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Research Article

Effect of Planned Teaching on Knowledge of Mothers Regarding Prevention of Vitamin A Deficiency among Under Five Children from a Selected Urban Area

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Abstract

Introduction: Vitamin A is an essential micronutrient. It enhances children's immunity and protects against illness/morbidity and reduces death/mortality. Therefore, it is essential for child survival.

Objective: The aim of the study was to assess the knowledge of mothers on Vitamin A requirements, sources, deficiency, and its prophylaxis among under five children before and after planned teaching program.

Methodology: The data were collected from 100 mothers of under five children using semi structured questionnaire in the selected Anganwadi from Ahmed Nagar District.

Results: The majority of the mothers belong to the age group of 21–40 (83%) and (41%) completed secondary education, Majority (58%) had two children. The knowledge mean score in pretest in the area of concept of Vitamin A was 1.78, whereas in post-test, it was increased to 3.39. Mean score analysis is done in different sections of questionnaire such as Sources of Vitamin A, requirement of Vitamin A and Vitamin A deficiency, and prevention and prophylaxis, and its found increased in post-test score in all respective areas. The overall mean score was 13.8 out of maximum score of 50 in pre-test and 31.8 in post-test which was statistically significant.

Conclusion: As study shows the significance of the difference between pre-test and post-test 13.81–31.8, respectively.

Keywords: Knowledge, under five children, Vitamin A deficiency

Introduction

Children are embodiment of our dreams and hopes for the future. They are the wet clay in the potter's hand. Handled with care, they become something beautiful, else they break. They are the most vulnerable group in the society. A child is a precious gift, which has lots of potentials within, and can be the best resources for the nation if raised and molded in good manner. To stay healthy, children need a variety of food every day. Food contains many nutrients such as carbohydrates, proteins, fats, vitamins, and minerals. Vitamins help for proper growth, functioning and mental development and to keep people healthy. Vitamin A is required for night vision and healthy skin and it assists the immune system for its proper functioning. Vitamin A sources are milk and dairy products, green leafy vegetables, fruits, and meats. Vitamin A deficiency is a cause of concern as it leads to eye problems with dryness of conjunctiva and cornea, dry skin and hair, and night blindness as well as poor growth which is a major cause of infant mortality.[1]

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According to the WHO, if in any area, 1% of children suffer from night blindness or 0.5% children have visible signs of Vitamin A deficiency such as bitot's spot or 5% pregnant women suffer from night blindness, then Vitamin A deficiency is considered as a public health problem in that area.[2]

Vitamin A deficiency in pre-school children is another nutritional disorder of public health importance in many developing countries. It contributes to a significant proportion of preventable blindness, a tragic situation. Ophthalmologists in India view the problem of blindness in greater proportion and hence demands greater attention than Vitamin A deficiency. However, such problems should not be viewed with a statistician's mind. Cataract is a disorder of adulthood whereas hypovitaminosis A has its peak between 10 and 11 years of age. Thus, young children become blind before they can see anything of the world and become a socioeconomic burden. Due to this fact, Vitamin A deficiency should be looked on as a public health problem.[3]

According to the WHO, communities at-risk should consume adequate amount of foods rich in Vitamin A. This needs concerted efforts to improve the household food security through increased production of Vitamin- A rich foods and to enhance community awareness through intense information, education, and communication (IEC) activities. This will ensure the elimination and control of Vitamin-A deficiency.[4]

Consuming vitamin rich food and supplementation of Vitamin A prophylaxis has been found to be a cost-effective strategy to combat this micronutrient deficiency. Clinical studies have shown that this strategy not only decreases xerophthalmia but also increases the child survival rates

As mothers are the primary care takers of children, increasing mother's knowledge is the key to improve Vitamin A status in under 5 children. As the investigator felt, the need to find out the knowledge of mother about Vitamin A requirement, sources, deficiency, and its prophylaxis among under five children, and also to see if planned teaching to mother can improve their knowledge on this subject. Hence, this research problem was selected for the study. Effect of planned teaching on knowledge of mothers regarding Vitamin A requirement, sources, deficiency, and its prophylaxis among under five children from a selected urban area. The objectives of the study aims to assess the knowledge of mothers on Vitamin A requirements, sources, deficiency, and its prophylaxis among under five children before planned teaching, to assess the knowledge of mothers on Vitamin A requirements, sources, deficiency, and its prophylaxis among under five children after planned teaching, to compare the knowledge of mothers on Vitamin A requirements, sources, deficiency, and its prophylaxis among under five children before and after planned teaching, to find association between the knowledge of mothers with selected demographic variables.

Methodology

Study design

A one group pre-test – post-test design was used in this study.

Study approach

Pre-experimental research approach was used in this study.

Setting of the study

The research was conducted in Pathardi town at Ahmednagar district.

Sampling technique

One hundred mothers of under five children were selected using non-probability convenient sampling technique.

Tools and techniques

Tools consist of a questionnaire and planned teaching program. A questionnaire was used for collecting the data which consisted of the following sections.

Section 1 – Demographic data, which include age, religion, education, occupation, income, and number of children.

Section 2 – Consisted questions related to knowledge regarding Vitamin A requirement, sources, deficiency, and its prophylaxis.

Other instrument used was a planned teaching program on Vitamin A requirement, sources, deficiency, and its prophylaxis.

Validity and reliability of tool

Tools were validated by 11 experts from the field of nursing, nutrition, preventive and social medicine, and pediatrics. The reliability of the tool was established by administrating it to 25 subjects and using split half technique, Pearson product moment correlation was 0.86, which established that tool was highly reliable.

Pilot study

A pilot study was conducted on 10 samples, who met the research criteria. These samples were not included in main study.

Data gathering processes

The data collection was carried out in four stages.

- Stage I: The samples who met the criteria were selected from the list of anganwadi from Pathardi town.
- Stage II: After developing rapport, required explanation was given to the mothers and written consent was taken. Questionnaire was administered to the mothers of under five children.
- Stage III: After initial data collection, planned teaching was given with the help of A V aids.
- Stage IV: The same questionnaire was administered to the groups after 8 days to check the change in knowledge level. Data were collected in three sessions for pre-test and also post-test. In this way for every sample, the pre-test and post-test score were obtained.

Results

Table 1 shows the demographic data of mothers of under five children are that the Samples belonging to age group between 21 and 30 years were 45%, 38%, and 17% were from age group between 31 and 40 and below 20 years, respectively. Most of

Table 1: Knowledge about Vitamin A requirement, sources, deficiency, and its prophylaxis (n=100)

S. No	Items	Pre-test score		Post-test score	
	Concept	*f*	%	*F*	%
1	Vitamin A is essential for functioning of immune system.	58	58	79	79
2	Vitamin A is a fat-soluble vitamin.	31	31	85	85
3	Vitamin A is available in natural form.	44	44	78	78
4	Animals and plants are the main natural sources of vitamin A.	43	43	91	91
Sources					
5	Following are the good plant sources of Vitamin A.	166	27.6	357	59.5
a	Amaranth.	40	40	42	42
b	Pumpkin.	10	10	80	80
c	Papaya.	50	50	86	86
d	Amla.	20	20	25	25
e	Carrot.	20	20	78	78
f	Yellow fruits.	26	26	46	46
6	Following are good animal sources of Vitamin A.	108	27	267	66.7
a	Egg	50	50	70	70
b	Liver	21	21	60	60
c	Butter	27	27	60	60
d	Ghee	10	10	77	77
7	Red palm oil is rich in Vitamin A.	16	16	75	75
Requirement					
8	One table spoon of cooked green vegetables will fulfill daily requirement of Vitamin A for a 1–5-year-old child.	50	50	90	90
9	Our body can store Vitamin A for 4–6 months after consumption	24	24	71	71
10	Vitamin A is lost during cooking or storage.	44	44	96	96
11	Adding of oil during cooking of vegetables helps to increase absorption of Vitamin A through body after consumption.	39	39	83	83
Deficiency					
12	Vitamin A deficiency can cause blindness.	32	32	95	95
13	Vitamin A deficiency is commonly found in.	131	43	238	79.3
a	Pregnant women.	56	56	91	91
b	Lactating mothers.	35	35	60	60
c	Children under five.	40	40	88	88
14	Vitamin A deficiency leads to dry skin (toad like) skin.	25	25	66	66
15	Vitamin A deficiency causes dryness in the eye.	19	19	71	71
16	Worm infestation can cause vitamin A deficiency.	30	30	83	83
17	Measles and diarrhea is common cause of Vitamin A deficiency.	36	36	65	65
Prevention and vitamin a supplementation					
18	Feeding of colostrum prevent risk of Vitamin A deficiency.	32	32	78	78
19	Initiation of breast feeding that is within an hour of delivery prevents risk of Vitamin A deficiency.	53	53	96	96
20	Weaning should be started at the age of 6 months.	41	41	85	85
21	Breast feeding should be continued till the age of 2 years.	35	35	71	71
22	Vitamin A supplementation should be started from 2 years of age.	36	36	94	94
23	After the initial dose of Vitamin A, it should be given at an interval of 6 months.	34	34	88	88
24	Vitamin A supplementation is provided by Government free of cost.	40	40	96	96
25	Vitamin A supplementation is available at primary health center/urban health post.	40	40	90	90
26	If child is not given vitamin a prophylaxis in average age, it can be started at any age before 5 years.	31	31	79	79
27	Vitamin A supplementation has got very rare adverse effect.	20	20	66	66
28	Vitamin A supplementation should not be given to the child who is suffering from severe illness.	21	21	79	79
29	Over dose of Vitamin A can lead to toxic effects.	24	24	80	80
30	Along with routine 6 monthly supplementation Vitamin A doses should be supplemented at home.	20	20	78	78
31	Deworming with each supplementation dose helps to improve Vitamin A status in children.	34	34	96	96

the sample i.e. 52% belongs to Hindu religion followed by 29%, Muslims and 15% Christians, and 4% were Sindhis. Out of the 100 samples, 41% had secondary education 21% studied till higher secondary, 13% were graduates, 2% were post graduates, and 0% were illiterates. Most of the samples, that is, 67% were house wives, 16% had their business, 15% were doing service, and 2% were laborer. Samples having family income between Rs 5000/- Rs. 10000//- are 35%, Rs. 10,000/- and Rs. 15,000/-. are 30% and above Rs 15,000/- are 30%, and 5% had income <5000/- per month. About 58% of samples had two children, 25% had one child, 13% had three children, and 4% had more than three children. About 6% of the populations were vegetarian and 94% had mixed diet pattern.

As per the Table 2, the knowledge mean score in pre-test in the area of concept of Vitamin A was 1.78, whereas in post-test, it was increased to 3.39. In the area of sources of Vitamin A, the knowledge pre-test mean score was 2.98 and in post-test, it increased to 6.99. In the area of requirement, the pre-test mean score was 1.59, which is increased to 3.48 in the post test. In the area of Vitamin A deficiency and prevention and prophylaxis, the mean pre-test score was 2.77 and 4.69 where these were increased to 6.18 and 11.78 in the post-test. The overall mean score was 13.8 in pre-test and 31.8 in post-test.

Age
Samples belonging to age group between 21 and 30 years were 45%, 38% and 17% were from age group between 31 and 40 and below 20 years, respectively.

Religion
Most of the sample, that is, 52% belongs to Hindu religion followed by 29%, Muslims and 15% Christians, and 4% were Sindhis.

Education
Out of the 100 Samples, 41% had secondary education 21% studied till higher secondary, 13% were graduates, 2% were postgraduates, and 0% were illiterates.

Occupation
Most of the samples, that is, 67% were house wives, 16% had their business, 15% were doing service, and 2% were laborers.

Income
Samples having family income between Rs 5000/- Rs 10000/- are 35%, Rs 10,000/- and Rs 15,000/-. are 30% and above Rs 15,000/- are 30%, and 5% had income <5000/- per month.

Number of children
About 58% of samples had two children, 25% had one child, 13% had three children, and 4% had more than three children.

Diet pattern
About 6% of the populations were vegetarian and 94% had mixed diet pattern.

Table 2 shows that question-wise data analysis of knowledge score of samples to identify improvement in knowledge score analyzed in terms of frequency and percentage and overall, it is found that the post-test score increased considerably after the planned teaching.

It shows that comparison of pre-test and post-test knowledge score of samples to identify increase in knowledge score analyzed in terms of mean score. The knowledge mean score in pretest in the area of concept of Vitamin A was 1.78, whereas in post-test, it was increased to 3.39. In the area of sources of Vitamin A, the knowledge pretest mean score was 2.98 and in post-test, it increased to 6.99. In the area of requirement, the pre-test mean score was 1.59, which is increased to 3.48 in the post-test. In the area of Vitamin A deficiency and prevention and prophylaxis, the mean pre-test score was 2.77 and 4.69 where these were increased to 6.18 and 11.78 in the post-test. The overall mean score was 13.8 in pre-test and 31.8 in post-test.

Table 3 shows that pre test score of Knowledge level of mothers in relation to vitamin A requirement, sources, deficiency and its prophylaxis before planned teaching was poor of 77% samples of total number of sample and 23 % samples had average knowledge.

Where post test score of Knowledge level of mothers in relation to vitamin A requirement, sources, deficiency and its prophylaxis after planned teaching was Excellent in 53 % mothers and 46 % percent had good post test knowledge score.

Table 4 shows the significance of the difference between pre-test and post-test. The mean pre-test score was13.81 where as in the post-test, it was increased to 31.8. The t-test was used to find the significance of difference between the mean and it was found significantly different suggesting that the planned teaching was effective

Discussion
Ananthakrishnan conducted a comprehensive study of morbidity in school age children. The study was conducted to evaluate the health status of 1349 school children and assess the community's perception of their health problems The important morbidities observed were anemia (57.1%), worm infestation (46.4%), malnutrition (57.6%), riboflavin deficiency (32.9%), nutritional skin disorders (11.6%), and dental caries (27.9%), etc. The study revealed that what the community perceived as morbidity among school age children was different from the morbidity actually observed in them on clinical examination. The study recommends that the community should be educated about the important morbidities in school age children, their etiologies, and their prevention. Other measures that may improve the health status of school age children are increased energy, iron and Vitamin A supplementation, and periodic deworming.[5]

Table 2: Comparison of pre-test and post-test knowledge score of mothers

S. No	Knowledge areas	Mean score	Obtained mean score	
			Pre-test	Post-test
1	Concept	4	1.78	3.39
2	Sources	11	2.98	6.99
3	Requirement	4	1.59	3.48
4	Deficiency	8	2.77	6.18
5	Prevention and prophylaxis	14	4.69	11.78
	Total	41	13.81	31.82

Table 3: Knowledge level of mothers in relation to Vitamin A requirement, sources, deficiency, and its prophylaxis before and after planned teaching (n=100)

S. No	Knowledge level	%	Pre-test % of mothers	Post-test % of mothers
1	Poor <14	(0–35)	77	-
2	Average 14–24	(36–59)	23	1
3	Good 25–32	(60–79)	-	46
4	Excellent >33	(80 and above)	-	53

Table 4: Comparison of knowledge scores before and after planned teaching program

Test	Mean score	SD	Df	t	Significance
Pre-test	13.8	1.7	99	3.6	Significant at
Post-test	31.8	3.4			0.01 level

t = 1.98

Kar conducted a study on primary immunization status of children in slum areas to evaluate immunization status of 166 children aged 12–23 months. Results revealed that 69.3% of the children were fully immunized with BCG, DPT, OPV Vitamin A prophylaxis and measles, 15.7% were partially immunized, and 15.1% were non-immunized. The major causes for incomplete immunization were child's illness, mother's lack of information about the place, schedule and eligible age of immunization, lack of information, motivation, and other obstacles. Special health education camps and community mobilization are recommended to vaccinate eligible children in these areas to achieve the goal of 100% of immunization coverage.[6]

Singh and Yadav, conducted a study on immunization status of children of India. The study assessed the immunization status of 19,000 children in 90 districts of the country in 1999. Data on sex, literacy of parents, religion, and distance of the village was collected. Results revealed that immunization program touched about 90% of the target group. About 63% of the children received all the vaccines/doses (BCG, DPT, OPV, measles, and Vitamin A prophylaxis), 27% received partial immunization, and 10% did not receive any immunization. The coverage level was lower in Bihar, Rajasthan, U.P., M.P. and North Eastern states. About 88% received the first dose, 85% the first two doses, and 81% received all three doses of DPT/OPV. About 86% received BCG vaccine and 67% measles vaccine and Vitamin A prophylaxis. Illiteracy of mother, inaccessibility due to distance and tribal villages were factors responsible for lower level of immunization. Efforts should be made to educate mothers through IEC activities. Tribal, small, and inaccessible villages should be given special attention to achieve universal immunization.[7]

Das and Murali I, conducted study for National Institute of Health and family welfare, New Delhi, on awareness and perception among community regarding vitamin-A prophylaxis program. A total of 714 mothers of 986 pre-school children of a sub center area of primary health center were interviewed to assess their knowledge regarding dietary sources of Vitamin-A and signs and symptoms of its deficiency. Only 160 were aware of the relationship between diet and eye problems. Out of them, only 105 mothers could enumerate the actual Vitamin-A rich diets. While 315 respondents were familiar with night blindness and xerophthalmia, only 160 actually knew that Vitamin-A deficiency causes these problems and 156 had correct knowledge about the remedial measures. Regarding the perception about the existing Vitamin-A prophylaxis program, 78 (10.9%) mothers surveyed were aware of this program.[8]

Catholic relief services (CRS) conducted a process evaluation of its Behavioral Change Communication Program to improve infant feeding and maternal nutrition practices in the safe motherhood and child survival program project implemented in Rai Bareli district in Uttar Pradesh. The primary objective of the process evaluation was to improve understanding of how program strategies contributed to achieve the objectives of the project and focus group discussions were conducted. Personal or group counseling as well as awareness activities was well received by the communities, but the same level of acceptance was not reflected as far as adoption of practices was concerned. In spite of addressing target groups and making continued efforts in the adopted villages, community initiatives were not observed to the expected levels. The activities were effectively operational but the initiative of CRS could not mobilize adequate support and resources from other groups or institutions working on similar issues. Based on experiences, felt constraints and feedback from CRS and communities, the project with collaboration showed results and the success of events such as health meals (fairs), health campaigns, and polio immunization drives were a few examples of such collaboration.[9]

The international consultation on control of acute respiratory infection reported that there are links between environmental risk factor such as smoke, air pollution, overcrowding and the risk factors in the child (malnutrition, measles, breast feeding, and Vitamin A deficiency), with acute respiratory infection. Many of these risk factors are amenable to corrective measures. Therefore, knowledge of this risk factor related to acquisition of acute lower respiration infection will help in its prevention, through effective health education of the community and appropriate initiatives taken by the government leading to healthy community and a healthy nation as a whole.[10]

It was observed that many mothers were not aware about Vitamin A, its importance for children's health, sources of Vitamin A, daily requirement, and need of Vitamin A supplementation. Keeping all the findings into account, it is recommended that many such studies can be done to assess knowledge of mothers regarding children's nutrition and to find means to overcome micro nutritional disorders among under five children.

Conflicts of interest and funding

The author declares that I have not received any support from any organization for the submitted work; no financial relationships with any organizations that might have an interest in the submitted work in the previous years; No other relationships or activities that could appear to have influenced submitted work.

Conclusion

Knowledge level of mothers in relation to vitamin A requirement, sources, deficiency and its prophylaxis before planned teaching was poor among 77% mothers. Where in posttest 53 % mothers had Excellent score and 45 % had Good score.

As study shows the significance of the difference between pretest and posttest 13.81 to 31.8 respectively so its suggesting that the planned teaching was effective.

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