

The Relationship Between Maternal Knowledge and Vitamin A Capsule Consumption Behavior

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ABSTRACT

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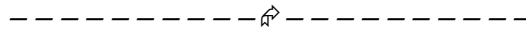
Vitamin A is an essential micronutrient important in maintaining healthy vision and immunity, especially in toddlers. This study aims to determine the characteristics of respondents (age, education level, income, occupation, knowledge, access to health services, and family support) regarding the taking of vitamin A capsules in toddlers and to determine the relationship between maternal knowledge and taking of vitamin A capsules in toddlers. The ties in the East Bali work area. This study used a quantitative approach with a cross-sectional design and a purposive sampling technique. The number of samples was 186 respondents. Data were collected through questionnaires that had been tested for validity and reliability, and analyzed using SPSS software through univariate and bivariate tests (Chi-square). The results showed that there was a significant relationship between maternal knowledge and the behavior of taking vitamin A capsules in toddlers ($p < 0.05$). Taking vitamin A capsules in toddlers is influenced by socio-economic and cognitive factors of the mother. There is a need for holistic interventions that include increasing health education, easy access to services, and active family involvement in child health programs to increase the coverage of vitamin A provision in the community.

ABSTRAK

Vitamin A merupakan mikronutrien esensial yang berperan penting dalam menjaga kesehatan penglihatan dan daya tahan tubuh, terutama pada anak usia balita. Riset ini bertujuan guna Mengetahui karakteristik responden (usia, tingkat pendidikan, pendapatan, pekerjaan, pengetahuan, akses pelayanan kesehatan, dan dukungan keluarga) terhadap pengambilan kapsul vitamin A pada balita serta mengetahui adanya hubungan pengetahuan ibu terhadap pengambilan kapsul vitamin A pada balita.hubungan antara di wilayah kerja Bali Timur. Riset ini memakai pendekatan kuantitatif dengan desain cross-sectional dan teknik purposive sampling. Jumlah sampel sebanyak 186 responden. Data dikumpulkan melalui kuesioner yang telah diuji validitas dan reliabilitasnya, dan dianalisis memakai perangkat lunak SPSS melalui uji univariat dan bivariat (Chi-square). Hasil penelitian memperoleh apabila terdapat hubungan signifikan antara pengetahuan ibu terhadap perilaku pengambilan kapsul vitamin A pada balita ($p < 0,05$). Pengambilan kapsul vitamin A pada balita dipengaruhi oleh faktor sosial-ekonomi dan kognitif ibu. Perlunya intervensi holistik yang mencakup peningkatan edukasi kesehatan, kemudahan akses layanan, serta pelibatan keluarga secara aktif dalam program kesehatan anak guna meningkatkan cakupan pemberian vitamin A di masyarakat.



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A. INTRODUCTION

Integrated Service Posts (Posyandu) are a representation of health initiatives that focus on the community, implemented by, for, and with the community to foster a healthy society. The goal is to unite the population and provide assistance to enable them to carry out basic health efforts, particularly to alleviate the burden of maternal and infant mortality (Kemenkes, 2023). Posyandu is a type of community health center that delivers health services and support to all members of the community or group. Its members include newborns, infants, toddlers, pregnant women, breastfeeding mothers, postpartum mothers, and those of childbearing age (PUS) (Sindri, Handayani, & Sari, 2024).

Vitamin A is one of the micronutrient that is highly beneficial for the body, particularly for the eyes. This type of micronutrient is a brightly colored vitamin. Some characteristics of vitamin A include being alkaline, exposure to sunlight, and heat resistance. Vitamin A is derived from retinoids and pro vitamin A, also known as carotene, and serves biological functions, such as acting as retinol to support human health. Vitamin A is composed of yellow crystals found in meat. It is present in foods derived from retinyl esters, which are accompanied by fatty acids. As the body develops, vitamin A can support active compounds such as retinol, retinal, and retinoic acid. When retinol undergoes its bonding or oxidation phase, it transforms into retinal; conversely, if it experiences a reduction phase, it reverts to its original form as retinol. If oxidation occurs, the retina manifests as retinoic acid (Ayudia, Amran, & Putri, 2021).

Administering vitamin A to toddlers is crucial to prevent vitamin A deficiency, which can lead to a reduced ability to see at night (night blindness), dryness of epithelial tissue in the eyes and lungs, and damage to eye tissue that can result in blindness. Vitamin A can decrease the likelihood of infections in children that may worsen and pose a threat to their lives (Hanapi, Nuryani, & Ahmad, 2019). A deficiency in vitamin A can disrupt the body's balance and increase the risk of illness and mortality. Nutritional obstacles related to daily dietary patterns and vitamin A deficiency, or due to the body's impaired ability to absorb and produce vitamin A (Virgo, 2020).

WHO (2012), reports that vitamin A deficiency affects up to 100 million children under the age of five worldwide. It is estimated that vitamin A deficiency impacts between 250,000 and 500,000 children, with Southeast Asia and Africa being the regions with the highest prevalence. In the United States, 65% of children under the age of five receive a dose of vitamin A (Nanda, 2023). According to the Basic Health Research (Riskesdas) conducted in 2018, the coverage of vitamin A capsule distribution to toddlers in Indonesia reached 53.5%. The incidence of vitamin A deficiency among toddlers in several provinces in Indonesia has been found to occur in those who are poorly nourished (Hanapi et al., 2019).

The profile of the Bali Provincial Health Office in 2023 states that the percentage of children under five who received vitamin A is 98.5%, surpassing the national target of 86% for the year. The districts that have achieved 100% vitamin A administration are Badung, Gianyar, and Klungkung. In contrast, the district with the lowest provision of vitamin A is Jembrana at 90.5%, followed by Buleleng Regency at 98.0%, and Karangasem Regency, which ranks third lowest at 98.2% (Karangasem, 2024). Based on data from the Karangasem Regency Health Office's Profile, it indicates that in 2023, only four health centers in Karangasem Regency achieved the 100% target for administering vitamin A capsules to infants and toddlers: Manggis II, Sidemen, Selat, and Karangasem I Health Centers. Meanwhile, the health center with the lowest coverage of vitamin A capsule distribution for infants and toddlers is Kubu I Health Center at 92.5%, followed by Kubu II Health Center at 94.6% (Karangasem, 2024). The purpose of the research was to examine the characteristics of respondents (age, education level, income, occupation, knowledge, access to health services, and family support) regarding the intake of

vitamin A capsules in toddlers, as well as to determine the relationship between maternal knowledge and the intake of vitamin A capsules in toddlers.

B. METHOD

This research is a quantitative study with a cross-sectional approach. Data collection uses a non-probability sampling method with a purposive sampling approach. Purposive sampling is a sample determination technique with certain considerations (Sugiyono, 2020). Data collection uses a questionnaire that has been tested for validity and reliability with a data collection method through field observation by directly observing field conditions first. The research population was all mothers of toddlers aged 6 to 59 months who took vitamin A capsules in Central Tianyar Village, Kubu District, Karangasem Regency. The sampling technique in the research uses non-probability sampling. The total sample used in this study was calculated using the Slovin formula by obtaining a sample of 186 respondents

The dependent variable in the study was maternal behavior regarding the intake of vitamin A capsules among toddlers in the East Bali work area. Conversely, the independent variables included age, education level, income, occupation, knowledge level, access to health services, and family support. Data analysis was conducted using univariate and bivariate analyses, along with Chi-square statistical analysis, and SPSS software was utilized as the testing tool.

C. RESULTS AND DISCUSSION

1. Result

The results of the univariate analysis in this study examined the proportions of the variables of age, education, income, occupation, behavior regarding the consumption of vitamin A capsules, knowledge, access to health services, and family support. This analysis aims to provide an initial overview of the characteristics of the respondents and to identify patterns that may contribute to the dependent variables in the study. This univariate approach is essential as a foundation for understanding the data before conducting bivariate or multivariate analyses. Each variable is analyzed separately to determine its frequency, percentage, and distribution. This data collection also references a previous study by Lestari and Salimo (2017), which explains that a univariate approach is used to describe the sociodemographic characteristics and biopsychosocial factors that contribute to the risk of pneumonia in toddlers. Therefore, a similar method was adapted in this study to gain an initial understanding of the collected data before conducting further analysis. The following are the test results of this study.

Tabel 1. Characteristics of the Respondents (n=186)

Variabel	Frekuensi (f)	Presentase (%)
Usia		
Teenager (10-19 Tahun)	19	10.2
Adult(19-44 Tahun)	150	80.6
Pre-senior(45-59 Tahun)	17	9.1
Education		
Out of School	58	31.2
Completion of Elementary School or Equivalent	66	35.5
Junior High School	35	18.8
High School	20	10.8
College	7	3.8

Income		
Low (< UMR)	149	80.1
High(≥ UMR)	37	19.9
Work		
Unemployed	52	28.0
Farmer	91	48.9
Fisherman	1	.5
Merchant	36	19.4
Civil Servants/Private Employees	6	3.2
Knowledge		
Poor	109	58.6
Avarage	14	7.5
Good	63	33.9
Behavior		
Poor	89	47.8
Avarage	62	33.3
Good	35	18.8
Access to Health Services		
Poor	19	10.2
Avarage	84	45.2
Good	83	44.6
Family Support		
Poor	102	54.8
Avarage	54	29.0
Good	30	16.1

Table 2.The Relationship Between Maternal Knowledge and the Behavior of Administering Vitamin A Capsules to Toddlers

Knowledge	Decision-Making Behavior						Total	%	p-value
	Poor	%	Avarage	%	Good	%			
Poor	88	47.3	20	10.8	1	0.5	109	58.6	0.000
average	1	0.5	12	6.5	1	0.5	14	7.5	
Good	0	0.0	30	16.1	33	17.1	63	33.9	
Total	89	47.8	62	33.3	35	18.8	186	100.0	

2. DISCUSSION

a. Characteristics of the Respondents

Table 1. The results of the univariate analysis in this study indicate that the majority of respondents are adults (aged 19-44 years), totaling 150 individuals (80.6%). This suggests that most respondents in this study are mothers within the productive age category, who are generally assumed to possess full capacity and responsibility in childcare, including making decisions related to the health of toddlers, such as the administration of vitamin A capsules.

This age represents a productive and reproductive period, during which individuals should psychosocially be capable of making rational and responsible decisions regarding their child's health. Adulthood generally leads individuals to orient their behavior in a friendly manner within their surrounding environment, fostering purposeful behaviors aimed at achieving quality outcomes (Dewa, Kaunang, & Sekeon, 2022). The reluctance of adult mothers to provide vitamin A stems from their lack of understanding of its benefits for

their babies, resulting in a diminished motivation to access health services at posyandu. Most working mothers report that time constraints, coupled with insufficient support from their families, often lead them to forget to administer vitamin A capsules to their children (Samosir, Sinaga, & Batubara, 2023). The majority of respondents, totaling 66 individuals (35.5%), had completed elementary school education. This data indicates that most of the mothers involved in the study had a basic educational background, which may influence their understanding of the importance of health interventions, including the administration of vitamin A capsules to toddlers.

Low levels of basic education limit an individual's ability to understand health information from both print and electronic media. Knowledge gained from formal education plays a crucial role in shaping health behaviors (Artika, Nugraha, & Dewi, 2023). Mothers with low educational attainment often have a limited understanding of the benefits of vitamin A capsules, the schedule for administration, and the consequences if their child does not receive them. This highlights the need for a simpler, community-based educational approach, such as through community health workers or integrated health posts (posyandu). Research Ningsih and Asyari (2024) found that mothers with low education levels were 3.08 times more likely not to provide vitamin A to their children under five. Additionally, the study by Panduwita (2022), indicated that 70% of postpartum mothers with low education did not consume vitamin A capsules, whereas the majority of mothers with higher education (65.4%) did consume them.

The income of the majority of respondents was low (< UMR), with 149 individuals (80.1%) indicating the socio-economic conditions of underprivileged families, which fall below the Regional Minimum Wage (UMR). It was noted that 149 individuals, or 80.1% of the total respondents, fall into this category. Low economic conditions can be a significant factor affecting mothers' access to and participation in health programs, including the administration of vitamin A capsules for toddlers.

Although vitamin A capsules are provided free of charge, low income is correlated with limited access, prioritization of family needs, and low participation in posyandu activities. This economic factor is often the primary reason for absenteeism from health facilities, even though these services are subsidized by the government. Research Rahmawati, Fajar, and Idris (2020), found that economic factors, including low income, are significantly associated with low utilization of posyandu and the incidence of stunting in toddlers. Daramu, Kawengian, and Mayulu (2020), showed that low family income is associated with poor nutritional status in children and also affects participation in posyandu activities. The majority of respondents work as farmers (48.9%), who typically have heavy workloads and long hours that affect their leisure time and attention to health activities for toddlers, including the administration of vitamin A capsules. This work factor has the potential to be one of the determinants of maternal behavior in accessing healthcare services (Darmayanti & Nugraha, 2023).

This condition can be a barrier to accessing health services, especially if the location of the posyandu is far away or if its schedule conflicts with working hours. Professions such as farming are often correlated with low levels of education and income, which indirectly affect overall health behaviors. Research Herawati and Bratajaya (2022), indicates that the

duration and intensity of work among farmers are significantly related to the incidence of low back pain (LBP), which can impact their ability to access health services.

Most of the respondents had limited knowledge, with 109 individuals (58.6%) falling into this category. This low level of knowledge can negatively impact mothers' understanding of the importance of nutritional interventions, such as administering vitamin A capsules to toddlers. This situation indicates that the knowledge aspect is a crucial factor that must be addressed in efforts to enhance maternal participation in child health programs. This serves as a primary indicator of the information gap present in society. Knowledge is one of the key determinants of health behavior in behavioral theories, such as the Health Belief Model. A lack of knowledge prevents mothers from understanding the urgency of administering vitamin A capsules and their long-term benefits for children's health. Research Wijayanti, Azizah, and Rohman (2024) indicates that 52.2% of respondents possess minimal knowledge regarding the provision of vitamin A for toddlers. This lack of knowledge can influence mothers' behavior in administering vitamin A to their children. Additionally, research Ningsih and Asyari (2024) reveals that 76% of mothers have inadequate knowledge about vitamin A, and 50% hold negative attitudes towards its administration.

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Although service facilities may be available, such as posyandu or puskesmas, there are obstacles in the form of distance, transportation, or service hours that do not align with the respondents' schedules. Suboptimal access leads to shortcomings in preventive programs, such as vitamin A supplementation for toddlers. Suharmiati and Kristiana (2012), indicate that the extensive and hard-to-reach work areas of health centers, along with limited transportation options at high costs, are the primary factors affecting the lack of public access to health services in remote border areas (Sasmita, Kabuhung, & Hidayah, 2023). Identified that distance, transportation, and service times that did not align with the

respondents' schedules were the primary obstacles to the low number of visits to the Posyandu.

Most respondents reported insufficient family support, with 102 individuals (54.8%) indicating this issue. A lack of family support can negatively impact mothers' motivation and ability to access health services, including the administration of vitamin A capsules for toddlers. Low family support may serve as a significant barrier to the adoption of optimal health behaviors among mothers of young children. A mother's behavior is heavily influenced by support from her husband or other family members. The absence of family support in administering vitamin A capsules for toddlers leads mothers to feel overwhelmed and less motivated to engage in child health programs.

This highlights the importance of family involvement in supporting mothers in administering vitamin A capsules to toddlers. Sari, Widiawati, and Wijaya (2018), stated that the relationship between family dynamics and maternal compliance is linked to the foundation of basic immunization in toddlers. All of this indicates that family relationships can enhance maternal adherence to child health programs. Research conducted by Prayudhistya, Noor, Istiana, Juhairina, and Skripsiana (2023), shows that family support plays a crucial role in adolescent girls' compliance with consuming iron supplement tablets. Although the focus is on adolescents, these findings are relevant as they indicate that family support can influence adherence to health programs.

b. The Relationship Between Mother's Knowledge and the Behavior of Administering Vitamin A Capsules to Toddlers

Table 2 above shows that the p-value is less than 0.05, specifically 0.000, indicating a relationship between knowledge and the behavior of administering vitamin A capsules to toddlers. Knowledge is a crucial component in shaping an individual's attitudes and behaviors towards health. Mothers who possess a good understanding of the benefits of vitamin A capsules, the schedule for their administration, and the effects of vitamin A deficiency on children's growth and development tend to be more proactive in ensuring that their toddlers receive vitamin A capsules regularly. A lack of knowledge can lead to apathy, misconceptions, or even rejection of vitamin A programs, resulting in low participation and an increased risk of health issues in toddlers. The findings of this research align with various previous studies. Research by Firdaus and Puspita (2023), found that mothers with a good understanding of vitamin A demonstrated higher levels of adherence to the posyandu program and the administration of vitamin A capsules. Similarly, a study by Muluki (2020), emphasized that maternal knowledge is a significant factor influencing mothers' involvement in child health activities, including immunization and the provision of vitamin A. Additionally, research presented by Kusumanti and Setyorini (2018), indicates that there is a correlation between the level of maternal knowledge about vitamin A and the accuracy of its administration. Therefore, enhancing knowledge has proven to be one of the effective strategies for changing public health behavior.

Research indicates that health education provided to the community has been shown to effectively reduce the inappropriate use of antibiotics. Similarly, the rational behavior regarding vitamin A intake is significantly influenced by an individual's level of knowledge

about the benefits, indications, and risks associated with antibiotic misuse. This underscores that enhancing knowledge can lead to healthier and more rational behaviors within the population. In addition, indicates that with effective education, individuals become more aware of the importance of supplements (such as vitamins C, D, and zinc) in enhancing immunity during the pandemic (Nugraha, Gayatri, & Ugrasena, 2023). This is parallel to the significance of vitamin A for toddlers, where educating mothers can improve the coverage of vitamin A consumption, particularly during vulnerable periods for disease. Furthermore, the research Nugraha and Wiryani (2022) investigates the importance of community knowledge in the proper management of medications. Knowledge of DAGUSIBU is closely correlated with attitudes and behaviors regarding medication use in households. Similarly, mothers who understand how to obtain and use vitamin A appropriately tend to exhibit good behaviors in administering vitamin A capsules to their toddlers.

D. CONCLUSIONS AND RECOMMENDATIONS

There is a relationship between maternal knowledge and the behavior of administering vitamin A capsules to toddlers, as indicated by a p-value of 0.000, which is less than 0.05.

The results showed that there was a significant relationship between maternal knowledge and the behavior of taking vitamin A capsules in toddlers ($p < 0.05$). Taking Vitamin A capsules in toddlers is influenced by socio-economic and cognitive factors of the mother. Holistic interventions is needed to increase vitamin A consumption behavior such as health education, easy access to services, and active family involvement in child health programs to increase the coverage of vitamin A provision in the community.

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