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"A Study To Assess The Effectiveness Of Planned Teaching Programme On Knowledge Regarding Prevention Of Vitamin D Deficiency Among The Mothers Of Under Five Children In Selected Urban Area At Tirupati."

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ABSTRACT

INTRODUCTION : *Vitamin D is a fat soluble vitamin. It is very essential to maintaining mineral balance in the body. Vitamin D is the sunshine vitamin. It is produced in the upper layers of the skin on exposure to solar UVB radiation.Under normal condition endogenous synthesis of vitamin D is sufficient to meet the body's needs. Vitamin D is the only nutrient your body produces when exposed to sun light. 90% of vitamin D is synthesized in the skin via UVB radiation.* ***AIM:*** *To assess the knowledge regarding Vitamin D deficiency among the mothers of under five children.****Materials And Methods:*** *The research approach used for the study is quasi- experimental research design. The sample of the study is taken by Convenient sampling technique with 50 mothers of under five children.The data collection done in the period of 18-07-2022 to 03-08-2022. A self structured questionnaire was used to collect the data consist of 20 multiple choice questions. The data analysed statistically. Mainly chi-square was used for data analysis.* ***Results:****The major findings of the study was in pre-test had out of 50 selectedmothers of under five children were 14% (7) had inadequate knowledge, 70% (35) had moderately adequate knowledge and only 16% (8) had adequate knowledge, in the post test mothers of under five children had 10% (5) had inadequate knowledge, 64% (32) had moderately adequate knowledge and only 26% (13) had adequate knowledge. Pre-test mean knowledge 2.02, Standard Deviation 0.553, Post-test mean knowledge 2.16, Standard Deviation 0.584.In the pre-test age, education of mother, occupation of mother, type of family, source of information shows significance at <0.05 level and other variables such as education of the father, occupation of father, religion, number of under five children, family income, type of diet, family history of vitamin D deficiency were not found to have significant association with level of knowledge. In post test the result revealed that mother age, mother education, father education, occupation of mother, occupation of father, religion, number of under five children, income, type of diet, source of information shows significance at <0.05 level and <0.01level and other variables such as type of family, family history of vitamin D deficiency were not found to have significant association with level of knowledge.*

Conclusion:*The present study concludes that among mothers of under five children's have inadequate knowledge regarding Prevention of vitamin D deficiency , after providing teaching programme knowledge improved to moderately adequate .Hence there is need to improve the knowledge regarding Prevention of vitamin D deficiency .*

KEY WORDS: *Mother Knowledge,Vitamin D,Under five children*

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I. INTRODUCTION

Children are the most precious possessions of mankind and special gift to the world. Vitamin D deficiency is a common problem in India.

Vitamin D is a fat soluble vitamin. It is very essential to maintaining mineral balance in the body. Vitamin D is the sunshine vitamin. It is produced in the upper layers of the skin on exposure to solar UVB radiation.

Food that contain vitamin D include fish, egg yolk, liver, cheese, butter, ghee. Vitamin D promotes normal bone growth and mineralization in the body. Calcium and phosphorus are very important to keep the bones healthy and strong.

Growing children, pregnant women, breast feeding women need extra vitamin D for the bone health and maintaining other functions of vitamin D. Plays an important role in bone health which encourage the absorption and metabolism of calcium and phosphorous, cell differentiation, growth, preventing cancer cells from dividing, preventing cardiovascular disease and has anti-inflammatory properties. Vitamin D is involved in the regulation of insulin formation and secretion. supplementation/fortification diet alone is unlikely to meet normal daily requirements.

Vitamin D deficiency is a very common micronutrient deficiency in our country and ranks among the 5 most common disease in children worldwide. Rickets is a disease of growing bone characterized by deficient mineralization of bone matrix. Though rickets was known for centuries, it is essentially a modern disease which peaked in the industrial age.

OBJECTIVES:

- To assess the knowledge regarding prevention of vitamin D deficiency among the mothers of under five children.
- To determine effectiveness of Planned Teaching Program on knowledge regarding prevention of vitamin D deficiency among the mothers of under five children.
- To associate the relationship between demographic variables and level of knowledge regarding prevention of vitamin D deficiency among the mothers of under five children.

II. MATERIALS AND METHODS:

RESEARCH APPROACH:

A Quasi-experimental single group pre-test, post-test design was adopted.

VARIABLES OF THE STUDY

DEPENDENT VARIABLE: The dependent variables are in this study Are Age, Religion, Place Of Residence, Educational Status Of Mother, Occupation Of The Mother, Type Of Family, Family Income Per Month, Maternal Illness During Pregnancy, Number Of Antenatal Visits, . Source of Knowledge.

INDEPENDENT VARIABLES: The independent Variable are in this study Knowledge

SETTING OF THE STUDY

The The study was conducted in Indira Nagar (Urban slum areas),Tirupati

POPULATION

Target population :The population of the study comprised mothers, Tirupati

Accessible population : 50 mothers, Tirupati

SAMPLING TECHNIQUE: convenient Sampling Technique was adopted

SAMPLE CRITERIA:

Inclusion criteria:

- ✓ Mothers of under five children who are willing to participate in the study.
- ✓ Mothers of under five children who are available at the time of data collection.
- ✓ Mothers of under five children who can able to understand and speak Telugu or English.

Exclusion criteria:

- ✓ Mothers having above 5 years children. .
- ✓ Mothers having any associated disorders like mental retardation, hearing or verbal impairment.
- ✓ Rural areas are excluded.

DEVELOPMENT AND DESCRIPTION TOOL

Structured interviewed questionnaire was developed regarding vitamin D under the guidance of experts. The tool was organized under the following headings. The structured interview schedule consists of

Section I

This consists of socio-demographic data such as age, education and occupation of the mother, education and occupation of the father, family income monthly, religion, number of children below five years, types of family, family history of vitamin D deficiency and source of information were recorded.

Section-II

This consists of Twenty one multiple choice questions related to knowledge regarding meaning, types, sources, functions, recommended allowances of vitamin D and consequences of vitamin D deficiency that includes about rickets, risk factors, signs and symptoms, diagnostic tests, management, complications and prevention of vitamin D deficiency.

Level of knowledge	Score
inadequate	< 50%
moderate	51-75%
adequate	>76%

PILOT STUDY

The pilot study was conducted among mothers of under five years of children with a sample size of ten from 15-06-022 to 24-06-022. Reliability of the instrument of pre test 0.79 and post -test was 0.80.

DATA COLLECTION PROCEDURE

Permission obtained from Health Officer, Municipal Corporation Tirupati. Data were collected at Indira Nagar, Tirupati. A sample size of 50 were selected by using convenient sampling technique. The investigator introduced themselves to the group. They were informed about the schedule of data collection procedure.

The mothers were divided into 5 groups. Each group consists of ten members. Questionnaire and planned teaching programme was carried out for all five groups. Each mother 45 minutes for pre test and 30 minutes for post test was allotted for questionnaire and 45 minutes was allotted for structured teaching programme for each group. All the mothers were co-operative and attentive.

STATISTICAL ANALYSIS

Descriptive statistics

- Frequency, Percentage and Mean, Standard Deviation were used for analyzing the demographic variables and knowledge scores

Inferential statistics

- Chi-Square Test, Paired t-Test,Standard Error were analyzing the association Between prevention of vitamin D deficiency among the mothers of under five children.

ETHICAL CONSIDERATION: A Formal written permission was obtained from the Medical Officer of Health Centers at Tirupati, to conduct the study and written consent was taken from the mothers.

III. RESULTS

TABLE:2 DISTRIBUTION OF DEMOGRAPHIC VARIABLES AMONG MOTHERS OF UNDER FIVE CHILDREN BELONG TO URBAN AREA, TIRUPATI.

n= 50

S.NO	DEMOGRAPHIC VARIABLES		Frequency	Percentage
1	Age of the mother	18-20 years	2	4
		21-25 years	25	50
		26-30 years	18	36
		31& Above	5	10
2	Education of the mother	No formal education	1	2
		Primary education	11	22
		Secondary education	13	26
		Collegiate & Above	25	50
3	Education of the father	No formal education	4	8
		Primary education	9	18
		Secondary education	13	26
		Collegiate & Above	24	48
4	Occupation of the mother	Home maker	43	86
		Labourer	3	6
		Employee/working women	4	8
		Any other	0	0
5	Occupation of the father	Labourer	17	34
		Employee	22	44
		Business	5	10
		Any other	6	12
6	Religion	Hindu	47	94
		Muslim	2	4
		Christian	1	2
		Any other, specify	0	0

7	Number of children below five years	One	34	68
		Two	12	24
		Three	4	8
		Four & Above	0	0
8	Family income	Rs. 5000 /- - Rs. 1000 /-	12	24
		Rs. 10001 /- - Rs. 15,000 /-	24	48
		Rs. 15001 /- - Rs. 20,000 /-	12	24
		Rs. 20001 /- & Above	2	4
9	Type of family	Single parent	6	12
		Joint family	15	30
		Nuclear family	29	58
		Extended family	0	0
10	Type of diet	Vegetarian	3	6
		Non-vegetarian	7	14
		Mixed	36	72
		Any other	4	8
11	Family history of vitamin D deficiency	Yes	1	2
		No	49	98
12	If yes, number of times admitted in hospital	Nill	49	98
		Once	1	2
13	Source of information	Media	4	8
		Friends/ Neighbours	6	12
		Book material/ Pamphlets	2	4
		None	38	76

TABLE -3 DISTRIBUTION OF LEVEL OF PRE-TEST KNOWLEDGE ON PREVENTION OF VITAMIN D DEFICIENCY IN CHILDREN AMONG MOTHERS OF UNDER FIVE'S.

n=50

S. NO	**Variables**	**Inadequate <50%**		**Moderately Adequate 50% - 75%**		**Adequate >75%**	
		N	**%**	**N**	**%**	**N**	**%**
1	**Knowledge**	**7**	14	35	70	8	16

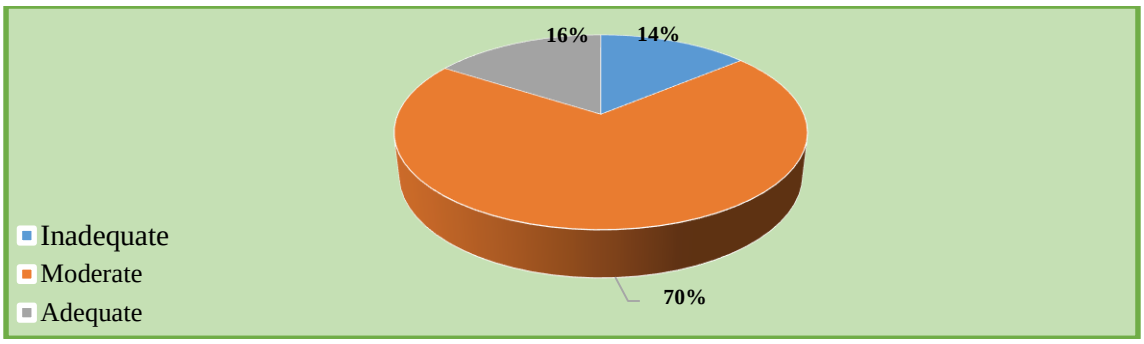

TABLE:4 DISTRIBUTION OF LEVEL OF POST – TEST KNOWLEDGE ON PREVENTION OF VITAMIN D DEFICIENCY IN CHILDREN AMONG MOTHERS OF UNDER FIVE'S

n=50

S. NO	Variables	Inadequate <50%		Moderately Adequate 50% - 75%		Adequate >75%	
		N	%	N	%	N	%
1	Knowledge	5	10	32	64	13	26

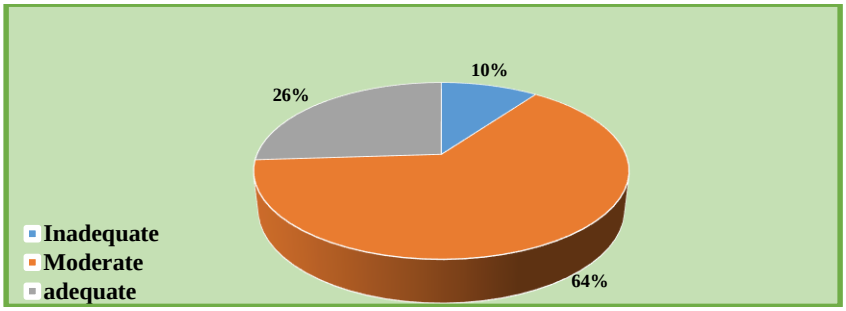

TABLE NO 5: INTERELATIONSHIP BETWEEN PRE-AND POST- TEST LEVEL OF KNOWLEDGE ON OF VITAMIN D DEFICIENCY IN CHILDREN AMONG THE MOTHERS OF UNDER FIVE'S

n=50

		POST-TEST							
	Variables	Inadequate Knowledge <50%		Moderately Adequate Knowledge 50-75%		Adequate Knowledge >70%		Total	
		N	%	N	%	N	%	N	%
PRE-TEST	Inadequate Knowledge <50%	5	100.0%	3	40.6%	0	0.0%	18	36.0%
	Moderately Adequate Knowledge 50-75%	0	0.0%	19	59.4%	5	38.5%	24	48.0%
	Adequate Knowledge >70%	0	0.0%	0	0.0%	8	61.5%	8	16.0%
	Total	5	(10.0%)	32	(64.0%)	13	(26.0%)	50	100.0%

Table 5 :- Reveals, the qualitative association between pre and post-test scores on level of knowledge. In pre-test 36.0% (18) who were having inadequate knowledge, 48% (24) had moderately adequate knowledge and 16% (8) had adequate knowledge.

In post-test 10% (5) who were having inadequate knowledge, 64% (32) had moderately adequate knowledge and 26% (13) had adequate knowledge**.**

SECTION- II

TABLE 6: MEAN, STANDARD DEVIATION OF PRE-AND POST -TEST AMONG MOTHERS OF UNDER FIVE CHILDREN

n=50

S. NO	VARIABLES	PRE-TEST		POST-TEST	
		MEAN	STANDARD DEVIATION	MEAN	STANDARD DEVIATION
1	KNOWLEDGE	2.02	0.553	2.16	0.584

Table 6: Shows, pre-test mean knowledge **2.02**, Standard Deviation **0.553**.
post-test mean knowledge **2.16**, Standard Deviation **0.584**.

SECTION- III
Table: 7:- EFFECTIVNESS OF STRUCTURED TEACHING PROGRAM

n=50

S. NO	VARIABLES	PRE-TEST		POST-TEST		Paired t- value	
		MEAN	SD	MEAN	SD	MEAN	Sig
1	KNOWLEDGE	2.02	0.553	2.16	0.584	28.912**	0.01

SECTION-IV
TABLE-8: ASSOCIATION BETWEEN DEMOGRAPHIC VARIABLES WITH THE LEVEL OF KNOWLEDGE ON PREVENTION OF VITAMIN D DEFICIENCY AMONG MOTHERS OF UNDER FIVE CHILDREN

LEVEL OF KNOWLEDGE																	
S.NO 1	Demographic Variables	Inadequate knowledge				Moderately adequate knowledge				Adequate Knowledge				Chi- square			
		Pre-test		Post test		Pre- test		Post-test		Pre- test		Post- test		Pre- test		Post- test	
		N	%	N	%	N	%	N	%	N	%	N	%	val	sig	val	sig
2	Age of the mother																
	a.18-20 years	0	0	1	20	0	0	1	3.1	2	25	0	0	$\chi2$ = 14.403*	(p= 0.025)	$\chi2$ = 13.783*	(p= 0.032)
	b. 21-25 years	3	60	0	0	18	51.4	15	46.9	4	50	10	76.9				
	c. 26-30 years	2	40	3	60	14	40	14	43.8	2	25	1	7.7				
	d. 31&above	2	0	1	20	3	8.6	2	6.3	0	0	2	15.4				
3	Education of the mother																
	a.No formal education	1	14.3	1	20	0	0	0	0	0	0	0	0	$\chi2$ =14.463*	(p = 0.025)	$\chi2$ = 16.083*	(p= 0.013)
	b.Primary education	3	42.9	2	40	7	20	5	15.6	1	12.5	4	30.8				
	c.Secondary education	2	28.6	2	40	11	31.4	10	31.3	0	0	1	7.7				
	d.collegiate&above	1	14.3	0	0	17	48.6	17	53.1	7	87.5	8	61.5				
4	Education of the father																
	a.No formal education	2	28.6	3	60	2	5.7	1	3.1	0	0	0	0	$\chi2$ = 8.827	(p= 0.184) NS	$\chi2$ = 26.181**	(p= 0.000)
	b.Primary education	1	14.3	0	0	6	17.1	4	12.5	2	25	5	38.5				
	c.Secondary education	0	0	0	0	12	34.3	11	34.4	1	12.5	2	15.4				
	d.collegiate&above	4	57.1	2	40	15	42.9	16	50	5	62.5	6	46.2				
5	Occupation of the mother																
	a.Home maker	6	85.7	3	60	32	91.4	30	93.8	5	62.5	10	76.9	$\chi2$ =12.339*	(p = 0.015)	$\chi2$ = 16.640**	(p = 0.002)
	b.Labourer	1	14.3	2	40	2	5.7	1	3.1	0	0	0	0				
	c.Employee/working	0	0	0	0	1	2.9	1	3.1	3	37.5	3	23.1				
	d.Any Other	0	0	0	0	0	0	0	0	0	0	0	0				
6	Occupation of the father																
	a.Labourer	2	28.6	1	20	12	34.3	10	31.3	3	37.5	6	46.2	$\chi2$ = 7.998	(p = 0.238) NS	$\chi2$ = 12.491*	(p= 0.052)
	b.Employee	1	14.3	0	0	16	45.7	17	53.1	5	62.5	5	38.5				
	c.Business	2	28.6	2	40	3	8.6	2	6.3	0	0	1	7.7				
	d.Any Other	2	28.6	2	40	4	11.4	3	9.4	0	0	1	7.7				
7	Religion																

	a.Hindu	7	100	5	100	33	94.3	31	96.9	7	87.5	11	84.6	$\chi2$ = 2.331	(p = 0.675) **NS**	$\chi2$ =6.424	(p= 0.170) **NS**
	b.Muslim	0	0	0	0	1	2.9	0	0	1	12.5	2	15.4				
	c.Christian	0	0	0	0	1	2.9	1	3.1	0	0	0	0				
8	**Number of under five children**																
	a.One	5	71.4	3	60	24	68.6	23	71.9	5	62.2	8	61.5	$\chi2$ = 1.951	(p = 0.745) **NS**	$\chi2$ = 10.153*	(p= 0.038)
	b.Two	1	14.3	0	0	8	22.9	7	21.9	3	37.5	5	38.5				
	c.Three	1	14.3	2	40	3	8.6	2	6.3	0	0	0	0				
	d.Four&above	0	0	0	0	0	0	0	0	0	0	0	0				
9	**Family income**																
	a.Rs.5000-Rs.10000/-	2	28.6	1	11.1	7	20	3	10.7	3	37.5	8	61.5	$\chi2$ = 2.351	(p= 0.885) **NS**	$\chi2$ = 15.203*	(p= 0.018)
	b.Rs.10001-Rs.15000/-	3	42.9	2	22.2	17	48.6	19	67.9	4	50	3	23.1				
	c.Rs.15001-Rs.20000/-	2	28.6	2	22.2	9	25.7	8	28.6	1	12.5	2	15.4				
	d.Rs.20001/- & above	0	0	0	0	2	5.7	2	7.1	0	0	0	0				
10	**Type of family**																
	a.single parent	0	0	1	20	2	5.7	4	12.5	4	50	1	7.7	$\chi2$= 13.576**	(p= 0.008)	$\chi2$ = 1.041	(p= 0.903) **NS**
	b.joint family	2	28.6	1	20	11	31.4	9	28.1	2	25	5	38.5				
	c.nuclear family	5	71.4	3	60	22	62.9	19	59.4	2	25	7	53.8				
	d.extended family	0	0	0	0	0	0	0	0	0	0	0	0				
11	**Type of diet**																
	a.Vegetarian	0	0	0	0	3	8.6	3	10.7	0	0	0	0	$\chi2$ = 6.871	(p= 0.333) **NS**	$\chi2$ = 17.085**	(p = 0.009)
	b.Non-Vegetarian	0	0	0	0	4	11.4	1	3.6	3	37.5	6	46.2				
	c.Mixed	6	85.7	5	100	25	71.4	25	89.3	5	62.5	6	46.2				
	d. Any Other	1	14.3	0	0	3	8.6	3	10.7	0	0	1	7.7				
12	**Family history of vitamin D deficiency**																
	a.Yes	0	0	0	0	1	2.9	1	3.1	0	0	o	O	$\chi2$ = 0.437	(p= 0.804) **NS**	$\chi2$ = 0.574	(p = 0.751) **NS**
	b.No	7	100	5	100	34	97.1	31	96.9	8	100	13	100				
13	**If yes, number of times admitted in hospital**																
	a.Nill	7	100	5	100	34	97.1	31	96.4	8	100	13	100	$\chi2$ = 0.437;	(p= 0.804) **NS**	-	-
	b.Once	0	0	0	0	1	2.9	1	3.6	0	0	0	0				
14	**Source of information**																
	a.Media	1	14.3	0	0	3	8.6	4	12.5	0	0	0	0	$\chi2$ =14.348*	(p = 0.026) **NS**	$\chi2$ = 20.426**	(p= 0.002)
	b.Friends&Neighbours	0	0	0	0	4	11.4	1	3.1	2	25	5	38.5				
	c.Book Material/Pamphlets	0	0	0	0	0	0	0	0	2	25	2	15.4				
	d. None	6	85.7	5	100	28	80	27	84.4	4	50	6	46.2				

Significance

NS : Not significant, *: <0.05

**: <0.01

IV. DISCUSSION

Vitamin D is an essential vitamin for the health and growth of bones. It is also important for calcium and phosphorus metabolism.

In pre-test, out of fifty mothers of under fives regarding knowledge, 14% (7) had inadequate knowledge, 70% (35) had moderately adequate knowledge and only 16% (8) had adequate knowledge. **Dr. Hala Mohamed Sanad et al** conducted a cross sectional study on vitamin D deficiency in Bahrain. Aim of the study was to assess the knowledge and awareness of vitamin D deficiency among the general adult population. A self-administered questionnaire was administered to an adult sample of 335 participants seeking information on their knowledge about vitamin D deficiency. Results shows 81.2% of the study participants had unsatisfactory total knowledge score of vitamin D. Level of education and the sources of information about vitamin D deficiency the main significant factors that appear to influence the participants' vitamin D awareness status. Most the participants recognized that exposure to sunlight encourages the production of vitamin D, however, only a small proportion of participants were aware of the sources of vitamin D in daily food intake and health consequences of vitamin D deficiency. There is inadequate knowledge and awareness regarding vitamin D deficiency among adult Bahrain population. Health campaigns are urgently needed in order to improve the community's knowledge about the benefits and sources of vitamin D

. In post-test, out of fifty mothers of under fives regarding knowledge, 10% (5) had inadequate knowledge, 64% (32) had moderately adequate knowledge and only 26% (13) had adequate knowledge **Walaa Kamal** was conducted a descriptive study in Kalyobia Governorate. The total sample included 362 mothers, purposive sampling was used in this, aim of the study was to assess the mothers' awareness regarding vitamin D deficiency among their infants in KalyobiaGovernorat. Results shows that mothers' knowledge 56.9% of the mothers had poor knowledge, 76.8% of mothers had unsatisfactory practices regarding prevention of vitamin D deficiency and 64.4% of the mothers had positive attitude regarding importance of vitamin D and its supplementation. All health care professionals are encouraged to educate mothers the importance of vitamin D and the consequences of its deficiency through health educational program during postnatal or well-baby visits to assure healthy population[29]

V. CONCLUSION:

The data proved that the planned teaching programme was primary measures which markedly improve the knowledge regarding prevention of vitamin D deficiency in children among mothers of under fives

NURSING IMPLICATION

In order to improve the efficiency of mothers of under fives about prevention of vitamin D deficiency in under five children, there exists a need for the provision of health education programmes. The findings of the study have implications in various areas of nursing i.e, Nursing service, Nursing education, Nursing administration and nursing research.

NURSING SERVICE

- The result of the study would help the nurses to enlighten their knowledge on importance of health education. Health education is the essential part of Nursing service. This study would indirectly help to encourage nurses to assess the knowledge on prevention of vitamin D deficiency in children effectively.
- In community, public health nurses should plan health education programmes on prevention of vitamin D deficiency in children by using lower health education methods.
- ln pediatric wards and out-patient departments, health education programmes can be planned with the use of LCD projector, pamphlets, skits (or) puppet shows on vitamin D consequences.
- Educating mothers regarding prevention of vitamin D deficiency in children help in early treatment and prevent further complications.

NURSING EDUCATION

- In Nursing schools and colleges, students should be trained in planning and implementing health education programmes based upon the needs.
- Teaching modules should be introduced in to the curriculum at the primary level of nursing education.
- The Nursing curriculum should emphasize on imparting health information to nurses using different teaching methods.
- Nursing curriculum needs to be strengthened to enable nursing students to develop skills and understanding the importance of vitamin D in our body and need for prevention of vitamin D deficiency in children.

- By disseminating information on vitamin D, and its types, sources, functions, recommendations and consequences that includes rickets, causes, signs and symptoms, diagnostic tests, management, complications and prevention, can help in reducing morbidity and mortality in children.

NURSING ADMINISTRATION

- Nursing administrators should take an initiative to formulate policies that would include all nursing staff to be actively involved in health education programmes in hospitals and community.
- Nursing administrators should plan and organize continuing nursing education in conducting health education programmes on prevention of vitamin D deficiency for improvement of nursing skills and knowledge.
- The Nurse Administrator should take interest in providing information regarding the need for organizing the health educational programmes on prevention of vitamin D deficiency.
- Planning and organizing such programmes require efficient team work, strategies for optimum utilization of resources and focus on cost effective methods.

NURSING RESEARCH

The study reveals that there arises a need for extensive research to find out behavioral modifications after teaching programmes to find out their effectiveness.

- Nursing research on newer methods of teaching focusing on interest, quality and cost effectiveness.
- There is a great need for Nursing research in the areas of health education particularly regarding prevention of vitamin D deficiency in under five children.
- The findings of the study serve as a basis for the professionals and the student nurses to conduct further studies regarding prevention of vitamin D deficiency in under five children and its importance with different research designs.

VI. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

- A longitudinal study could be conducted using the post-test after one month, six months and one year to see the retention of knowledge.
- The study could be conducted with large samples.
- A similar study could be conducted using experimental and control groups.
- A comparative study can be conducted between rural and urban areas regarding knowledge of mothers on prevention of vitamin D deficiency in children.
- A similar study can be conducted by using a self- instructions module on prevention of vitamin D deficiency in children.
- A follow up study may be conducted to evaluate the effectiveness of self – instruction module on prevention of vitamin D deficiency in children.