minerals and though required in very small quantities play an essential role in metabolic pathway and immunity, micronutrient deficiencies such as nutritional anaemia (especially iron deficiency) which is very common in Indian children with vitamins deficiencies like rickets, scurvy and vitamin A deficiencies are some of the common conditions which require prompt attention.

<sup>2</sup>Micronutrients deficiencies, also known as “hidden hunger” is determined and aggravating factors for health status and quality of life. Three nutritional problems that have serious consequences are deficiencies of iron, vitamin A and Iodine.

<sup>3</sup>According to WHO prevalence of iron deficiencies in infants and children aged 1–2 years, 50%; preschool-aged children, 25%, of vitamin A deficiency is WHO showed that 254 million preschool-aged children throughout the world have low serum retinol levels and can therefore be considered to be clinically or sub clinically vitamin A deficient.<sup>4</sup>

An estimated 40% of the world's severely malnourished special micronutrients deficiency of under-5 children live in India and one in every three malnourished child in the world lives in India.<sup>5</sup> The level of child under nutrition is unacceptably high in almost all states, except some like Goa, Kerala, Manipur, Mizoram, Punjab and Sikkim.<sup>6</sup> About 2.5 million children of our India country are affected by blindness because of lack of vitamin A.<sup>7</sup>

Anaemia is most common micronutrients deficiency in children and often complex finding throughout childhood it affect about 47% of under five children, Food and nutrition security of the children and population levels is a fundamental

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right. Micronutrient deficiencies directly affects children's physical and cognitive growth and increases susceptibility to infection and diseases with frequent episodes of illness and longer recovery period ending up in growth retardation and poor cognitive development.<sup>8</sup>

**Objectives:** The objectives of the study were to assess the knowledge and to evaluate the effectiveness planned teaching programme regarding micronutrient deficiencies and its prevention among the mothers of under five years children. This study also aimed to find out the association between pretest knowledge score with demographic variables.

## METHODS AND MATERIALS

**Research Approach:** Quantitative.

**Research Design:** A One group pre- test - post –test, pre experimental design

**Study Setting:** 4 Anganwadis in Belgaum city.

**Target Population:** Mothers of under five children.

**Sample:** 100 Mothers of under five children.

**Sampling technique:** Non-probability convenience.

**Development of tool for data consists of two parts Part A:** It is designed to obtain general information of the respondents and it consists of ten items related to the demographic variables. Part B: It consists of thirty items regarding knowledge of micronutrient deficiencies and its prevention among the mothers of under five years children.

**Validity of instrument:** The MCQ tool and STP were given to 10 experts.

**Reliability:** The tool was administered to 6 samples selected asper the set criteria. The scores were calculated. The reliability was established by using split half method.

**Procedure for Data Collection:** Permission was obtained from CDP office Belgaum, Karnataka, to conduct the study. The investigator introduced herself and explained the purpose of the study to the mothers. The informed written Consent was taken from each mother. The pre-test was conducted, among the mothers on micronutrient deficiency and its prevention, after the pretest the Planned Teaching Programme (PTP) was administered among the mothers on micronutrient deficiency and its prevention. The post-test was carried out after 7 days using the same pretest structured knowledge questionnaire.

**Inclusion Criteria:** Mothers of under five children including both genders, those who are willing to participate the study.

**Exclusion Criteria:** Mothers who were not available at time of the study. Mothers who were terminally ill were excluded from this study.

**Analysis of Data:** Both descriptive and inferential statistics analyzed. The knowledge of mothers of under five children regarding micronutrient deficiency and its prevention. Assessed before and after the administration of PTP would be calculated using frequency, mean and SD and inferential statistics used to analyze Paired ‘t’ test.

## RESULTS

The data analysis is planned to include descriptive and inferential statistics.

**Section I:** Description of the demographic variables.

**Section II:** Analysis Knowledge of mothers of underfive children.

**Section III:** Analysis of effectiveness of PTP regarding micronutrient deficiency and its prevention.

**Section IV:** association between pertest knowledge score with demographic variables

Section I, Description of the Demographic Variables of mothers of underfive children.

**Table 1** Frequency and percentage distribution Of Mothers of under Five Children according To Socio-Demographic Data n=100

S.NO	Demographic variable	Frequency	Percentage (%)
	<b>Age</b>		
1.	20-30	78	78%
	30-40	20	20%
	40-50	2	2%
	<b>Religion</b>		
2.	Hindu	58	58%
	Christian	16	16%
	Muslim	26	26%
	<b>Educational status</b>		
3.	Illiterate	12	12%
	Primary	48	48%
	Secondary	28	28%
	Graduate	11	11%
	Postgraduate	1	1%
	<b>Family monthly income</b>		
4.	RS.300-500	5	5%
	500-1000	28	28%
	5000-10000	50	50%
	10000-20000	17	17%
	<b>Dietary pattern</b>		
5.	Vegetarian	32	32%
	Non vegetarian	20	20%
	Mixed	48	48%
	<b>Source of information</b>		
6.	Television	61	61%
	Mass media	16	16%
	Radio	10	10%
	others	12	12%
	<b>Type of the house</b>		
7.	Pucca house	44	44%
	Semi pucca house	27	27%
	Kucha house	29	29%
	<b>Type of family</b>		
8.	Nuclear family	28	28%
	Joint family	60	60%
	Extended family	11	11%
	Others	1	1%
	<b>History of micronutrients</b>		
9.	Yes	7	7%
	No	93	93%

Table 1: The results showed that the majority of mothers 78 (78%) were between age group of 20-30 years where 20 (20%) were between 30-40 and only 2 (2%) were 40-50, majority of mothers according to religion 58(58%) were Hindu, where 28(28) were Muslim, and only 16(16%) were Christian. In educational status 12(12%) were illiterate where 48(48%) were completed primary , 28(28%) were completed secondary, 11(11%) mothers completed graduate degree where only 1(1%) was postgraduate, majority of mothers 50(50%) had an

income of 5000-1000 Rs per month, 5 (5%) mothers had an income between 300- 500 Rs per month while 28(28%) had an income of and 17(17%) had an income of above 10000 Rs per month.

Majority had 48(48) mothers had a mixed diet, majority of mothers source of information 61(61%) were television, mothers belongs to joint family, and majority had no history of micronutrient deficiency.

**Section II:** Analysis Knowledge of mothers of under five children.

**Table 2** pre-test post-test knowledge frequency and percentage distribution of knowledge scores of subjects regarding micronutrient deficiency and its prevention (n=100)

Knowledge level	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Poor(1-10)	24	24%	7	7%
Average (11-13)	49	49%	29	29%
Good(14-30)	27	27%	64	64%

**Table 2:** Describes that pre-test knowledge score shows that 24(24%) had poor knowledge, 49(49%) had average knowledge and 27(27%) had good knowledge scores. In the post-test knowledge i.e 7(7%) had poor knowledge, 64(64%) had average knowledge, and 29(29%) had gained good knowledge scores. So the table revealed that level of knowledge score was higher after administration of Planned Teaching Programme (PTP) on micronutrient and its prevention among mothers of under five children.

**Section III:** Analysis of effectiveness of PTP regarding micronutrient deficiency and its prevention.

**Table 3** Comparison of pre and Post-test knowledge levels in the study. (n=100)

Area of analysis	Mean	Median	Mode	S.D	Range
Pre-test (x)	12.2	12	12	2.4	11
Post-test (y)	17.2	19	12	4.8	19
Difference(x-y)	5	7	0	2	8

**Table 3:** Revealed that the pre-test mean knowledge scores were 12.2, and the Standard deviation of pre-test was 2.4, whereas in the post-test mean knowledge scores was 17.2 and standard deviation was 4.8. The range between the higher scores and the lowest scores in pre-test was 1, where the post-test range was 19. The difference between mean of pre-test and post-test is 5, whereas standard deviation difference is 2. So the table revealed that level of knowledge score was higher after administration of Planned Teaching Programme (PTP) on micronutrient and its prevention among mothers of under five children

**Section IV:** association between pretest knowledge score with demographic variables

Table 4 Findings related the association between the pre-test knowledge scores and the socio-demographic variables by Chi-Square ( $\chi^2$ ) test. The calculated Chi-Square value for family income, type of house and source of information was significant at  $p < 0.05$  level of whereas Chi-Square calculated value for Age, Religion, Education, family type, history of micronutrient deficiency and diet was not significant with

mothers knowledge. This could be due to small sample size but a large sample size would have had a better association

**Table 4**

SNO	Demographic variable	Good	Average	Poor	$\chi^2_{CALVAL}$	'p-valued	(d)
1.	<b>Age in years</b>						
	20-30	12	46	20	2.1	0.717	4
	30-40	2	14	4			
	40-50	0	2	0			
2.	<b>Religion</b>				6.1	0.187	4
	Hindu	6	35	17			
	Christian	2	13	1			
	Muslim	6	14	6			
3.	<b>Educational status</b>				4.9	1.678	4
	Illiterate	0	8	4			
	Primary	6	29	13			
	Secondary	6	17	5			
	Graduate	2	7	2			
4.	<b>Family income</b>				30*	0.000	6
	RS.300-500	0	0	5			
	500-100	0	17	11			
	5000-10000	9	34	7			
	10000-20000	5	11	1			
5.	<b>Dietary pattern</b>				4.7	0.16	4
	Vegetarian	2	19	11			
	Non vegetarian	3	14	3			
	Mixed	9	29	10			
6.	<b>Source of information</b>				18.3*	0.0198	11
	Television	10	31	20			
	Mass media	2	3				
	Radio	1	9	0			
	Others						
7.	<b>Type of the house</b>				14.4*	0.006	4
	Pucca house	4	29	11			
	Semi pucca	4	11	12			
	Kucha house	6	22	1			
8.	<b>Type of family</b>				6.3	0.387	6
	Nuclear family	2	20	6			
	Joint family	9	36	1			
	Extended family	3	6	2			
	Others	0	0	1			
9.	<b>History of micronutrients</b>				3.8	0.145	2
	Yes	0	4	4			
	No	14	58	2			

$\chi^2 =$  Chi-Square df: Degree of freedom \*Significant ( $P < 0.05$ )

**DISCUSSION**

The findings of the study are discussed in relation to objectives, need for the study and related to literature of the study. The present study was undertaken to evaluate the effectiveness of PTP among mothers of under five children on selected micronutrient deficiency and its prevention at selected Anganwadis, Balagavi.

**Section 1: Description of the demographic variables**

- Out of 100 mothers majority them 78(78%) their age was between 20-30 years,
- Majority of mothers 58(58%) have Hindus religion,
- Majority of mothers 48(48%) have been completed primary education,
- Most of mothers 48(48%) had mixed in dietary pattern,
- Majority 61(61%) of mothers obtained information regarding to micronutrient deficiency & its prevention from Television,
- Majority of family type was joint family 61(61%) ,
- Majority of them 93(93%) of mothers had no history about micronutrient deficiency from family members.

**Section II:** Analysis of Knowledge of mothers of underfive children.

Pre-test knowledge score shows that 24(24%) had poor knowledge, 49(49%) had average knowledge and 27(27%) had good knowledge scores. In the post-test knowledge i.e 7(7%)

had poor knowledge, 64(64%) had average knowledge, and 29(29%) had gained good knowledge scores.

Similar study has been conducted by Mrs.Punarva.S.Kini (2016),the findings revealed that, pre-test, knowledge scores of mothers on micronutrient deficiencies, 69(86.25 percent) mothers had Inadequate knowledge and 11(13.75 percent) had moderately adequate knowledge, and post-test knowledge scores were 68(85 percent) mothers had Adequate knowledge and 12(15 percent) had moderately adequate knowledge.

**Section III:** Analysis of effectiveness of PTP regarding micronutrient deficiency and its prevention.

The pre-test mean knowledge scores was 12.2, and the Standard deviation of pre-test was 2.4, whereas the post-test mean knowledge scores was 17.2 and standard deviation was 4.8. The range between the higher scores and the lowest scores in pre-test was 1, where the post-test range was 19. The difference between mean of pre-test and post-test is 5, whereas standard deviation difference is 2.

**H<sub>1</sub>:** The mean post-test knowledge scores will be higher than for mean pre-test knowledge scores.

**Hence H1 is accepted.**

Similar study has been conducted by Mrs.Punarva.S.Kini (2016),the mean post-test knowledge score (32.15) was higher than mean pretest knowledge scores (12.00). The mean difference between pre-test and post-test score (20.15) of knowledge is significant at 0.001 level, as  $t = 15.57 (P < 0.001)$ . Hence the research hypothesis H1 was accepted.

**Section IV:** association between pretest knowledge score with demographic variables.

The calculated Chi-Square value for family income, type of house and source of information was significant at  $p < 0.05$  level of whereas Chi-Square calculated value for Age, Religion, Education, family type, history of micronutrient deficiency and diet was not significant with mothers knowledge. This could be due to small sample size but a large sample size would have had a better association.

**H<sub>2</sub>:** There will be significant association between pre-test knowledge scores with selected demographic variables among mothers of Under five years children regarding micronutrients deficiencies and its prevention.

**Hence H2 is accepted.**

Similar study has been conducted by Mrs. Punarva.S.Kini (2016), In this study there is significant association between pre-test knowledge score and demographic variable like child's gender (Chi-square = 7.557, df – 1,  $p = 0.006$ ),but there was no significant association between the pre-test knowledge and any other demographic variables like income of family, number of children, source of information, and child's age.

## **CONCLUSION**

**From the Present Study Following Conclusions are Been Made**

- ✓ The investigator concludes that administration of Planned Teaching Programme on micronutrient deficiency and its prevention is good method of teaching

- ✓ Planned Teaching Programme is a logical solution for imparting knowledge regarding micronutrient deficiency and its prevention among mothers of under five children.
- ✓ Administration of Planned Teaching Programme will enable the mothers to provide holistic self care as well as comprehensive care to the society on prevention aspect of micronutrient deficiency.

### **Nursing Implications**

The findings of the study have implication for nursing practice, nursing education, nursing administration and nursing research. Education, nursing administration and nursing research.

### **Nursing Practice**

This study finding will create the awareness among nurses about their importance of micronutrient deficiency and its prevention. This will help them to prevent increased mortality rates among under five children.

### **Nursing Education**

This study would help the student nurses to understand the importance of educating mothers of under five children regarding micronutrient deficiency and its prevention.

### **Nursing Administration**

The nursing administrators should arrange continuing nursing education programme for nursing personnel on prevention of micronutrient deficiency and its prevention in children.

### **Limitation**

#### **The Limitations Recognized in the Study Were**

- The study was conducted only to the mothers of under five children.
- The study was limited to measure the knowledge of the mothers related to micronutrient deficiency and its prevention.
- The size of sample size was small which imposes limitations on generalization.

### **Recommendations**

Based on the findings of the study, the following recommendations have been made for the study

- Similar study can be replicated on a large sample for better generalization.
- A similar study can be done to assess the attitude and practice among staff nurse regarding micronutrient deficiency and its prevention.
- Study can be done to find out nutritional practices of mothers for under five children
- Comparative study can be done due to assess the knowledge of mothers regarding to micronutrient deficiency and its prevention in urban and rural area.
- A study can be conducted by assessing only knowledge by large sample.

### **Ethical Standards**

This study was conducted after getting approval from the Institution Ethics Committee and after obtaining written consents from all subjects. Source of funding: The author's did

not receive any financial support from any third party related to the submitted work.

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### How to cite this article:

Amino Mohamad, Gavishiddhayya Salimath and Sumitra LA (2019) 'A Study to Evaluate the Effectiveness of Planned Teaching Programme on Knowledge Regarding Selected Micronutrient Deficiencies and its Prevention Among Mothers of Under Five Children', *International Journal of Current Advanced Research*, 08(12), pp. 20737-20741. DOI: <http://dx.doi.org/10.24327/ijcar.2019.20741.4060>

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