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A pre- experimental study to assess the effectiveness of structured teaching programme on knowledge regarding vitamin a deficiency among rural population at selected villages of district Mohali, Punjab

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Abstract
Background: Vitamin A is an essential component of the human diet. It is derived from vitamin-A-rich foods as well as from foods containing beta-carotene, composed of two retinol molecules. Vitamin A deficiency could result in impaired cellular differentiation, reduced resistance to infection, anemia and, ultimately, death. In fact, vitamin A deficiency is a serious health problem in developing nations.
Aim of the Study: The aim of the study is to improve the knowledge regarding Vitamin A deficiency among selected rural population of village district Mohali, Punjab.
Design and Methods: Quantitative approach and pre-experimental, one group pre-test post- test research design was used to carry out the study. The area selected for the study was Village Saharuan, district Mohali. Purposive sampling technique was used to select 50 rural people to improve the knowledge regarding Vitamin A deficiency through socio- demographic profile, self- structured questionnaire and structured teaching programme. Collected data was analyzed by using descriptive and inferential statistics.
Results: The findings of the study showed that there was significant difference between pre-test and post-test knowledge scores of rural people, the mean comparison of knowledge score in Pre-test and Post-test demonstrates the effectiveness of structured teaching programme. The mean knowledge scores increased from 13.72±6.21 in Pre-test to 21.62±9.10 in Post-test marking a mean difference of 7.90. The result of intervention proved that statistically significantly higher knowledge was acquired by rural population of Mohali regarding deficiency of Vitamin A. Hence, we accept the research hypothesis.
Conclusion: It showed that structured teaching programme was effective in improving knowledge regarding Vitamin A deficiency. Therefore motivation and information were the felt needs of the rural population. Our findings highlight the needs for more intensive efforts to promote proper and effective knowledge.

Keywords: Structured teaching programme, vitamin a deficiency, knowledge, effectiveness etc.

Introduction

Background of the Study

Vitamin A is an essential component of the human diet. It is derived from vitamin- A-rich foods as well as from foods containing beta-carotene, composed of two retinol molecules [1]. Retinoic acid (RA) is the active metabolite of vitamin A and is a critical signaling molecule for both the developing and adult central nervous system (CNS) [2]. RA is produced from the irreversible oxidation promoted by retinaldehyde dehydrogenase (RALDH). This enzyme is present in three distinctive isoforms (RALDH1, RALDH2 and RALDH3), which display non-overlapping tissue-specific patterns of expression during embryogenesis [3]. Vitamin A deficiency could result in impaired cellular differentiation, reduced resistance to infection, anemia and, ultimately, death. In fact, vitamin A deficiency is a serious health problem in developing nations [4]. One of the most interesting aspects of RA in the brain is in relation to memory. The complexity of RA involvement in memory is such that either too much or too little can result in similar deficits in learning behaviors [5]. Retinoic acid is broadly implicated

in neurogenesis, plasticity, cell differentiation and synaptic connectivity, but RA levels must be maintained at moderate levels through complex feedback control for appropriate learning [6]. It might be said that excessive plasticity could be detrimental for effective learning and consolidation of very specific patterns and tasks. Most knowledge on vitamin A and memory is derived from animal studies and this field of research is set to remain open for many years to come. However, even without evidence-based data, the appeal of vitamin supplementation for prevention and treatment of cognitive dysfunction in adults can be problematic. In children, vitamin A supplementation has saved many lives yet has endangered others [7]. In adults supplementing their diets with vitamin capsules, the problem has yet to be properly assessed. Whether vitamin A is related to memory functions and whether its supplementation can yield benefits in a clinical setting remains to be established. A case-control study in the early 1990s suggested that Alzheimer's disease might be associated to low levels of vitamin A and beta-carotene [8]. Twenty years on, and with much more research having been carried out in this field, there is still a lack of clinical trials assessing the effects of vitamin A and cognition [9].

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. Infections such as measles may precipitate a child into clinical VAD. In VAD areas, women of childbearing age are at high risk of VAD and its consequences because of increased vitamin A requirements during pregnancy and lactation. Their newborns having been vitamin A depleted require vitamin A supplements. Otherwise, following their initial 4-6 months of nursing they are likely to develop VAD [12].

It is endemic in areas such as southern and eastern Asia, where rice, devoid of beta- carotene, is the staple food. Xerophthalmia due to primary deficiency is a common cause of blindness among young children in developing countries. Secondary vitamin A deficiency may be due to Decreased bioavailability of provitamin A carotenoids Interference with absorption, storage, or transport of vitamin A supplementation reduced the death rate by about 60%Primary vitamin A deficiency is usually caused by Interference with absorption or storage is likely in celiac disease, cystic fibrosis, pancreatic insufficiency, duodenal bypass, chronic diarrhea, bile duct obstruction, giardiasis, and cirrhosis. Vitamin A deficiency is common in prolonged protein-energy undernutrition not only because the diet is deficient but also because vitamin A storage and transport is defective.

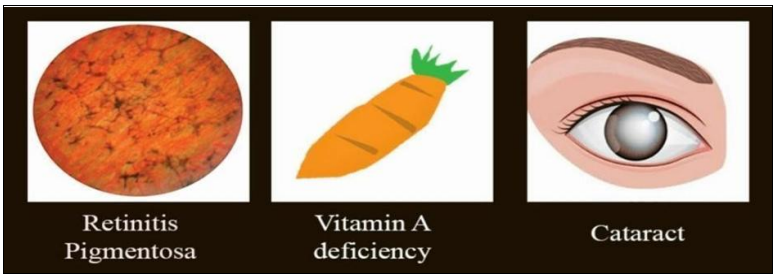

Fig 1: Causes of Night Blindness

Impaired dark adaptation of the eyes, which can lead to night blindness, is an early symptom of vitamin A deficiency. Xerophthalmia (which is nearly pathognomonic) results from keratinization of the eyes. It involves drying (xerosis) and thickening of the conjunctivae and corneas. Superficial foamy patches composed of epithelial debris and secretions on the exposed bulbar conjunctiva (Bitot spots) develop. In advanced deficiency, the cornea becomes hazy and can develop erosions, which can lead to its destruction (keratomalacia).

Keratinization of the skin and of the mucous membranes in the respiratory, gastrointestinal, and urinary tracts can occur. Drying, scaling, and follicular thickening of the skin and respiratory infections can result. Immunity is generally impaired. The younger the patient, the more severe are the effects of vitamin A deficiency. Growth retardation and infections are common among children. Mortality rate can exceed 50% in children with severe vitamin A deficiency. Serum retinol levels, clinical evaluation, and response to vitamin A

Ocular findings suggest vitamin A deficiency. Dark adaptation can be impaired in other disorders (eg, zinc deficiency, retinitis pigmentosa, severe refractive errors, cataracts, diabetic retinopathy). If dark adaptation is impaired, rod scotometry and electroretinography are done to determine whether vitamin A deficiency is the cause.

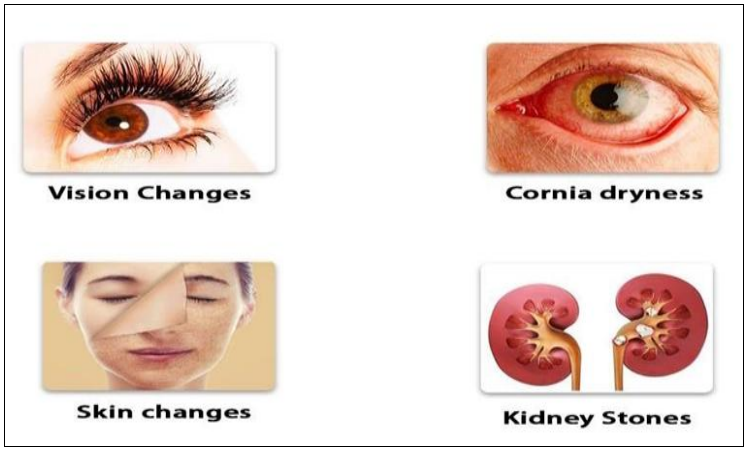

Fig 2: Symptoms of Vitamin A Deficiency

Need of the Study

Vitamin A deficiency is a common disorder of malnutrition which has a greater impact on the future life of the children affected in case of being untreated and undiagnosed. A pre-experimental study was conducted regarding vitamin A deficiency among the rural population the villages in Mohali Punjab, where we found that rural population did not have knowledge about deficiency of vitamin A. So, we conducted a pretest and gave structured teaching programme in which we explained them about vitamin A deficiency, its causes, its sign and symptoms, its management and its prevention. Then we performed a posttest to evaluate our structured teaching program. Vitamin A is a fat-soluble micronutrient. It is essential for embryogenesis up to adulthood. It can be sourced from both animal-based (preformed vitamin A) and plant-based (pro-vitamin A) foods.

Vitamin A deficiency or toxicity state arises under conditions where the dietary intake does not comply with recommended levels. It is crucial to note that both conditions could lead to various health complications with VAD leading to mainly xerophthalmia, increased infection risk and anemia, while toxicity could result in chronic hypervitaminosis and hypercarotenemia. In line with this, prevention efforts that could improve vitamin A status are widely explored. Dietary diversification, fortification and supplementation are the three main approaches that are widely applied for this purpose. The right to see is one of the important aspects, out of the five senses man possesses, vision is the most important. Therefore it is important that proper care should be taken to safeguard the precious gift of god. Prolonged vitamin- A deficiency can lead to night blindness in children. Clinically eye signs of vitamin-A deficiency i.e. Bitot's spots; Corneal Xerosis, Keratomalacia and Corneal scars are well established indicators of severe vitamin- A deficiency. It is considered as Public Health Problem in India, it is responsible for 0.3% of total cause of blindness in the country. It is the second most important factor of global blindness. Every year 250,000 to 500,000 children become blind partially or totally due to vitamin- A deficiency.

Review of Literature

Review of literature is a broad, comprehensive, systematic and critical view of scholarly publication, unpublished print materials, audio and visual materials and personnel communication. The researcher presents the review of related literature which helps the studying of problems in depth. It also serves as a valuable guide to understand what has been done, what is still unknown and untested.

KM Mahesh et al (2020) the researcher conducted this study to determine the prevalence of ocular morbidity in tribal children age 15 years or younger in Jawadhi hills, southern India. A population-based cross-sectional study was conducted in four tribal villages. Among 260 children examined, the prevalence of ocular morbidity was 10.8% [95% confidence interval (CI): 6.3-13.7]. Nearly 1 in 10 tribal children suffer from ocular morbidity and 1 in 57 had low vision. The researcher concluded that VAD is a public health problem in this tribal region which requires immediate intervention with prophylaxis and treatment [15]

Zekariyas Sahile, Delelegn Yilma, Robel Tezera, Tadu Bezu, Werissaw Haileselassie, Benyam Seifu, and Jemal Haidar Ali (2020) This systematic review and meta-analysis synthesized epidemiological evidence on vitamin A deficiency among preschoolers in Ethiopia from 1990 to 2019. The 13 studies included in the review, 5 studies showed a mild degree of public health problem (<1%), 5 studies showed moderate problems (1.0-4.9%), and 3 studies showed a severe degree of public health problem (≥5%) [16].

Muliyil DE *et al*. (2019) a study conducted on Prevalence and risk factors of Vitamin A deficiency in children 1-8 years and women of childbearing age 15-45 years in a Southern Indian Tribal Population. Participants were randomly selected by cluster sampling. A total of 166 children and 211 women participated in this study. Low educational status of the head of the household (adjusted odds ratio [aor] = 8.9) and pregnancy (aor = 11.6) was significantly associated with an increased risk of VAD among children and women, respectively. The study concluded that the prevalence of VAD among children is a moderate public health problem [17].

Rosenstoch's and Backer's health belief model (2018) addresses the relationship between the person's beliefs and behavior. It is a way of understanding and predicting how clients will behave in relation to their health care practices. Use of this model is based on school children's knowledge on vitamin a Deficiency. The investigators felt that Backers model is suitable as conceptual framework for this study. The model describes about three components [18]

Paixão, Maria José Góis MSc, RN (2017) this review included 12 studies for a total of 24,846 infants ages one to six months. Synthetic vitamin A supplementation was compared with placebo in eight studies and with no intervention in four. The studies were conducted in eight countries: Bangladesh, Nepal, Indonesia, Turkey, Ghana, Kenya and India, Peru. In the seven studies reporting the primary outcome of all-cause mortality, there was a 5% increased risk of mortality in the intervention group, but this was not statistically significant. Finally, vitamin A supplementation did not decrease vitamin A deficiency in the intervention group compared with controls [19].

Amare Tariku, Abel Fekadu, Ayanaw Tsega Ferede, Solomon Mekonnen Abebe, and Akilew Awoke Adane (2016) in this study, in spite of intensive nutritional interventions, the prevalence of Xerophthalmia still remains unacceptably high, five times higher than the WHO cut-off point for public health significance (1.56%). This might be related to the lower rate of maternal literacy in the study area (22.9%). This prevalence was also the highest of any study reporting from developing countries, such as Nigeria (1.1%) and rural India (2.3%). This huge discrepancy could be partially explained by the socio-economic and cultural differences of the study areas [20].

Jitendra Khatri, Principal, Mai Khadija Institute of Nursing Sciences, Jodhpur (2014) Children are flowers of garden, taking care of flowers is the responsibility of the guardians, as said prevention is better than cure, mothers of under five should have adequate knowledge regarding prevention of Vitamin- A deficiency, as well as sources to nurture the children in proper way. STP was effective & improved knowledge of mothers of under-five children [21].

Assistant professor, Godavari College of Nursing, Jalgaon, Maharashtra, India (2013) Conservative estimates project over 500,000 cases per year of new active corneal lesions and 6-7 million cases of non-corneal xerophthalmia attributable to vitamin a deficiency on a worldwide basis. The findings of vitamin A supplementation trials were

applied to populations at-risk of endemic vitamin A deficiency to estimate the potential impact of improved vitamin A nutrient in reducing mortality during preschool years.8 Improved vitamin A nutrient would be expected to prevent approximately 1-2 million deaths annually among children aged 1-4 years. An additional 0.25-0.5 million deaths may be averted if improved vitamin A nutrient can be achieved during the latter half of infancy [22].

Saeed Akhtar, Anwaar Ahmed Muhammad Atif Randhawa, Sunethra Atukorala, Nimmathota Arlappa, Tariq Ismail,and Zulfiqar Ali (2013) A substantial number of children and pregnant/lactating women are the victims of vitamin A deficiency in South Asian developing countries due to poverty and allied socioeconomic constraints. Several approaches to controlling VAD in South Asian countries have been attempted, including dietary diversification, supplementation, and fortification. Mega-doses of vitamin A delivered to infants and children in these countries showed encouraging results; however, dispensing mega-doses to infants initiated a debate on vitamin toxicity. New paradigms clearly define VAD as the most central issue to be addressed on emergent grounds to sustain health and wellbeing of population residing in developing countries [23].

Clare Gilbert (2013) Vitamin A, along with other vitamins, minerals and other compounds, is an essential micronutrient. Vitamin A is essential for many physiological processes, including maintaining the integrity and function of all surface tissues (epithelia): for example, the skin, the lining of the respiratory tract, the gut, the bladder, the inner ear and the eye. Vitamin A supports many systems in the body. For this reason, vitamin A deficiency is now referred to as vitamin A deficiency disorders. For simplicity, however, we will continue to use the older term vitamin A deficiency (VAD) [24].

Yare Dadalti Fragoso, Niklas Söderberg Campos, Breno Faria Tenrreiro, and Fernanda Jussio Guillen (2012) this systematic review of the literature followed the strict guidelines set forth by the PRISMA group. There were no meta-analyses of the data since the present report intended to be essentially descriptive and qualitative. Abstracts' of articles in any language that contained these words in English (in the title, key words or abstract) were independently reviewed by the authors. The latest date of publication for inclusion of articles in the study was 10th July 2012 [25].

Nilva E. Egana &MPH&TM (2009) twenty issues were identified with varying degrees of frequency. Socio-economic/environmental, parasitic infestation and dark green leafy vegetables were the issues mentioned most frequently. Each issue was addressed in relation to golden rice. It is difficult to ascertain whether the frequency with which an issue was raised is relative to how important it is in relation to the other issues. So of interest is the rationale behind spending public money to develop rice which has been genetically modified with pro-vitamin A when other supplements have failed. It is the socio-economic/environmental issues which impact on whether a population has VAD/xerophthalmia and these are not being addressed [26].

Research Approach

Research approach is a plan and procedure that consists of the steps of broad assumptions to detailed methods of data collection, analysis and interpretation. A quantitative approach was used to assess the effectiveness of structured teaching programme on knowledge regarding Vitamin A deficiency among the rural population of villages Mohali Punjab.

Research Design

A research design is a functional or blue print that includes the methods and procedures used in collecting and analyzing the needed information in research study. The design for the study was pre-experimental design. (One group pre-test post-test design).

Sampling Criteria

Inclusion criteria

- Rural population of villages Mohali, Punjab
- Both male and female were included.
- People who were willing to participate in the study
- People who were present at the time of data collection

Exclusion criteria

- People who were absent at the time of data collection
- People who were not willing to participate

Variables

- **Independent variables**

In present study, independent variable is Structured Teaching Programme.

- **Dependent variables**

In present study dependent variable is knowledge.

Scoring Procedure

Total items are 30. Every question has four options in which three are distracted and one is correct answer. Correct answer carries the score of one and distraction carries zero score. Maximum score was 30 and minimum score was 0 and the total score is 30.

By applying statistical formula, the level of knowledge is calculated as follows:

Level of knowledge	Score
Poor	0-8
Average	9-15
Good	16-30

Validity of Tool

The prepared tool was given to experts who were from nursing field for checking content validity of tool. The modifications were made according to the suggestions of the experts and the final tool was prepared after consultation with the research guide.

Reliability

The reliability of tool was calculated by split half method and Karl-Pearson method. The reliability of the tool was 0.95. Hence the tool was reliable.

Pilot Study

- The pilot study was conducted to find out the practiability and feasibility of the tool. Purposive Sampling Technique was used to select the samples to

assess the effectiveness of Structured Teaching Programme.
- It was conducted on 10% of total sample size. The pilot study was conducted on rural population of villages Mohali Punjab.

Ethical Considerations
- Written permission was taken from Director Principal of Rayat Bahra College of Nursing, Sahauran (Mohali).
- Informed consent was taken from each study subject.
- Confidentiality and anonymity of the subjects was maintained throughout study.

Data Analysis
The data was planned to be analyzed on the basis of objectives and assumptions of the study:
- The data analysis was done by using descriptive statistics and inferential statistics. The socio demographic variables were analyzed by using the frequency and percentage.
- Frequency and Percentage distribution in terms of Level of knowledge scores among Rural Population of selected village of district Mohali.
- F/t value showing the difference of knowledge score with selected socio demographic variables.

Analysis and Interpretation
The analysis and interpretation of data has been dealt with in this chapter. The organization, analysis, and interpretation of data, the formation of conclusions, and generalizations are necessary steps for getting a meaningful picture out of the raw information collected. For the analysis and interpretation of deal with the objective material and subjective reactions of the material, the data has been used for deriving some inherent meanings in its relation to the problem. An analysis of data means studying the tabulated material in order to determine inherent facts or meanings. It entails breaking down the existing complex factors into simple parts, and thereafter putting those parts together in new arrangements for the purpose of interpretation. For the sake of convenience, data have been presented in tabular form.

Organization of Data
The raw data collected was entered in a master sheet and analysis and interpretation was done by using descriptive and inferential statistics. The data was presented under following parts:
- **Section 1:** Frequency and percentage distribution of rural people to their sociodemographic variables.
- **Section 2:** Assessment of knowledge regarding deficiency of Vitamin A among rural people.
- **Section 3:** Comparison of knowledge regarding deficiency of Vitamin A among rural people.
- **Section 4:** Association of knowledge with socio-demographic variables.

Table 4.1: Frequency and percentage distribution of socio- demographic variables

Socio- demographic data		Frequency	Percent
Age (in years)	12-25	21	42.0
	26-50	23	46.0
	Above 50	6	12.0
Gender	Male	31	62.0
	Female	19	38.0
Education	No formal education	2	4.0
	Primary	17	34.0
	Secondary	18	36.0
	Graduate & above	13	26.0
Habitat	Urban	22	44.0
	Rural	24	48.0
	Semi-urban	4	8.0
Religion	Hindu	23	46.0
	Muslim	1	2.0
	Sikh	24	48.0
	Christian	2	4.0
Type of family	Nuclear	27	54.0
	Joint	21	42.0
	Extended	2	4.0
Occupational Status	Govt. employee	3	6.0
	Private employee	20	40.0
	Business	11	22.0
	Agriculture	16	32.0
Lifestyle	Sedentary	6	12.0
	Mild	2	4.0
	Moderate	42	84.0
Previous knowledge	Yes	18	36.0
	No	32	64.0
Sources of Information	Literature	4	8.0
	Health personnel	5	10.0
	Mass Media	6	12.0
	Friends & Relatives	3	6.0
	None of the above	32	64.0

Section- 1

Table-4.1 depicts the Socio demographic profile of people of rural population at selected village of district Mohali, Punjab, 2020-2021.

- **According to Age groups:** Majority of respondents i.e. 46% belonged to above 26-50 years age group, 42% belonged to 12-25years age group and 12% belonged to above 50 years age group.
- **According to Gender:** 62% male respondents were selected along with 38% were female respondents for assessing knowledge of deficiency of Vitamin A at selected village of district Mohali, Punjab.
- **According to Education:** Majority of respondents i.e. 36% were with Secondary school education, 34% were with Primary School education and 26% were with graduate and above education whereas 4% were no formal education.
- **According to Habitat:** 48% respondents were from rural areas, 44% respondents were from urban areas and 8% were from semi-urban habitat
- **According to Religion:** Majority of respondents i.e. 48% were from Sikh religion, 46% were from Hindu religion, 4% were from Christian religion and 2% were from Muslim religion.
- **According to Type of Family:** 54% were from Nuclear family, 42% were from joint family and 4% were from extended families
- **According to Occupation:** 40% were private employees, 32% were with agriculture occupation, 22% were with business and 6% were government employees
- **According to lifestyle:** Majority of respondents i.e. 84% having moderate life style, 12% having sedentary life style and 4% were mild life style
- **According to previous knowledge regarding deficiency of vitamin A:** Majority of respondents i.e. 64% had no previous knowledge whereas 36% had previous knowledge regarding deficiency of Vitamin A.
- **According to Source of information:** 12% respond in mass media, 10% respond in health personal, 8% respond in literature and 6% respond in friends and relatives whereas majority of respondents i.e. 64% had no source of information among these.

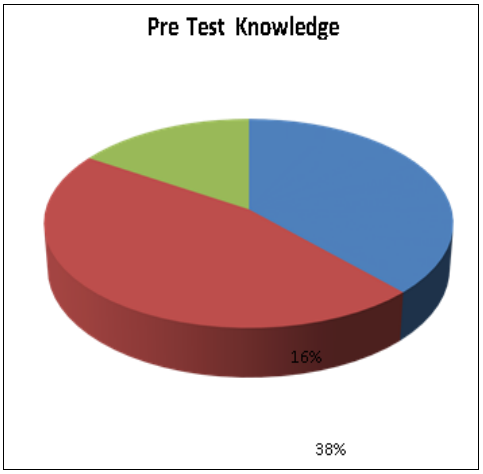

Fig 4.1: Knowledge level of rural people in Pre-test regarding deficiency of Vitamin A

Section-2

Assessment of Knowledge Score with Pre- Test and Post- Test

Table 4.2: Knowledge regarding Deficiency of Vitamin A among the rural population at selected village of district Mohali in Pre-test

Knowledge level	Frequency	Percentage (%)	Cumulative percentage	Mean ± S.D.
Poor	19	38%	38%	13.72±6.21
Average	23	46%	84%	
Good	8	16%	100%	

Maximum Score- 27 Minimum Score- 5

The Table-4.2 depicts that the pre-test knowledge scores obtained thus range from 5-27 with mean and S.D.13.72±6.21. The above table and Pie chart shown in figure 4.1 shows that 23 (46%) rural people had average knowledge compared to 19 (38%) poor knowledge and 5 (16%) good knowledge level.

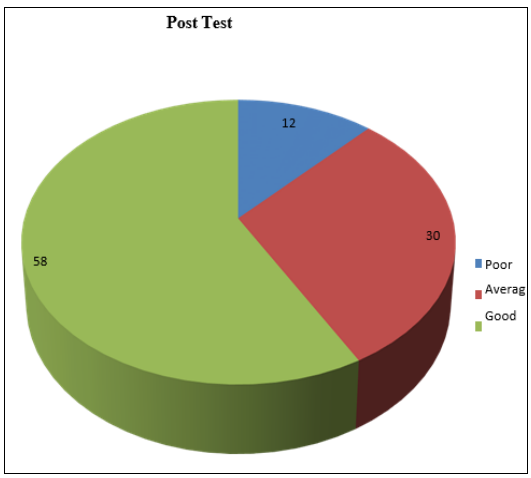

Fig 4.2: Knowledge level of rural people in Post-test regarding deficiency of Vitamin A.

Table 4.3: Knowledge regarding Deficiency of Vitamin A among the rural population at selected villages of district Mohali in Post-test

Knowledge level	Frequency	Percentage (%)	Cumulative percentage	Mean ± S.D.
Poor	6	12%	12%	21.62±9.10
Average	15	30%	42%	
Good	29	58%	100%	

Maximum Score- 30 Minimum Score- 4

The Table-4.3 depicts that the post test knowledge score rose to 21.62±9.10 in the range of 4-30. The post test result illustrates that majority of respondents i.e. 58% had good level knowledge whereas 30-37 had average level knowledge and 12% had poor level knowledge regarding deficiency of Vitamin A. The figure 2 depicts the knowledge level in post-test.

Section-3
Mean Comparison of Knowledge with Pre-Test and Post Test

Table 4.4: Mean difference of knowledge score with pre- test and post- test

Test	N	Mean	Std. Deviation	t-value	Df	p-value
Pre Knowledge	50	13.72	6.21	4.925	49	.0001**
Post Knowledge	50	21.62	9.10			

Table 4.4 depicts mean comparison of knowledge score in Pre-test and Post-test. The mean knowledge scores increased from 13.72±6.21 in Pre-test to 21.62±9.10 in Post-test marking a mean difference of 7.90. The result of intervention proved that statistically significantly higher knowledge was acquired by rural population of Mohali regarding deficiency of Vitamin A. as shown in figure 4.3

Table 4.5: Showing a Difference of knowledge level with socio demographic variables in Pre-test

Demographic variable		Pre-Knowledge			F-value/ t-value	p-value
		N	Mean	Standard Deviation		
Age	12-25	21	16.38	7.86	4.175	.021*
	26-50	23	12.30	3.75		
	Above 50	6	9.83	3.54		
Gender	Male	31	14.32	6.61	0.874	0.387
	Female	19	12.74	5.54		
Educational Status	No formal education	2	10.50	2.12	6.461	.001**
	Primary	17	12.35	5.41		
	Secondary	18	11.33	3.31		
	Graduate & above	13	19.31	7.49		
Habitat	Urban	22	16.77	7.40	8.826	.001**
	Rural	24	10.38	2.87		
	Semi-urban	4	17.00	3.46		
Religion	Hindu	23	16.91	7.56	5.093	.004**
	Muslim	1	5.00			
	Sikh	24	11.25	2.59		
	Christian	2	11.00	2.83		
Type of Family	Nuclear	27	14.81	7.73	0.968	0.387
	Joint	21	12.57	3.59		
	Extended	2	11.00	2.83		
Occupational Status	Govt. employee	3	20.00	10.39	4.682	.006**
	Private employee	20	15.90	7.08		
	Business	11	13.55	3.91		
	Agriculture	16	9.94	2.93		
Lifestyle	Sedentary	6	10.83	3.06	0.918	0.406
	Mild	2	11.50	3.54		
	Moderate	42	14.24	6.55		
Previous Knowledge	Yes	18	13.94	5.53	0.19	0.85
	No	32	13.59	6.65		
Source of Information	Literature	4	17.00	3.46	0.895	0.475
	Health personnel	5	9.80	2.86		
	Mass Media	6	15.50	7.87		
	Friends & Relatives	3	13.67	1.15		
	None of the above	32	13.59	6.65		

Table-4.5 reveals that Age, Educational status, habitat, religion and occupational status had significant difference in Pre-test knowledge whereas gender, type of family, life style, previous knowledge and source of information had insignificant difference in pretest knowledge regarding deficiency of Vitamin A among rural population at selected villages of district Mohali, Punjab in the year 2020-2021.

Table 4.6 Difference of knowledge level with socio demographic variables in Post-test

Demographic Variables		Post Knowledge			F-value/ t-value	p-value
		N	Mean	Standard Deviation		
Age	12-25	21	20.76	9.87	0.209	0.812
	26-50	23	21.96	8.59		
	Above 50	6	23.33	9.44		
Gender	Male	31	22.19	9.42	0.566	0.574
	Female	19	20.68	8.70		
Educational Status	No formal education	2	22.50	10.61	0.197	0.898
	Primary	17	22.06	9.61		
	Secondary	18	22.33	7.99		
	Graduate & above	13	19.92	10.51		
Habitat	Urban	22	19.95	9.53	0.756	0.475
	Rural	24	23.25	8.58		
	Semi-urban	4	21.00	10.42		
Religion	Hindu	23	21.26	9.82	1.63	0.195
	Muslim	1	6.00			
	Sikh	24	21.92	8.19		
	Christian	2	30.00	0.00		
Type of Family	Nuclear	27	22.07	9.82	1.131	0.331
	Joint	21	20.24	8.25		
	Extended	2	30.00	0.00		
Occupational Status	Govt. employee	3	26.33	6.35	0.38	0.768
	Private employee	20	20.75	10.01		
	Business	11	20.82	9.50		
	Agriculture	16	22.38	8.44		
Lifestyle	Sedentary	6	23.83	8.28	0.204	0.817
	Mild	2	20.50	13.44		
	Moderate	42	21.36	9.23		
Previous Knowledge	Yes	18	19.17	9.88	1.446	0.155
	No	32	23.00	8.47		
Source of Information	Literature	4	21.00	10.42	0.566	0.688
	Health personnel	5	18.00	11.25		
	Mass Media	6	19.50	10.82		
	Friends & Relatives	3	18.00	10.44		
	None of the above	32	23.00	8.47		

Table-4.6 depicts that there is no significant difference found on the basis of Age, Gender, Educational Status, Habitat, Religion, Type of family, Occupational status, Lifestyle, Previous knowledge and source of information had insignificant difference in Post-test knowledge regarding deficiency of Vitamin A among rural population at selected villages of district Mohali, Punjab in the year 2020-2021.

Summary and Conclusion

The chapter gives a brief account of present study including conclusion drawn from the finding, limitation, implications, and recommendations for future research. Major finding of the study showed that Socio demographic profile of people of rural population at selected village of district Mohali, Punjab is that majority of respondents i.e. 46% belonged to above 26-50 years age group,42% belonged to 12-25years age group and12% belonged to above 50 years age group. To endure proper gender distribution 62% male respondents were selected alongwith38% female respondents for assessing knowledge of deficiency of Vitamin-A at selected villages of district Mohali, Punjab. Education wise distribution of the respondents shows that majority of respondents i.e. 36% were with Secondary school education, 34% were with Primary School education and26% were with graduate and above education whereas 4% were no formal education. Habitat wise distribution of the respondents depicts that 48% respondents from rural areas, 44% respondents were from urban areas whereas 8% were from semi-urban habitat. On the basis of religion wise distribution, it is found that majority of respondents
I.e. 48% were from Sikh religion, 46% were from Hindu religion, 4% were from Christian religion and 2% were from Muslim religion. Majority of respondents i.e. 54% were from Nuclear family, 42% were from joint family and 4% were from extended families. Occupation wise distribution of the respondents reveals that majority of respondents i.e. 40% were private employees, 32% were with agriculture occupation, 22% were with business and 6% were government employees. Life style wise distribution of the respondents depicts that majority of respondents i.e. 84% having moderate life style, 12% having sedentary life style and 4% were mild life style. When it is asked about the previous knowledge regarding deficiency of vitamin A then majority of respondents i.e. 64% had no previous knowledge whereas 36% had previous knowledge regarding deficiency of vitamin A. When it is asked about source of information than 12% respond in mass media, 10% respond in health personal, 8% respond in literature and 6% respond in friends and relatives whereas majority of respondents i.e. 64% had no source of information among these. The conclusion was drawn on the basis of finding of study. The finding showed that post test was greater than pre test knowledge regarding Vitamin A deficiency among rural population of selected village of district Mohali, Punjab. It reveals that structured teaching programme on Vitamin A deficiency was effective. Our finding highlights need for more intensive efforts to promote proper knowledge

regarding Vitamin A deficiency. The mean comparison of knowledge score in Pre-test and Post-test demonstrates the effectiveness of structured teaching programme. The mean knowledge scores increased from 13.72±6.21 in Pre- test to 21.62±9.10 in Post-test marking a mean difference of 7.90. The result of intervention proved that statistically significantly higher knowledge was acquired by rural population of Mohali regarding deficiency of Vitamin A.

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