The Relationship Of Maternal Knowledge And Compliance With Giving Vitamin A Capsules To Toddlers At Posyandu Delima, Binuang Public Health Center, Serang Regency, 2023

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Abstract.

Background The WHO has classified vitamin A deficiency as a public health problem affecting approximately one-third of children aged 6 to 59 months in 2013. According to the data from the Health Office of Banten Province, the administration of vitamin A capsules to toddlers aged 6-59 months is 81.3%. In a preliminary study conducted at the Delima Posyandu of Binuang Public Health Center, there were 220 toddlers. The interview results from 15 mothers with toddlers revealed that 6 mothers (40%) were compliant in giving vitamin A capsules to their children, while 9 mother's (60%) were not compliant. This non-compliance is attributed to the mothers' lack of knowledge regarding the benefits of administering vitamin A for the health of their toddlers. Research Objective: The purpose of this research is to determine the relationship between maternal knowledge and compliance with giving vitamin A capsules to toddlers at Posyandu Delima of Binuang Public Health Center Serang Regency in 2023. Research Methods: This study is a quantitative research with a cross-sectional design. The population comprises all mothers with toddlers who visit the Posyandu Delima at Binuang Public Health Center, Serang Regency. The sample size for this research was determined using the Slovin formula, resulting in a total of 69 individuals. Research Results: The results of this study indicate a significant relationship between maternal knowledge and compliance with giving vitamin A capsules to toddlers, with a regression coefficient value of 76.5%, using the binary logistic regression model equation $ln\left(\frac{\pi(x)}{1-n(x)}\right)$ *= -4,096+0,765x. Conclusions and Suggestions: There is a significant relationship between maternal knowledge and compliance with giving vitamin A capsules to toddlers at Posyandu Delima, Binuang Public Health Center Serang Regency. It is hoped that mothers who have toddlers will always pay attention to their children's health by eating foods that contain vitamin A and consuming vitamin A capsules according to schedule to meet their vitamin A needs.*

Keywords: *Knowledge, Vitamin A, Compliance and Mother.*

I. INTRODUCTION

Vitamin A is a very important micronutrient to be part of food intake. The human body is unable to produce vitamin A naturally, so it needs to get this nutrient through consuming food or supplements from external sources. Foods rich in vitamin A include liver, fish liver oil, eggs, whole grains, meat and dairy foods. Meanwhile, vitamin A deficiency is one of the most common health problems. The main cause is a chronic lack of vitamin A in food, so it fails to meet the needs of normal body functions such as tissue growth, normal metabolism and resistance to infection (ILMAGI, 2020).Two out of three children in the world need protection from the dangers of vitamin A deficiency. The World Health Organization (WHO) classified vitamin A deficiency as a public health problem affecting approximately one-third of children aged 6 to 59 months in 2013. Dosage of vitamin A supplementation Periodically high levels are a proven, low-cost intervention that has been shown to reduce all-cause mortality by 12 to 24 percent and is therefore an important program in supporting efforts to reduce child mortality (UNICEF, 2022).Based on the coverage of giving vitamin A to toddlers in Indonesia in 2019, it was 76.68%. Every year the coverage of providing vitamin A changes, so efforts are still needed to increase the coverage of providing vitamin A capsules by creating an intervention program providing vitamin A capsules for toddlers aged 6-59 months in February and August (Ministry of Health of the Republic of Indonesia, 2020).Data from the Banten Provincial Health Service in 2019 for giving vitamin A capsules to toddlers aged 6-59 months was 86.3%, in 2020 this number decreased to 81.3%.

Toddlers ranging from 6 - 11 months to 12 - 59 months who received Vitamin A capsules with an average percentage of almost 100 percent were in Tangerang City, while the lowest provision of Vitamin A capsules was in the Tangerang Regency area with 65.38 percent (Banten Province Health Service Profile, 2020).Based on an initial survey conducted on November 2 2023 at Posyandu Delima, Binuang Community

Health Center, Serang Regency, there were 220 toddlers at the Posyandu. Based on information from Posyandu cadres, vitamin A is obtained through distribution by Puskesmas officers. Vitamin A capsules are given to mothers who bring their toddlers to Posyandu in February and August every year. The survey results showed that of the 15 mothers interviewed, 6 mothers (40%) complied with giving vitamin A capsules directly to their children, carried out by health workers and Posyandu cadres, while the other 9 mothers (60%) did not comply, even taking the capsules home. vitamin A and do not give it to children at home. This non-compliance is caused by the mother's lack of knowledge regarding the benefits of giving vitamin A to the health of children under five.

II. METHODS

This research is a quantitative study with a research design using a cross-sectional approach aimed at determining the relationship between variables, where independent and dependent variables are identified at the same time (point time approach) to study the relationship between maternal knowledge and compliance with giving vitamin A capsules to toddlers aged 6-59 months.This research was conducted in October-November 2023 at Posyandu Delima of Binuang Public Health Center in Serang Regency, Banten Province. Researchers chose this research location because there had been no previous similar research, especially in the context of the relationship between maternal knowledge and the level of compliance in giving vitamin A capsules to toddlers.

The population in this study were all mothers with toddlers (6-59 months) who visited Posyandu Delima, Binuang Health Center, Serang Regency. The samples in this study were mothers with toddlers (6-59 months) who visited Posyandu Delima, Binuang Health Center, Serang Regency, totaling 69 respondents. The variables in this study consist of the independent variable, namely the mother's knowledge about vitamin A, while the dependent variable in this study is compliance with giving vitamin A capsules to toddlers. Data collection utilizes a questionnaire designed in alignment with the research objectives. This questionnaire was then given to mothers who visited Posyandu Delima of Binuang Community Health Center Serang Regency. The data analysis technique used in this research is binary logistic regression which is carried out systematically through several stages as follows:

1. Tabulation of questionnaire results
2. The overall model fit test is conducted by examining the difference between the initial -2 Log-likelihood value (block number = 0) and the final -2 Log-likelihood value (block number = 1).
3. The goodness-of-fit test is assessed using Hosmer and Lemeshow's Goodness of Fit Test, which is measured by the chi-square value.
4. Carry out the Coefficient of Determination test by looking at the results of Nagelkerke R Square
5. Carry out simultaneous and partial hypothesis tests using Wald test statistics and Omnibus Tests of Model Coefficients to determine parameter coefficients that influence the model
6. Make conclusions and interpretations with the odds ratio from the model that has been tested.

III. RESULTS AND DISCUSSION

A. Result

1. Characteristic Respondent

Table 1. Description of the frequency distribution of respondents based on respondent characteristics

Characteristics		f	(%)
Age	17-25 year	13	18,84%
	26-35 year	36	52,17%
	36-45 year	20	28,99%
Education	SD	10	14,49%
	SMP	21	30,43%
	SMA	27	39,13%
	D3	4	5,80%
	S1	7	10,14%

Work	farmer	12	17,39%
	Housewife	23	33,33%
	Civil Servants	4	5,80%
	Private Employees	30	43,48%

Based on Table 1, it can be observed that a small proportion of respondents were aged 17-25 years (18.84%) and 36-45 years (28.99%), while the majority fell in the age group of 26-35 years (52.17%). Regarding educational background, a small number of respondents held Associate degrees (5.80%) and Bachelor's degrees (10.14%), whereas others were elementary school graduates (14.49%). Almost half of the respondents were junior high school graduates (39.13%), and a significant portion were high school graduates (30.43%).In terms of occupation, a small proportion of respondents worked as civil servants (5.80%) and farmers (17.39%), while nearly half were employed in the private sector (43.48%), and the remaining worked as housewives (33.33%).

2. Variable Independent

Table 2. Description of frequency distribution of mother's knowledge level

Knowledge	f	(%)
Not Good	26	37,68%
Good	43	62,32%
Total	69	100%

Table 2 shows that the majority of maternal knowledge is good (62.32%) and a small portion of mothers' knowledge is poor (37.68%).

3. Variable Dependent

Table 3. Description of the frequency distribution of mother's compliance levels

Compliance	f	(%)
Complied	47	68,12%
Not Comply	22	31,88%
Total	69	100%

Table 3 shows that the majority of respondents complied (68.12%) and a small portion did not comply (31.88%).

4. Overall Model Fit

The test is carried out by looking at the difference between the initial -2 Log likelihood value (block number = 0) and the final -2 Log likelihood value (block number = 1). If the initial -2 log likelihood value is greater than the final -2 Log likelihood value, then there will be a decrease in results. The decrease in Log Likelihood shows that the regression model is getting better.

Table 4. Overall Model Fit

	block 0	block 1
-2Log likelihood	86,387	55,186

Based on Table 4, obtained from the results of the regression analysis, it shows that the initial -2 Log likelihood value (block number = 0) before being included in the independent variable is 86.387. After the independent variables were entered, the final -2 Log likelihood value (block number = 1) decreased to 55.186. This indicates that the hypothesized model fits the data, so adding independent variables to the model shows that the regression model is getting better.

5. Goodness of Fit Test

Table 5. Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	1,287	3	0,732

Based on the output results in Table 5, it can be seen that the value X^2=1.287. Because the p-value (0.732) is greater than the significance level $\alpha = 0.05$ ($p > 0.05$), it can be concluded that the model is appropriate. This means that the binary logistic regression model is suitable for use for further analysis

because there is no real difference between the predicted classifications (predicted probabilities) and the observed classifications (observed probabilities).

6. Uji Koefisien Determinasi (*Nagelkerke's R Square*)

Table 6. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	55,186	0,364	0,509

Based on the output results in Table 6, it is evident that Nagelkerke's R Square value is 0.509. This indicates that the independent variable (maternal knowledge) can explain 50.9% of the variance in the dependent variable (compliance with giving vitamin A capsules) in toddlers, while the remaining 49.1% is attributed to other variables not studied.

7. Uji Hypothesis

Hypothesis testing is divided into two, namely partial testing (Wald test) and simultaneous testing (Omnibus Test).

Table 7. Variables in the Equation (Wald)

Variable	B	S.E.	Wald	df	Sig.
knowledge	0,765	0,167	21,004	1	0,000
Constant	-4,096	1,081	14,363	1	0,000

Based on Table 7, it can be obtained from hypothesis testing that the significant value of the knowledge variable (p-value) is 0.000 < 0.05, then H_0 is rejected and H_1 is accepted, meaning that maternal knowledge has a significant effect on compliance with giving vitamin A capsules to toddlers.

Table 8. Omnibus Tests of Model Coefficients

	Chi Square	df	Sig.
Step	31,201	1	0,000
Block	31,201	1	0,000
Model	31,201	1	0,000

Based on Table 8, the p-value is obtained (0.000 < 0.05), so H_1 is accepted. So it can be concluded that maternal knowledge simultaneously influences compliance with giving vitamin A capsules to toddlers.

8. Binary Logistic Regression Model

$$ln\left(\frac{\pi(x)}{1-n(x)}\right)= -4{,}096+0{,}765x$$

B. Discussion

The results of the study showed that there was a significant relationship between maternal knowledge and compliance with giving vitamin A capsules to toddlers at Posyandu Delima of Binuang Public Health Centre Serang Regency. Based on the binary logistic regression model, it can be seen that the regression coefficient value is 0.765 or 76.5%.Good maternal knowledge can significantly influence maternal compliance by 76.5%. Furthermore, an increase in maternal knowledge presents the opportunity to boost maternal compliance in giving vitamin A capsules to toddlers by 2,148 times. This conclusion is drawn from a study conducted by Siregar (2021), demonstrating a correlation between maternal knowledge and the administration of vitamin A to children under five at Posyandu Langsat II in South Angkola Regency, with a significance value of p=0.001.The study also suggests that a higher level of knowledge facilitates the digestion of information. Conversely, lower levels of education can hinder a person's assimilation of newly introduced values. Knowledge is closely linked to education, and it is expected that individuals with higher education will possess a broader knowledge base.The research results of Fauziah et al (2021) show a significant relationship with a p-value of 0.027, which means there is a significant relationship between knowledge and compliance with giving vitamin A to toddlers.

Most respondents who have good knowledge will comply with giving vitamin A to their toddlers, although there are still some who have poor knowledge. This can be seen from the research results which show that of the 7 respondents who had good knowledge, 6 respondents gave Vitamin A.Based on the research results, the level of maternal knowledge in Table 2 shows that the majority of mothers' knowledge is

good (62.32%) and a small percentage of maternal knowledge is poor (37.68%). Insufficient knowledge can be caused by various complex and mutually influencing factors, namely age, education, information, socio-cultural, economic, experience and environmental factors.The researcher assumes that mothers with lower knowledge (37.68%) are influenced by environmental factors, specifically work. Namely, 30 mothers (43.48%) work as private employees (factory workers), resulting in limited access to information about vitamin A capsules and their distribution schedules. Some mothers also mentioned that the timing for administering vitamin A conflicted with their work schedule, preventing them from attending the Posyandu for the administration of vitamin A.

The level of knowledge and compliance can also be influenced by the age and education level of the respondent. As the respondent's age increases, there is an associated increase in the level of knowledge, impacting compliance in giving vitamin A capsules to toddlers. Similarly, higher education levels have an impact on a mother's understanding of the importance of giving vitamin A capsules. This relationship is evident in Table 1, which illustrates the distribution of respondents' education levels; specifically, 39.13% have completed high school, a much more dominant percentage compared to those with junior high school education, which stands at only 30.43%. The results of this study indicate that the mother's level of knowledge has a significant impact on compliance in giving vitamin A capsules to toddlers. The higher maternal knowledge, the higher the level of compliance in giving vitamin A capsules.The results of this research align with a study conducted by Mariana et al (2020) titled The Relationship between Mother's Knowledge and the Provision of Vitamin A to Toddlers in the Tanjung Ucang Community Health Center's working area.' The study found a significant relationship between mother's knowledge and the provision of vitamin A.This aligns with the theory that knowledge is crucial for shaping an individual's actions (Notoatmodjo, 2018). According to Siregar (2018), a mother's decision-making and behavior are influenced by her knowledge. If a mother has a robust understanding of nutrition, she is more likely to provide food that meets her child's needs. Conversely, lacking such knowledge may result in inadequate fulfillment of her child's nutritional needs.

IV. CONCLUSION

Based on the results of research and discussion, it can be concluded as follows:

1. Most respondents with a good level of knowledge were 43 respondents (62.32%) compared to respondents with less knowledge.
2. Mother's compliance in giving vitamin A capsules to toddlers with the number of respondents complying with giving vitamin A capsules as many as 47 respondents (68.12%) and not complying with giving vitamin A capsules as many as 22 respondents (31.88%).
3. There is a significant relationship that influences maternal knowledge and compliance with giving vitamin A capsules to toddlers at Posyandu Delima, Binuang Community Health Center, Serang Regency in 2023.

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