

Research Article

Maternal Knowledge and Attitude Towards Vitamin A Deficiency and Its Prophylaxis Among Mothers of Under Five Children

^aSherly Abraham, ^{*b}Somashekarayya Kalmath and ^cKhajahusen Doddamani

^aLecturer, KLES Institute of Nursing Sciences, Hubli, Karnataka, India

^bProfessor and HOD of Paediatric Nursing, KLES Institute of Nursing Sciences, Hubli, Karnataka, India

^cAssistant Professor, KLES Institute of Nursing Sciences, Hubli, Karnataka, India

*Corresponding Author Email: somukalmath123@gmail.com

Received: May 12, 2025

Accepted: June 02, 2025

Published: June 09, 2025

Abstract

Background: Adequate nutrient intake is essential for overall health and the prevention of micronutrient deficiencies. Child health, which forms the foundation for healthy adulthood, ensuring children to meet their nutritional needs is vital for supporting healthy child development. Vitamin A, a key micronutrient, is crucial for vision, immunity, growth, and reproduction. Its deficiency remains a major public health issue in developing countries, leading to conditions such as anaemia, xerophthalmia, Bitot's spots, and night blindness. **Objectives:** 1) To assess the knowledge regarding vitamin A deficiency and its prophylaxis among mothers of under five children. 2) To assess the attitude regarding vitamin A deficiency and its prophylaxis among mothers of under five children. 3) To find out a correlation between knowledge and attitude scores regarding vitamin A deficiency and its prophylaxis among mothers of under five children. 4) To find out an association between knowledge scores and selected demographical variables. 5) To find out an association between attitude score and selected demographical variables. **Methodology:** A descriptive study was undertaken to assess the knowledge and attitude regarding vitamin A deficiency and its prophylaxis among 60 mothers of under five children in selected areas of the primary health centre, Byahatti. The sample was selected using a non-probability convenience sampling technique. Data pertaining to knowledge and attitude were collected through a structured knowledge questionnaire and a 3-point Likert scale respectively. The analysis of data was conducted using descriptive and inferential statistical methods. **Results:** The overall findings of the study revealed that, among the 60 subjects, the majority (60%) possessed average knowledge, 21.66% demonstrated poor knowledge, and 18.33% exhibited good knowledge regarding vitamin A deficiency and its prophylaxis. In terms of attitude, the majority (70%) expressed a neutral attitude, 18.33% held a positive attitude, and 11.66% exhibited a negative attitude toward vitamin A deficiency and its prophylaxis. A moderate positive correlation ($r = 0.02$) was observed between knowledge and attitude scores. **Conclusion:** The study concludes that the knowledge and attitude among mothers of children under five years concerning vitamin A deficiency and its prophylaxis were limited and requires significant improvement. These findings showcase the need for focused nutritional education and awareness programs to enhance maternal knowledge and promote preventive health practices targeting reduced burden of vitamin A deficiency in vulnerable populations.

Keywords: Mothers of Under Five Children, Vitamin A Prophylaxis, Vitamin A Deficiency, Under Five Children.

Introduction

Child health is the foundation of adult health and well-being. Healthy children are those who live in families, environments, and communities that provide them with opportunities to reach their fullest developmental potential [1]. The knowledge of mothers plays an important role in maintaining the nutritional status of their children. Therefore, mothers must be made more aware of appropriate feeding practices and other healthcare measures [2]. Nutrition for children is broadly divided into macronutrients and micronutrients. Macronutrients include carbohydrates, proteins, and fats, which are required in larger quantities. Micronutrients include vitamins and minerals, which are needed in smaller quantities [3]. Vitamin A is an essential micronutrient necessary for maintaining normal vision, gene expression, reproduction, embryonic development, growth, and immune function. Children become vitamin A deficient for two main reasons: 1)

their mothers are deficient and produce breast milk low in vitamin A, and 2) they are weaned onto diets that provide insufficient vitamin A [4].

Vitamin A plays a crucial role in vision by enabling the eye to produce certain pigments required for proper retinal function. Vitamin A deficiency halts the production of these pigments, leading to night blindness. Nearly half of the global cases of vitamin A deficiency and xerophthalmia (night blindness) occur in South and Southeast Asia, with large numbers reported in India (35.3 million), Indonesia (12.6 million), and China (11.4 million) [5]. India has the highest prevalence of both clinical and subclinical vitamin A deficiency among South Asian countries; 62% of preschool children have been reported as vitamin A deficient. These alarming figures correlate with high mortality rates, contributing to an estimated 330,000 child deaths annually [6]. Under the National Child Survival and Safe Motherhood (CSSM) Programme, each child was made to receive five doses of vitamin A supplementation before their third birthday: one dose of 100,000 IU for children aged 6–11 months, and one dose of 200,000 IU every six months for children aged 12–36 months. To improve operational feasibility, the administration of the first dose of vitamin A was linked to measles immunization [7].

Currently, vitamin A supplementation (VAS) is implemented through the existing network of primary health centers and sub-centers. Female multipurpose workers and other paramedics at village-level sub-health centers are responsible for administering vitamin A solutions [8]. The under five years of a child represent a critical period of intense growth and development, during which the need for a nutritious diet rich in vitamin A and adherence to vaccination schedules, including vitamin A supplementation, must be fulfilled. Nutritional education should be provided to raise awareness. As it helps to reduce vitamin A deficiency and improves overall health status. Therefore, educating mothers on the importance of preventing vitamin A deficiency and its prophylaxis is imperative [9].

Materials and Methods

Present study was a descriptive survey research design. A non-probability, convenience sampling technique was used to select the 60 subjects for the present study. Mothers of under five children who were able to understand, read and write Kannada or English and available at the time of data collection were selected for the study.

Instruments

The study utilized a structured interview schedule consisting of three sections. Section I gathered socio-demographic data through 10 items covering variables such as age, religion, mother's educational status, occupation, number of children, family type, family income, dietary pattern, source of information, and status of vitamin A administration. Section II comprised 28 items designed to assess mothers' knowledge regarding vitamin A deficiency and its prophylaxis. Each correct response was scored as one, while incorrect responses were scored zero, with a maximum possible score of 28. This section was further divided into three parts: 10 items on vitamin A knowledge, 6 items on knowledge of vitamin A deficiency, and 12 items on vitamin A prophylaxis. Section III included an attitude scale consisting of 19 items measured on a modified 3-point Likert scale. Positive statements were scored as Agree (3), Uncertain (2), and Disagree (1), whereas negative statements were reverse scored. The total maximum attitude score was 57. The tool was translated into the local language, validated by experts in Child Health Nursing, Community Health Nursing, and the research committee of KLES Institute of Nursing Sciences, Hubballi. Reliability testing during the pilot study using split-half technique and Karl Pearson's correlation coefficient showed a reliability of $r = 0.89$ for the knowledge questionnaire and $r = 0.73$ for the attitude scale.

Data Collection Procedure

Prior permission was obtained from the Medical Officer of Byahatti PHC, Hubballi. The main data collection was carried out between 22nd March 2021 and 7th April 2021 at Byahatti PHC. Mothers of under five children were selected through convenience sampling. The investigator introduced herself, explained the study's aims and objectives, and obtained informed consent from the participants. Data were collected through structured interviews using the knowledge questionnaire and attitude scale, with each interview lasting approximately 20 to 30 minutes.

Data Analysis Plan

The collected data were organized on a master sheet and analyzed according to the study objectives using descriptive and inferential statistics under expert supervision. Descriptive analysis included frequency, percentage, mean, median, mode, standard deviation, and range. Knowledge scores were classified as good

(mean + SD and above), average (mean \pm SD), and poor (mean – SD and below). Attitude scores were classified as positive (mean + SD and above), neutral (mean \pm SD), and negative (mean – SD and below). Inferential statistics included the chi-square test to assess associations between knowledge, attitude, and socio-demographic variables, and Karl Pearson's correlation coefficient to evaluate the relationship between knowledge and attitude scores.

Result

Description of Socio-Demographic and Clinical Characteristics of Mothers of Under Five Children

Percentage-wise distribution reveals that majority of the mothers (50%) were in the age group of 27–29 years. Most of the mothers (58.33%) belonged to Hindu religion. In terms of education, majority (28.33%) had completed secondary education. Most of the mothers (56.67%) were housewives. Majority of the mothers (58.33%) had two under five children. Most of the mothers (76.67%) belonged to joint families. Majority of the families (66.67%) had a monthly income of less than Rs. 10,000. Most of the mothers (53.33%) consumed a mixed diet. The major source of information for most mothers (80%) was health professionals. Majority of the children (63.33%) were administered vitamin A prophylaxis.

Frequency and Percentage Distribution of Knowledge Scores of Subjects Regarding Vitamin A Deficiency and Its Prophylaxis (n=60)

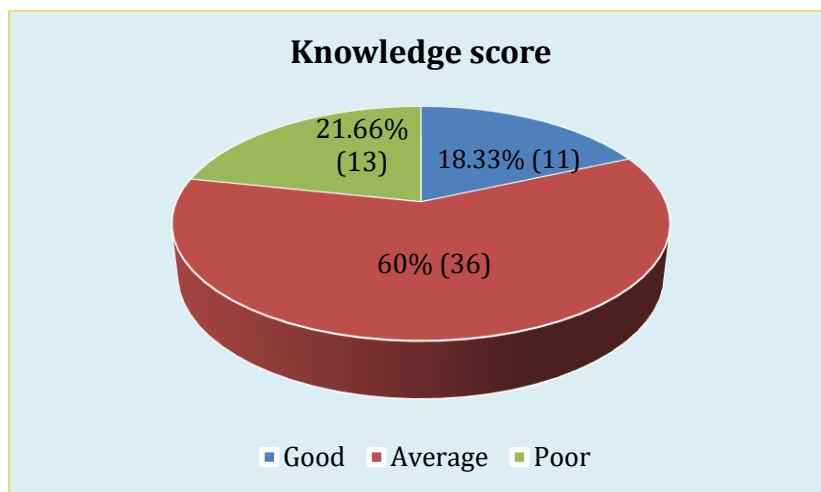


Figure 1. Assessment of level of knowledge among mothers of under five children (n = 60).

The pie diagram reveals that the majority of subjects (60%) had average knowledge regarding vitamin A deficiency and its prophylaxis. A smaller proportion of subjects (18.33%) demonstrated good knowledge, while 21.66% had poor knowledge.

Frequency and Percentage Distribution of Attitude Scores of Subjects Regarding Vitamin A Deficiency and Its Prophylaxis (n=60)

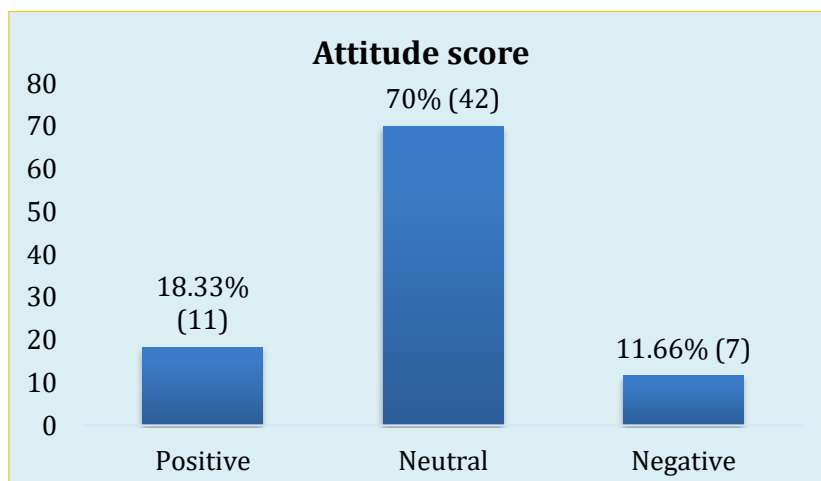


Figure 2. Assessment of level of attitude among mothers of under five children (n= 60).

The bar diagram shows that majority of the subjects (70%) had a neutral attitude towards vitamin A deficiency and its prophylaxis. Only 18.33% of the subjects had a positive attitude, and 11.66% had a negative attitude.

Frequency and Percentage Distribution of Knowledge Scores According to Area of Knowledge (n=60)

Table 1. Assessment of level of attitude among mothers of under five children according to the area of knowledge (n= 60).

S/N	Area of knowledge	Total scores	Mean % scores of subjects	
			Scores obtained	Percentage (%)
1	Regarding vitamin A	600	516	86
2	Regarding vitamin A deficiency	360	309	85.83
3	Regarding vitamin A prophylaxis	720	585	81.25

Table 1 indicates that the majority of subjects had high levels of knowledge across different areas: 86% regarding vitamin A, 85.83% regarding vitamin A deficiency, and 81.25% regarding vitamin A prophylaxis.

Correlation Between Knowledge Scores and Attitude Scores of Mothers of Under Five Children Regarding Vitamin A Deficiency and Its Prophylaxis (N=60)

Table 2. Assessment of level of attitude among mothers of under five children according to the area of knowledge (n= 60).

\bar{X}	\bar{Y}	Karl Pearson coefficient of correlation
23.5	48.16	$r=0.02$ ($0 < r_{xy} < 1$) moderately positive correlation

Table 2 presents the analysis to find out the correlation between knowledge scores and attitude scores. The mean knowledge score (\bar{X}) was 23.5 and the mean attitude score (\bar{Y}) was 48.16. The Karl Pearson coefficient of correlation ($r = 0.02$) indicates a moderately positive correlation between knowledge and attitude scores.

Association Between Knowledge Scores of Mothers of Under Five Children and Their Selected Socio Demographical Variables

Table 3. Association between knowledge scores of mothers of under five children and their socio-demographic variables (n = 60).

S/N	Socio-demographic variables	Df	Chi-square value (Cal)	Table value	P-value	Significance
1	Age	4	7.96	9.48	>0.05	NS
2	Religion	6	5.72	12.59	>0.05	NS
3	Educational status of mother	8	29.12	15.50	<0.05	S
4	Occupation of mother	6	27.29	12.59	<0.05	S
5	Number of children	4	7.03	9.48	>0.05	NS
6	Type of family	4	4.61	9.48	>0.05	NS
7	Family monthly income	6	9.09	12.59	>0.05	NS
8	Dietary pattern	2	0.71	5.99	>0.05	NS
9	Source of information	8	8.79	15.50	>0.05	NS
10	Administration of vitamin A	2	0.57	5.99	>0.05	NS
Df-Degrees of freedom; NS-Not significant; S-Significant at 0.05 level						

Table 3 presents the findings related to the association between the knowledge scores of mothers of under five children and their selected socio-demographic variables.

A significant association was found between the knowledge scores and the variables "educational status of the mother" ($\chi^2 = 29.12$, $p < 0.05$, table value = 15.50) and "occupation of the mother" ($\chi^2 = 27.29$, $p < 0.05$, table value = 12.59). No significant association was found with the other variables.

Association Between Attitude Scores of Mothers of Under Five Children and Their Selected Socio Demographical Variables

Table 4. Association between attitude scores of mothers of under five children regarding vitamin A deficiency and their socio-demographic variables (n = 60).

S/N	Socio-demographic variables	Df	Chi-square value (Cal)	Table value	P-value	Significance
1	Age	4	2.85	9.48	>0.05	NS
2	Religion	6	8.51	12.59	>0.05	NS
3	Educational status of mother	8	7.84	15.50	>0.05	NS
4	Occupation of mother	6	8.71	12.59	>0.05	NS
5	Number of children	4	15.98	9.48	<0.05	S
6	Type of family	4	1.67	9.48	>0.05	NS
7	Family monthly income	6	4.27	12.59	>0.05	NS
8	Dietary pattern	2	0.83	5.99	>0.05	NS
9	Source of information	8	18.58	15.50	<0.05	S
10	Administration of vitamin A	2	0.55	5.99	>0.05	NS
Df-Degrees of freedom; NS-Not significant; S-Significant at 0.05 level						

Table 4 reveals the findings related to the association between the attitude scores of mothers of under five children and their selected socio-demographic variables. A significant association was found between the attitude scores and the variables "number of children" ($\chi^2 = 15.98$, $p < 0.05$, table value = 9.48) and "source of information" ($\chi^2 = 18.58$, $p < 0.05$, table value = 15.50). No significant association was found with the remaining variables.

Discussion

This descriptive survey design study included a sample of 60 mothers of under five children at selected areas of the primary health center, Byahatti. The findings revealed that the highest percentage (60%) of mothers had average knowledge regarding vitamin A deficiency and its prophylaxis, followed by 21.66% with poor knowledge and 18.33% with good knowledge. The results of the present study are supported by a study titled "A descriptive study to assess the knowledge regarding vitamin A deficiency disorders among mothers of under five children in selected rural area of district Ludhiana, Punjab (2016)" conducted by Anmol (2017), where, 61.67% of mothers had average knowledge and 38.33% had good knowledge [9]. In the present study, 72% of the subjects had a neutral attitude, 18.33% had a positive attitude, and 11.66% had a negative attitude towards vitamin A deficiency and its prophylaxis. These findings contradict a descriptive study titled "Knowledge, attitude and practices among mothers of children under five years regarding vitamin A intake", conducted by Khaliq *et al.*, (2008), in which 32% had a positive attitude and 68% had a negative attitude [10]. Findings of the present study found a moderately positive correlation between knowledge and attitude scores ($r = 0.02$), indicating that as knowledge increases, attitude also improves. These findings are supported by a cross-sectional analytical study titled "Knowledge, attitude and practices among mothers of pre-school children regarding vitamin A supplementation at field practice area of GCS medical college, Ahmedabad", conducted by Prajapati *et al.*, (2015) in which they observed presented positive correlation ($r = 0.59$) between knowledge and attitude [11].

Recommendations

Keeping in view the findings of the present study, the following recommendations are made:

- ☞ A similar study can be conducted with a larger sample size, which would be more effective in making broader generalizations.
- ☞ An interventional study can be conducted for mothers of under five children on how to provide vitamin A-rich foods to prevent vitamin A deficiency.
- ☞ A pre-experimental study can be conducted to assess the effectiveness of specific selected strategies related to vitamin A deficiency and its prophylaxis programme.

Declarations

Acknowledgements: It is my pleasure and privilege to express my deep sense of gratitude to my guide and mentor, Dr. Somashekharayya Kalmath, M.Sc. (N), PhD, Head of the Department of Pediatric Nursing, KLES Institute of Nursing Sciences, Hubballi, for his keen interest in me at every stage of my research. His prompt inspiration, timely suggestions, kindness, enthusiasm, and dynamism have enabled me to successfully complete my research work.

Author Contributions: SA: Definition of intellectual content, concept, design, implementation of study protocol, review manuscript; SK: Design of study, statistical analysis and interpretation, literature survey,

data analysis, and manuscript revision; KD: Literature survey, prepared first draft of manuscript, data collection, data analysis, manuscript preparation and submission of article.

Conflict of Interest: The authors declare no conflict of interest.

Consent to Publish: All authors agree to publish the paper in International Journal of Recent Innovations in Academic Research.

Data Availability Statement: The data presented in this study are available upon request from the corresponding author.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was approved by the Institutional Ethical Clearance Committee, KLE'S Institute of Nursing Sciences, Hubballi, Karnataka, India.

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Research Content: The research content of this manuscript is original and has not been published elsewhere.

References

1. Maintaining Life: Necessary Life Functions. 2013. Available from: <https://anatomyandphysiology.com/maintaining-life-necessary-life-functions/>
2. Usha Rani, T. 2018. A study to assess the knowledge and practices on vitamin A deficiency among school children in Naziabad (district), Telangana, India. IOSR Journal of Nursing and Health Science, 7(4 Ver. I): 1-13.
3. 10 Important Roles of a Mother in Child Development. 2020. Available from: https://www.indiaparenting.com/child-development/262_6626/10-important-roles-of-a-mother-in-child-development.html
4. Dutta, P. 2009. Paediatric nursing. 3rd Edition. New Delhi: Jaypee Publisher, 209p.
5. Varghese, S., Manuel, S., Tessy, A., Vineetha, C.R. and Sheeja, S. 2020. A Study to assess the knowledge on mothers of under five children regarding importance of vitamin A among selected areas of Pallithottam, Kollam. Asian Journal of Nursing Education and Research, 10(1): 84-88.
6. DeMaeyer, E.M. 1986. The WHO programme of prevention and control of vitamin A deficiency, xerophthalmia and nutritional blindness. Nutrition and Health, 4(2): 105-112.
7. Ganvir, V. 2016. Effectiveness of planned teaching programme on knowledge regarding prevention of vitamin A deficiency among the mothers of under five children in selected rural areas of Vidharbha region. International Journal of Science and Research, 5(4): 1660-1662.
8. Sheth, A.M., Rangoonwala, M.M., Lodhiya, K.K., Zalavadiya, D.D. and Joshi, N.B. 2016. A study on awareness and practice regarding vitamin A intake and its deficiency disorders among mothers of pre-school children in Khirasara village, Rajkot, Gujarat. National Journal of Community Medicine, 7(6): 505-509.
9. Anmol, B. 2017. A descriptive study to assess the knowledge regarding vitamin A deficiency disorders among mothers of under five children in selected rural area of district Ludhiana, Punjab (2016). International Journal of Nursing Education and Research, 5(4): 395-398.
10. Khaliq, R., Rahman, M.U. and Rizvi, F. and Afzal, M. 2008. Knowledge, attitude and practices among mothers of children under five years regarding vitamin-A intake. Annals of Pakistan Institute of Medical Sciences, 4(2): 121-124.
11. Prajapati, A., Solanki, A. and Sonaliya, K.N. 2015. Knowledge, attitude and practices among mothers of pre-school children regarding vitamin A supplementation at field practice area of GCS medical college, Ahmedabad. Healthline Journal, 6(2): 23-28.

Citation: Sherly Abraham, Somashekarayya Kalmath and Khajahusen Doddamani. 2025. Maternal Knowledge and Attitude Towards Vitamin A Deficiency and Its Prophylaxis Among Mothers of Under Five Children. International Journal of Recent Innovations in Academic Research, 9(2): 416-421.

Copyright: ©2025 Sherly Abraham, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.