

# A Study To Assess The Effect Of Nursing Education Module On Vitamin-A Requirements Among Mother Of Under Five Children At Selected Rural Areas Of Vadodara District

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## Abstract

**Introduction:** Vitamin A is essential for eye health and the proper functioning of the immune system. It is found in foods such as milk, liver, eggs, red and orange fruits, red palm oil and green leafy vegetables, although the amount of vitamin A readily available to the body from these sources varies widely. Vitamin A deficiency is a major nutritional problem among under-five children in developing and under developed countries. Vitamin A deficiency is a systemic disease with major effects on eye this deficiency is usually associated with malnutrition, chronic diarrhoea, malabsorption syndrome hepatic insufficiency and prematurity.<sup>1,2</sup>

## Objectives

- To assess the knowledge of mothers of under five children regarding vitamin-A deficiency.
- To implement nursing educational module on Vitamin-A deficiency.
- To analyze the effectiveness of nursing educational module on knowledge regarding vitamin-A deficiency among mothers of under five children.
- To find association between the demographic variable and knowledge regarding vitamin- A among the mothers of under five children.

**Materials and Methods:** A descriptive survey pre-test and post-test design was adopted. The study was conducted among 100 mothers of under-five children mother selected through convenient sampling from villages of waghodia taluka. A structured knowledge questionnaire was used to assess participants' knowledge before and after the administration of the information module. Data were analysed using descriptive and inferential statistics.

## Results:

The findings revealed a significant improvement in post-test knowledge scores compared to pre-test scores. the mean post-test knowledge score was significantly higher than the pre-test score ( $p < 0.05$ ), indicating that the information module was effective in enhancing the mothers' knowledge regarding vitamin A deficiency and its prevention.

**Conclusion:** The study concludes that structured educational materials such as information module are effective tools in improving awareness among mothers about vitamin A deficiency and preventive practices. Regular health education programs targeting mothers can contribute to the reduction of vitamin A deficiency-related morbidity among under-five children.

## Ethical approval

The research was completed with appropriate research guidelines, the study was proposed and submitted to the ethical committee, Parul University, Institutional Ethical Committee for Human Research (PUIECHR/PIMSR/00/0/), Limda, Vadodara, and expert of the committee approved the study.

**KEY WORDS:** vitamin A requirements, Nursing Education module, Knowledge, Under-five children, Mothers.

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## 1. INTRODUCTION

Vitamin A is essential for eye health and the proper functioning of the immune system. It is found in foods such as milk, liver, eggs, red and orange fruits, red palm oil and green leafy vegetables, although the amount of vitamin A readily available to the body from these sources varies widely. Vitamin A deficiency

is a major nutritional problem among under-five children in developing and under developed countries. Vitamin A deficiency is a systemic disease with major effects on eye this deficiency is usually associated with malnutrition, chronic diarrhoea, malabsorption syndrome hepatic insufficiency and prematurity.<sup>1,2</sup> Vitamin-A deficiency is seen more commonly in under five children (1-5 yrs.) Vitamin-A deficiency affect the eyes. It causes "exophthalmia" which is characterized by series of clinical signs. These are include- Night blindness, Conjunctival xerosis, Bitot-spot, Corneal ulceration, Keratomalacia and Corneal scar. Dietary deficiency of vitamin-A most commonly and importantly affects the eyes, and it can lead to blindness. Exophthalmia, meaning drying of eyes is the term now used to cover the eye manifestations resulting from vitamin-A deficiency.<sup>3,4</sup>

Vitamin-A Deficiency (VAD) occurs where diets contain insufficient vitamin A for meeting the needs associated with growth and development, physiological functions, and periods of added stress due to illness. Vitamin-A Deficiency (VAD) is a significant public health problem in over 75 countries. The Children of developing Countries suffer most from this condition, which is largely preventable. It is estimated that up to 230 million Children are at risk of VAD (Vitamin-A Deficiency) and over one million VAD (Vitamin-A Deficiency) associated Childhood deaths occur annually. Vitamin-A (retinol and beta carotene) is indispensable for Normal vision. It helps to form retinal pigments, rhodopsin and iodeosin for vision in dim light. It is essential for normal functions of glandular and epithelial tissues of Skin, Eyes, Digestive, Respiratory, Urinary and Reproductive system. It promotes bone and teeth development. The recommended daily allowance for Infants is 300-400 micrograms and adolescents 750 micrograms.

Night blindness is one of the first signs of vitamin-A deficiency. Xerophthalmia and complete blindness can also occur since Vitamin-A has a major role in photo transduction. Approximately 2,50,000 to 5,00,000 Malnourished Children in the developing world go blind each year from a deficiency of vitamin-A, approximately half of which die within a year of becoming blind. The most common cause of blindness in developing countries is vitamin-A deficiency (VAD). The World Health Organization (WHO) estimates 13.8 million Children to have some degree of visual loss related to VAD (Vitamin-A Deficiency). Night blindness and its worsened condition, Xerophthalmia, are markers of VAD (Vitamin - A Deficiency), as VAD (Vitamin-A Deficiency) can also lead to impaired immune function, cancer, and birth defects.

India was the first country to launch a National Program of Vitamin-A distribution for prevention of Blindness in Children. Under this programme, a massive dose of Vitamin-A is given once in six months to Preschool Children. Nutrition education to Mother aimed at promoting the consumption of Vitamin-A rich foods for the Children is also given. The programme is implemented through Primary Health Centres and actual distribution is done by Paramedical Workers. The National Programme for prophylaxis against Blindness due to Vitamin-A deficiency was launched in 1970. In 1992 when CSSM Programme was launched, it was merged with the same currently it forms the parts of this RCH Programme.<sup>6,7</sup>

## 2. MATERIAL AND METHOD

A quantitative research approach was adopted for the study to assess the effectiveness of nursing education module at Waghodia taluka Vadodara (Gujarat), mother of under five children vitamin-A requirements Waghodia Taluka Gujarat are the sample for the study and sample size was 100. The sampling techniques adopted from the study was non probability convenient sampling technique.

Criteria for the sample, inclusion criteria mothers of under five children. Sociodemographic data were assessed using a self-structured knowledge questionnaire. The data collection tool was sent to 5 experts for validation out of whom 4 received back with their valuable suggestions and comments on the study tool. 8 Sample were taken for the pilot study. section II - self-structured knowledge questioners containing 30 items.

## 3. RESULT

Data was Arranged, Organized and Presented as follows:

**Section-1:** Distribution of socio-demographic variables of mothers of under-five year children.

**Section-2:** Effectiveness of nursing education module on knowledge regarding and its prevention vitamin- A requirement among mothers of under-five year children from villages of Waghodia taluka.

**Section-3:** Association between post-test knowledge score with selected demographic variables.

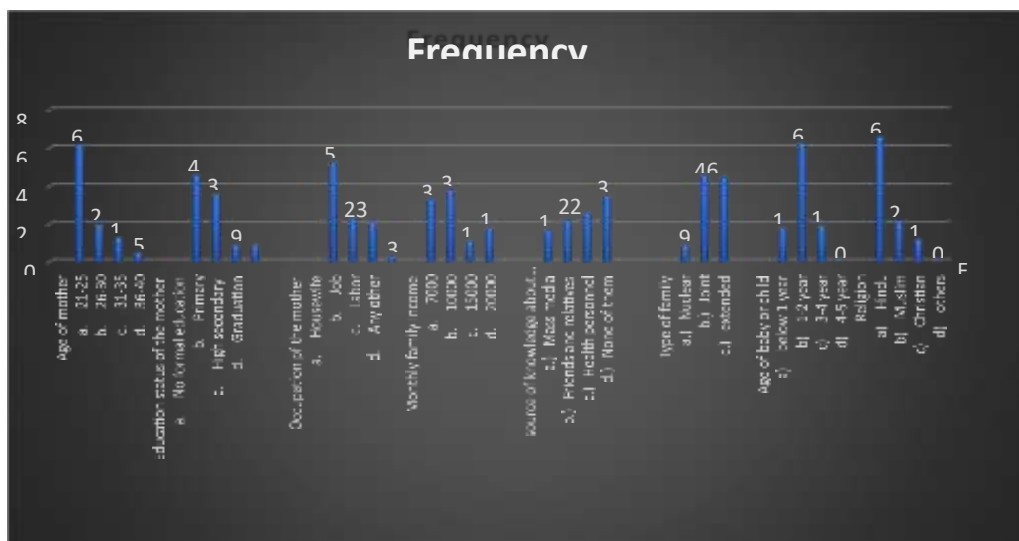
**Table 1: Frequency and Percentage Distribution of Demographic Variables**

n= 100

SR NO	PERSONAL DATA		FREQUENCY (f)	PERCENTAGE (%)
1.	Age	21-25 year	62	62%
		26-30 year	20	20%
		31-35 year	13	13%
		36-40 years	5	5%
2.	Education	Illiterate	46	46%
		Primary	36	36%
		Higher secondary	9	9%
		Graduation and above	9	9%
		House wife	53	53%
3.	Occupation	Job	23	23%
		Labor	21	21%
		Other	3	3%
4.	Socio economic status	Below Rs:7000	33	33%
		Rs:70001-10000	38	38%
		Rs:100001-15000	11	11%
		Rs:15001 -200000 and above	18	18%
5.	Source of information	Mass media	17	17%
		Friends	22	22%
		Professional	26	26%
		Health professional	35	35%
6.	Type of family	Nuclear	9	9%
		Joint	46	46%
		Extended	45	45%

7.	Age of child	Below 1 year	18	18%
		1-2 year	63	63%

Table 1 reveals that out of 100 respondents under study, According to their age majority 62% were in 21-25 years, followed by 17% were in 26-30 years of age, 12% were in 31-35 years of age and 5% were in 36-40 years of age. As per level of education of mother, maximum 44% were no formal education (illiterate), 36% had primary education, 8% had higher secondary education and 9% had graduation. With regard to occupation of mother of under-five children, majority 53% were housewife, 38% were farmer, and 10% were in private job. As per religion of under-five mothers, majority 66% belongs to Hindu, 22% belongs to Muslim and 12% belongs to Christian. Regarding source of information, maximum 35% were no any source of knowledge, 26% had knowledge from health personal, 22% had knowledge from friends and family and 17% had knowledge from mass media. As per family type of under-five mothers were 46% lived in joint family, 45% belongs to extended family and 9% from nuclear family. As per duration of child of mothers, 18% had for below 1 years, 63% had 2-3 years, 19% for above 3-4 years and 0% had 4-5 years of child. According to family income of under-five mothers, maximum 38% had income of Rs 10,000 per month, 33% had Rs 7000 per month, 18% had Rs 20000 and 11% had Rs 15000 per month.



Graph 1: frequency distribution of socio demographical variable

**4.1 Table 2: Knowledge of mother of under five children Regarding vitamin A requirements**

Knowledge of 100 mother of under five children was assessed using a structure interview schedule and analyzed using descriptive statistics.

Category of knowledge	Score
Poor	0-10
Average	11-20
Good	21-30

shows the distribution category of knowledge score.

- Mother of under five children who had score of 0-10, having poor knowledge.
- mother of under five children who had score of 11-20, having average knowledge.
- Mother of under five children who had score 21-30, having good knowledge.

**Table-4.2.2 Frequency and percentage distribution of knowledge of mother of under five children**

Level of knowledge	Pre-test		Post-test	
	F	%	F	%
Poor	45	45%	00	00%
Average	53	53%	19	19%
Good	2	2%	81	81%

Data in **Table 4.2.2** shows that prior to the administration of nursing education module, (45%) of the sample had poor knowledge (score: 0-10) regarding vitamin A requirements. While average (score: 11-20) was observed in 53% of the sample and 2% have good knowledge (score 21-30). In the post-test there was marked improvement in the knowledge of the sample with majority (81%) gained good knowledge and (19%) gained average knowledge.

**Table 4.2.3 Comparison between the pre-test and post-test knowledge score.**

n-100

knowledge score	Range	Mean	Median	Mode	SD	Mean %	Mean percentage difference
Pretest	2-14	12.04	12.00	9.00	3.99	40.13%	36.57%
Post-test	14-25	23.01	23.00	24.00	2.87	76.70%	

The above table reveals that mean score on pre-test knowledge is  $12.04 \pm 3.99$  and mean percentage is 40.13%, median is 12.00 and mode is 9.00. Whereas in post-test mean score is  $23.01 \pm 2.87$  and mean percentage is 76.70%, median is 23.00 and mode is 24.00 which reveals the difference in mean percentage is 36.57%.

**Table 4.2.4 Effectiveness of nursing education module on knowledge regarding vitamin A requirements.**

Table:- Mean, Standard deviation, mean difference and paired 't' value on knowledge regarding vitamin A requirement. Before and after given nursing education module.

Knowledge	Mean	SD	Df	Paired 't' value
Pretest	12.04	3.99	99	22.37
Post test	23.01	2.87		

\*Significant at  $p \leq 0.05$  level; Table value = 2.000

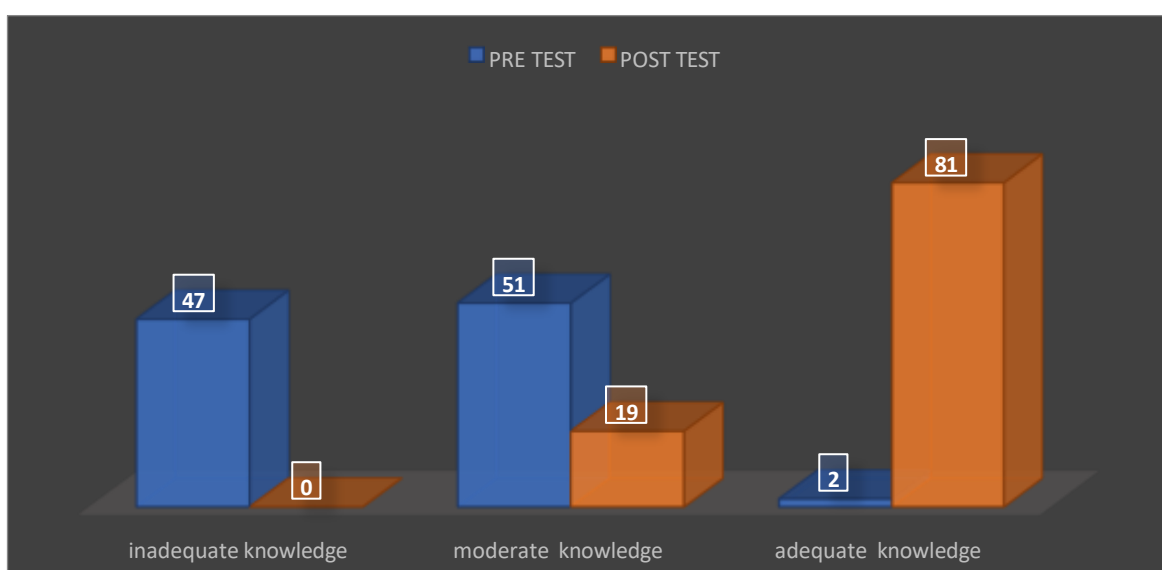
Thus, it becomes evident that nursing education module is effective in improving the knowledge regarding vitamin A requirements among mother of under five children.

**Table 3: Effectiveness of nursing education module on knowledge regarding worm infestation and its prevention among mothers of under-five year children from villages of Waghodia taluka.**

	Mean	SD	Mean D	t value	df	P value
Pre-test	0.58	0.54	0.63	19.40	99	0.000S
Post-test	1.80	0.40				
difference	1.22	0.14				

\* $p < 0.05$  level of significance

Table 3 depicts the effectiveness of nursing education module on knowledge regarding vitamin A deficiency to mothers of underfive children which was tested by using paired t test. Mean post-test score was 1.80 was higher than pretest mean score 0.58 with mean difference of 1.22 and obtained (t value=19.40, df=99, p=0.000) was found statistically highly significant at  $p < 0.05$  level. Findings indicate that nursing education module was effective in improving the knowledge regarding vitamin-A deficiency among mothers of under five children.



**Graph 2: frequency of pre test and post test knowledge score of under five mother**

SECTION - III

**4.2** Table 4. ASSOCIATION BETWEEN KNOWLEDGE AND SELECTED DEMOGRAPHIC VARIABLES

Table 4.3.1 Association between selected demographic variables and the knowledge score of mothers of under five children regarding vitamin A requirements.

Sr. No	Variable	Category	Frequency	Level of knowledge			d.f.	Tb value	Chi square test $\chi^2$	Significant
				Poor	Average	Good				
1.	Age	21-25 year	62	29	31	1	6	12.59	1.78	NS
		26-30 year	20	9	10	1				
		31-35 year	13	5	8	0				
		36-40 years	5	2	3	0				
2.	Education	Illiterate	46	16	29	1	6	12.59	18.86	NS
		Primary	36	20	16	0				
		Higher secondary	9	5	3	1				
		Graduation and above	9	4	5	0				
3.	Occupation	House wife	53	25	27	1	6	12.59	5.71	NS
		Job	23	8	14	1				
		Labour	21	9	12	0				
		Other	3	3	0	0				
4.	Socio economic status	5000 Rs	33	15	16	2	6	12.59	5.40	NS
		10000 Rs	38	15	23	0				
		15000 Rs	11	4	7	0				
		15000 and above	18	11	7	0				

5.	Source of information	Mass media	17	7	9	1	6	12.59	3.65	S
		Friend	22	9	13	0				
		Professional	26	11	14	1				
		Health professional	35	18	17	0				
6.	Type of family	Nuclear	9	6	3	0	4	9.48	4.10	NS
		Joint	46	17	27	2				
		Extended	45	22	23	0				
7.	Age of child	Below 1 year	18	7	11	0	4	9.48	12.75	S
		1-2 year	63	27	34	2				
		3-4 year	19	11	8	0				
		4-5 year	00	0	0	0				
8.	Religion	Hindu	66	23	33	1	4	9.48	5.08	NS
		Muslim	22	7	15	0				
		Christian	12	6	5	1				
		Other	00	0	0	0				

Key (S.F. =SIGNIFICANT, NS= NOT SIGNIFICANT, D.F.= Degree of freedom)

\* Significant at  $p \leq 0.05$  level

Key (S =SIGNIFICANT, NS= NOT SIGNIFICANT, D.F.= Degree of freedom)

**Table 4.3.1** shows that the association between knowledge and socio demographic variable. Based on the Third objectives used to Chi-square test use to associate the level of knowledge and selected demographic variables. The Chi-square value shows that there is a significance association between the knowledge and demographic variables such as education and age of child and there is a no significance association between the knowledge and demographic variables the calculated chi-square values were less than the table value at the 0.05 level of significance.

### CONCLUSION:

This chapter dealt with the analysis and interpretation of data collected from 100 samples, to assess the effectiveness of nursing education module on knowledge regarding vitamin A requirements among mother of under five children. Descriptive and inferential statistics methods were used to analyses the data. The mean pre-Knowledge score 12.04 and the mean post Knowledge score 23.01.

\*p value < 0.05 level of significance

Table 4 depicts the association between post-test level of nursing education module among mothers of under-five children with their selected demographic variables which was tested by using chi-square test. Result revealed that demographic variables such as age in years, occupation, religion, type of family and age of child which of following were not found any significant association at  $p < 0.05$  level with post-test level of knowledge of vitamin A deficiency among mother's of under five children.

### 3. DISCUSSION

This chapter discusses the study's findings and their interpretation, including statistical analysis,

literature review, and comparison with similar studies. It addresses medication noncompliance among elderly individuals, which is a common issue influenced by various factors such as regimen complexity, memory problems, physical limitations, medication side effects, cost, lack of family support, beliefs, health literacy, and routine changes.

### **Objectives 1**

#### **To assess the knowledge of mothers of under-five children regarding vitamin- A deficiency**

The study found that among 100 under five mothers, there was a significant improvement in knowledge regarding vitamin A deficiency. Before the intervention, 53% had moderate knowledge and 45% had inadequate knowledge, 2% had adequate knowledge. After the nursing education module, 81% showed adequate knowledge, while 19% still had moderate knowledge.

**Divyashettigar et.al (2013)** conducted a study on assessment of knowledge of mothers of under-five children on nutritional problems; a rural community-based study. A cross-sectional study among 50 under five mothers. The study results show that of the mothers surveyed, Knowledge about under-five nutritional problems and its prevention was reported to be nearly half of the mothers 27 (54%) had poor knowledge, around 19 (38%) had average knowledge, and only 4 (8%) had good knowledge regarding the common nutritional problems and its prevention.

### **Objectives 2**

#### **to analyze the effectiveness of nursing education module on knowledge regarding vitamin- A deficiency among mothers of under five children.**

The effectiveness of a Nursing education module about vitamin A deficiency among under five mother was tested using a paired t-test. The mean post-test score ( $1.80 \pm 1.983$ ) was significantly higher than the pre-test score ( $0.58 \pm 3.013$ ), with a mean difference of 0.63 ( $t=19.40$ ,  $df=99$ ,  $p=0.005$ ), indicating a statistically significant improvement.

**Effectiveness of structured teaching program on vitamin-A deficiency** among the mother's of under five children. An evaluative research approach with one group pre-test post design was adopted for the study sample. 50 mothers of under-five children were selected by purposive sampling technique from ward No. 13 (Mangalwarpet), urban slum area of Raichur. The result revealed that pre test level of knowledge- 90% of subjects were having inadequate knowledge followed by moderate knowledge 6% and adequate knowledge 4%. After administering STP comparison of pre-test and post- test scores showed that there is statistical significant increase in post test knowledge score, (Pre test Mean 23.42, SD 8.3429,  $t = 10.2788$ . Significant at  $P \leq 0.01$ .)

### **Objectives 3**

#### **to find association between the knowledge score with selected demographical variables regarding vitamin- A among the mothers of under five children.**

The study investigated the association between demographic variables and post-test knowledge among under five mothers using chi-square test, finding no significant associations ( $p < 0.05$ ) with age, occupation, family type, religion, age of child, or family income.

**To awareness regarding vitamin A deficiencies:** A correctional study was conducted among mothers of pre-school children regarding the awareness of vitamin A intake and their deficiency disorders in Khirasara village of Rajkot district. Out of total 196 mothers of pre-school children in the village were selected by using convenient sampling. Interview was conducted using a pretested semi structured questionnaire. Result of the study was the Mean age was 25.9 years, 38.9% were illiterate and 80% were non-working. 32.6% knew about vitamin A rich foodstuffs. 18.9% were aware about vitamin A prophylaxis programme. 27.4% included vitamin A rich foods in diet of their children. 68.0% didn't know about any symptoms about vitamin A deficiency disorders.<sup>18</sup>

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