

Original Research

The Effect of Education on Knowledge of Vitamin A Capsules in Cikondang Village, Cibeber District, Cianjur Regency, Indonesia

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Article history

Received: 21 December 2024
Revised: 25 January 2025
Accepted: 26 January 2025
Published Online: 20 February 2025

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How to cite this article: Rahmah H, Abdillah S, Khaerani NP, Suryani Y. The Effect of Education on Knowledge of Vitamin A Capsules in Cikondang Village, Cibeber District, Cianjur Regency, Indonesia. *Health Dynamics*, 2025, 2(2s), 52-58. <https://doi.org/10.33846/hd2025s08>



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ABSTRACT

Background: Vitamin A is a critical nutrient that dissolves in fat, is stored in the liver, and must be sourced externally, as the body cannot produce it. Its significance for toddlers and children is undeniable, particularly in preventing infections and enhancing the body's immunity. **Methods:** This study decisively examines the knowledge of mothers in Cikondang Village, Cibeber District, Cianjur, Indonesia, regarding the administration of vitamin A capsules to their toddlers. We employed an analytical report method to assess this important issue. A total of 20 mothers were sampled using a total sampling technique, and primary data was collected directly from the respondents with suitable instruments. **Results:** The results are compelling. Before counseling, 13 respondents (65%) were classified as having poor knowledge, with an average score of 53.05. Following the counseling session, 12 respondents (60%) demonstrated a significant improvement, moving into the good knowledge category, with an average score of 78.30. The Wilcoxon test analysis confirmed these findings with a p-value of 0.000. **Conclusions:** counseling has a profound and measurable impact on maternal knowledge. Local health services must continue to provide education on the critical importance of vitamin A consumption.

Keywords: Counseling; education; knowledge; vitamin A

1. INTRODUCTION

Vitamin A is an essential fat-soluble nutrient stored in the liver that must be obtained from the diet, as the body cannot produce it. A deficiency in Vitamin A (VAD) can weaken toddlers' immune systems, increasing their risk of illness and death. This vital micronutrient includes important derivatives like Retinol, Retinal, Retinoic Acid, and Retinyl Ester.^(1,2) Ensuring adequate Vitamin A intake is crucial for the health and well-being of young children.⁽¹⁾ Vitamin A offers several important benefits for toddlers and children. It helps prevent infections and increases the body's resistance to various diseases, such as acute respiratory infections (ARI), measles, and diarrhea. Additionally, vitamin A assists in the adaptation of the eyes to different lighting conditions, aiding the transition between bright and dark environments. It also plays a crucial role in preventing epithelial cell disorders, such as dry eyes and dry mucous membranes, thereby reducing the risk of eye damage and blindness. For infants and toddlers, there are two types of vitamin A capsules available: the blue capsule, which is given to infants aged 6-11 months (containing 100,000 IU), and

the red capsule, which is provided to children aged 12-59 months (containing 200,000 IU).^(3,4) According to the Vitamin A Supplementation Management Guidelines, vitamin A capsules should be administered simultaneously every February and August. Infants aged 6-11 months receive the supplement once, while toddlers aged 12-59 months should receive it twice during this period.⁽⁵⁾

Vitamin A deficiency is a critical public health issue that requires urgent action. The World Health Organization (WHO) estimates that 6 to 7 million toddlers suffer from night blindness each year, with around 10% experiencing serious corneal damage. Alarming, 60% of these affected children do not survive beyond one year. In Indonesia, significant progress has been made, with vitamin A supplementation reaching 92.07% in 2023, up from 90.80% in 2022. In 2021, 90.02% of children aged 6 to 59 months received essential supplements. However, disparities remain. Analysis using Local Indicators of Spatial Association (LISA) identified four provinces (Banten, DKI Jakarta, West Java, and Central Java) with a High-High relationship between vitamin A coverage and diarrhea incidence.⁽⁶⁾ With 27 provinces still unexamined, it is vital to raise awareness and enhance vitamin A coverage to protect the health of our children. This condition can be interpreted that the four provinces have a high level of significance for the relationship between vitamin A coverage variables and diarrhea incidence in their regions. Vitamin A supplementation coverage has been evenly distributed but there are still differences in achievement in several provinces. The vitamin A supplementation coverage program has an indication of spatial autocorrelation or is related between provincial regions, for the western and central regions the achievement is above 80 percent, while a small part of the eastern region is below 25 percent, namely Papua Province. Vitamin A coverage has a significant relationship with the incidence of diarrhea spatially in seven provinces. Banten, DKI Jakarta, West Java, and Central Java Provinces are in the HH category with the highest significance. DI Yogyakarta Province is in the LH category, and Papua and West Papua Provinces are in the LL category. Coverage of vitamin A capsule provision in Cianjur Regency in 2022 to infants aged 6-11 months from 40,770 existing infants, who received vitamin A amounted to 41,819 infants (102.57). Coverage of vitamin A capsule provision 2 times to toddlers aged 1-5 years given in

February and August in 2018 from a total of 169,980, who received vitamin A 2 times amounted to 159,409 children (93.78%).⁽⁷⁾ Overall, the coverage of vitamin A provision from 210,750 toddlers aged 6-59 months, 201,228 (95.48%) of whom have received vitamin A.⁽⁴⁾

Vitamin A deficiency occurs mainly due to lack of vitamin A intake obtained from daily food and also because the storage and transport of vitamin A in the body is disrupted. Vitamin A deficiency causes the eyes to be unable to adjust to changes in light entering the retina. As an early consequence, night blindness occurs, namely the eyes have difficulty seeing at dusk or can also occur when entering a dark room. If vitamin A deficiency continues, xerophthalmia will occur which results in blindness. In addition, vitamin A deficiency makes the body susceptible to bacterial and viral infections. Without vitamin A, the body's defense system will be lost. A mother's education level significantly impacts her child's health, particularly in adopting crucial knowledge about vitamin A administration. Attitude is vital; knowledge and skills are ineffective without a commitment to positive behavior. Success in education is often measured by attitude. Research by Aina Mulya in 2021 demonstrates a clear link between maternal attitudes and vitamin A provision. This aligns,⁽⁸⁾ emphasizing the important role of health workers in monitoring vitamin A distribution to toddlers. Dedicated cadres must actively engage in community health initiatives and encourage local participation in posyandu ("Pos Pelayanan Terpadu" or "Integrated Service Post") activities, as effective vitamin A distribution relies on their involvement. From the analysis, a relationship was obtained between the provision of vitamin A and the role of cadres.

The role of cadres influences the achievement of vitamin A provision in toddlers and a cadre plays a very important role in providing good services and information and providing counseling to mothers who have babies and toddlers that the importance of providing vitamin A to babies and toddlers by providing counseling on the importance of providing vitamin A of course with the participation of cadres and parents. According to the results of the study.⁽⁶⁾ Mothers, especially those with babies and toddlers aged 6-59 months, are considered important to obtain health education regarding the benefits of providing vitamin A.⁽⁴⁾ This health education aims to increase knowledge and improve health levels.⁽⁷⁾ The implementation of health education is carried out as a form of community

service, especially aimed at mothers of babies and toddlers in order to increase related knowledge. It can be concluded that community service activities are useful for increasing knowledge and changing attitudes to be more aware of health. Education needs to be carried out periodically. Increasing mothers' knowledge of the benefits of vitamin A, with regular health education, it will improve the health of the community, especially babies and toddlers. Health education aims to change the behavior of individuals and society for the better. Health education focuses on the cognitive aspect, it is hoped that mothers' knowledge will increase, as well as increase public awareness and enable the community to change their behavior. Before receiving health education on vitamin A provision, mothers had less knowledge, but their knowledge improved after receiving health education. Good knowledge and good compliance efforts can be caused by efforts made by the health center, such as counseling on the importance of weighing toddlers and vitamin A carried out at integrated health posts so that mothers are more selective and understand the importance of providing vitamin A to toddlers, which will affect the efforts or awareness of mothers to meet the vitamin A needs of their toddlers.⁽²⁾ The implementation of health education is carried out as a form of community service, especially aimed at mothers of babies and toddlers in order to increase related knowledge. It can be concluded that community service activities are useful for increasing knowledge and changing attitudes to be more aware of health. Education needs to be carried out regularly. Increasing mothers' knowledge of the benefits of vitamin A, with regular health education, it will improve the health of the community, especially babies and toddlers. Health education aims to change the behavior of individuals and society for the better. Health education focuses on the cognitive aspect, it is hoped that mothers' knowledge will increase, as well as increase public awareness and enable the community to change their behavior. Before receiving health education about giving vitamin A, mothers had less knowledge, but their knowledge increased to good after receiving health education.⁽³⁾ Good knowledge and good compliance efforts can be caused by efforts made by the health center such as counseling about the importance of weighing toddlers and vitamin A which is carried out at integrated health posts so that mothers are more selective and understand the importance of giving vitamin A to toddlers which will affect the efforts

or awareness of mothers to meet the needs of vitamin A for their toddlers.⁽⁷⁾ The implementation of health education is carried out as a form of community service, especially aimed at mothers of babies and toddlers in order to increase related knowledge.⁽⁹⁾ It can be concluded that community service activities are useful for increasing knowledge and changing attitudes to be more aware of health. Education needs to be carried out regularly. Increasing mothers' knowledge of the benefits of vitamin A, with regular health education, it will improve the health of the community, especially babies and toddlers. Health education aims to change the behavior of individuals and society for the better. Health education focuses on the cognitive aspect, it is hoped that mothers' knowledge will increase, as well as increase public awareness and enable the community to change their behavior. Before receiving health education about giving vitamin A, mothers had less knowledge, but their knowledge increased to good after receiving health education. Good knowledge and good compliance efforts can be caused by efforts made by the health center such as counseling about the importance of weighing toddlers and vitamin A which is carried out at integrated health posts so that mothers are more selective and understand the importance of giving vitamin A to toddlers which will affect the efforts or awareness of mothers to meet the needs of vitamin A for their toddlers.⁽⁷⁾

It is explained in the results of the study on maternal knowledge that good knowledge needs to be pursued and improved so that it can improve the harmony in knowledge and practice. The condition of the research location is a district area that has limitations in regional demographics for health services so that the novelty in this study is that counseling efforts can provide an influence on increasing maternal knowledge, especially about providing vitamin A.

2. METHODS

This study is an analytical study with a Quasi Experiment method, namely one group pre-test - post-test design also called before after design. which was conducted on the population of mothers who have toddlers at the Posyandu Cikondang Village, Cibeber District, Cianjur Regency in 2024.⁽¹⁰⁾ The sample in this study was 20 mothers who had toddlers who were taken with inclusion criteria, namely mothers who had toddlers aged 12-59 months at the time of the study, and

were mothers who were targets at the Posyandu in Cikondang Village. Exclusion criteria were mothers who were not present at the time of data collection. Data collection was carried out by giving a questionnaire to measure knowledge before and after being given counseling. The questionnaire was given twice to be filled in. The data analysis used was univariate with a frequency distribution of mothers' knowledge before and after being given counseling. Then the analytical data analysis was carried out using the Wilcoxon test because the data was normally distributed. This study was carried out after an ethical test of the research permit was carried out based on an ethical letter from the Cianjur Health Sciences College with number 385/KEP-STIKES/V/2024.

3. RESULTS

3.1 Knowledge Before Counseling

Based on Table 1, the knowledge of mothers who have toddlers before counseling was carried out, most of the respondents were included in the category of less before being given counseling about giving vitamin A capsules, namely 13 respondents or (65%). The knowledge of mothers who were sufficient before being given counseling was 5 people (25%). While good knowledge in mothers about giving vitamin A was 2 people (10%).

Table 1. Frequency distribution of mothers' knowledge before being given counseling on giving vitamin A capsules to toddlers aged 6-59 months in Cikondang village, Cibeber District, Cianjur Regency in 2024

Knowledge	Frequency (F)	Presentation (%)
Good	2	10%
Enough	5	25%
Not enough	13	65%
Total	20	100%

3.2 Knowledge After Being Given Counseling

Based on Table 2, the knowledge of mothers who have toddlers, most of the respondents are included in the Good category after being given counseling on the provision of vitamin A capsules, namely 12 respondents or (60%). Mothers of toddlers who have sufficient knowledge after being given counseling are 8 people (40%). Mothers of toddlers who have insufficient

knowledge are no longer there after being given counseling 0 (0%).

Table 2. Frequency distribution after being given counseling on giving vitamin A capsules to toddlers aged 6-59 months in Cikondang village, Cibeber District, Cianjur Regency in 2024

Knowledge	Frequency (F)	Presentation (%)
Good	12	60%
Enough	8	40%
Not enough	0	0%
Total	20	100%

3.3 The Influence of Health Counseling on Mothers' Knowledge

Based on Table 3, the mother's knowledge about giving vitamin A to toddlers before counseling was carried out, the average value was 53.05. The average knowledge of mothers after being given counseling about giving vitamin A was 78.30. The results of the Wilcoxon test obtained a p value of 0.000, which means that there is an effect of counseling on the mother's knowledge

Table 3. Effect of Health Counseling on Providing Vitamin A Capsules to Toddlers Aged 6-59 Months in Cikondang Village, Cibeber District, Cianjur Regency in 2024

Linking variable	N	Mean	p-value
Before	20	53.05	0.000
After	20	78.30	

4. DISCUSSION

The level of maternal knowledge is a benchmark for compliance with vitamin A provision, the decline in vitamin A provision in toddlers is thought to be due to a lack of knowledge influenced by the level of education, which is one of the triggering factors that plays a role in influencing a person's decision to behave healthily, and influences their thought patterns because the higher a person's level of education, the greater their ability to receive information and apply it more easily in everyday life.

Knowledge in general is influenced by various factors, including those that can be classified into two factors, namely internal factors (originating from within the individual) and external factors (originating from outside the individual). Those that influence external

factors include age and gender, and those that influence external factors include education, work, experience, sources of information, interests, environment, and socio-culture.⁽¹¹⁾

Low education levels in mothers can make them slow to adopt new knowledge, particularly regarding health. Knowledge is acquired through the five human senses: sight, hearing, smell, taste, and touch.⁽¹²⁾ This study aligns with research conducted by Irwada Zulfa Harahap and colleagues in 2016, titled "Factors Affecting the Provision of Vitamin A to Toddlers in Ciriung Cibinong Village, Bogor Regency." The study found that 68.6% of mothers had poor knowledge, while 46.7% possessed good knowledge and high education levels. The results showed a statistically significant relationship between maternal education and knowledge about the provision of health care, with a p-value of 0.037 at a significance level of $\alpha = 0.05$. This suggests that as a person's education level increases, their ability to support health and improve quality of life also enhances.⁽¹³⁾

The most influential factors identified in the journal are the mother's education level and knowledge. Education significantly impacts an individual's behavior and lifestyle, particularly in motivating attitudes toward education.⁽¹⁴⁾ It is essential to access information that supports health, as this can enhance the overall quality of life. Generally, the higher a person's education level, the easier it is for them to acquire information, leading to a greater accumulation of knowledge.⁽¹¹⁾

Good knowledge and effective compliance efforts are largely the results of initiatives undertaken by the health center, such as counseling on vitamin A provided at integrated health posts.⁽¹⁵⁾ This counseling helps mothers become more informed and understand the importance of administering vitamin A to toddlers, which in turn influences their awareness and efforts to meet their children's vitamin A needs. Research shows that individuals with better knowledge can maintain their health more effectively than those who are less informed.⁽¹⁶⁾

The analysis of this study revealed a very strong positive correlation between mothers' knowledge and their compliance in providing vitamin A to their infants and toddlers. In Cikondang Village, Cibeber District, Cianjur Regency, in 2024, the majority of mothers with toddlers demonstrated good knowledge of vitamin A,

with 12 respondents (60%) falling into this category, while 8 respondents (40%) had sufficient knowledge.

Mother's knowledge about giving vitamin A capsules based on the post-test/after counseling is included in good knowledge. Mother's knowledge does not have to reach a sufficient level but must be increased until all respondents are included in the good category.⁽¹⁷⁾ Therefore, always participate in health counseling, especially in health counseling about giving vitamin A capsules to toddlers..

The results of statistical tests indicate that counseling has a significant impact on the provision of Vitamin A capsules in Cikondang Village, Cibeber District, Cianjur Regency, Indonesia. The p-value is 0.000, which is less than 0.05, confirming that the results of the statistical test are significant. This indicates that there is a notable difference in mothers' knowledge of Vitamin A for toddlers before and after the counseling sessions conducted in 2024. Counseling involves conveying information from a source to individuals or groups about various aspects of a program. It is a type of service that forms an integral part of guidance.⁽¹⁵⁾ In counseling, a reciprocal relationship exists between two individuals: the counselor seeks to help the client gain a better understanding of themselves in relation to the problems they face. Health education encompasses activities aimed at disseminating informative messages and instilling beliefs, enabling the community to be aware of, understand, and be motivated to carry out health-related recommendations. This process aims to enhance knowledge, skills, and attitudes, as indicated.⁽¹⁸⁾

During counseling sessions, researchers often use the lecture method to effectively convey information to respondents. This method has several advantages; it is straightforward and allows for easy comprehension. Additionally, when two-way communication is encouraged, respondents are better able to grasp the information presented by the researcher. Various factors can influence a person's level of knowledge, including the information they receive from different sources, with counseling being one of those sources.⁽¹⁵⁾

In addition to using the lecture method, researchers use power point presentation media and leaflets. According to Daryanto's research (2013) that the selection of presentation media can be presented in the form of text, images and animations that are combined. So that the use of this presentation media is able to attract the attention of respondents in carrying out

health education so that it can increase respondent knowledge. Another study conducted),⁽¹⁹⁾ stated that health education using the lecture method and presentation media is very effective in increasing respondent knowledge.⁽²⁰⁾ The research conducted in Cikondang Village, Cibeber District, Cianjur Regency concluded that there was a difference in knowledge results before and after counseling, meaning that counseling had a significant influence on mothers' knowledge.

5. CONCLUSION

The effect of counseling on knowledge is a study conducted on mothers of toddlers about the provision of vitamin A capsules, it was found that some of the respondents had good knowledge as many as 2 respondents (10%), had sufficient knowledge as many as 5 respondents (25%), and most of the respondents had poor knowledge as many as 13 respondents (65%). Most of the respondents had good knowledge as many as 12 respondents (60%), while those with sufficient knowledge were 8 respondents (40%). There was an effect of maternal knowledge with counseling about the provision of vitamin A capsules to toddlers aged 6-59 months in Cikondang Village, Cibeber District, Cianjur, Indonesia with the results of statistical tests showing p value = 0.000, this means that the p value is smaller than 0.05, which means that the results of the statistical test are accepted. It is hoped that midwives will always make efforts to increase knowledge of mothers about vitamin A because the implementation of counseling can be one of the ongoing efforts to increase community knowledge.

Ethics Approval

This study received ethical approval from the Cianjur Health Sciences College with reference number 385/KEP-STIKES/V/2024.

Acknowledgement

The author would like to thank STIKes Cianjur and also the respondents who were willing to conduct this research.

Competing Interests

All the authors declare that there are no conflicts of interest.

Funding Information

No funds received for this study.

Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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