



Study on the provision of vitamin a and exclusive breastfeeding with the growth of toddlers

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ABSTRACT

Growth is the increase in the size and number of cells and intracellular tissues, meaning the increase in physical size and structure of the body in part or in whole, so that it can be measured in units of length and weight. This period is a period that occurs quickly and will not be repeated, therefore it is often called the golden age. One thing that is related to growth is the provision of vitamin A and the provision of exclusive breastfeeding. This study uses a quantitative method with a cross-sectional approach with a sample of mothers who have toddlers in Lawak Village, Ngimbang District, Lamongan Regency, totaling 30 mothers. The results of this study obtained the F count value (128.091) > F_{0.05} (3.35) meaning that there is a significant influence between the variables of vitamin A provision and exclusive breastfeeding with toddler growth in weight. The F count value (123.225) > F_{0.05} (3.35) meaning that there is a significant influence between the variables of vitamin A provision and exclusive breastfeeding with toddler growth in height. So it can be concluded that there is a relationship between vitamin A provision and exclusive breastfeeding with toddler growth in weight and height.

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1. Introduction

Toddlerhood is a period of the most rapid growth and development compared to other age groups. The growth of a child's weight is an important thing to always observe and pay attention to. The growth of a child's weight begins from birth until the child is eighteen years old and is influenced by several factors that can be broadly classified into two, namely genetic and non-genetic factors, such as the environment, nutrition, and disease (Utami & Daulay, 2020a)(Safitri et al., 2022). In addition, toddlerhood is also a period of rapid physical and mental development. At this time, the mother's toddler's brain is ready to face various stimuli such as learning to walk and talk more fluently. The need for more attention to growth and development in toddlers is based on the fact that malnutrition that occurs during this golden period is irreversible (cannot be recovered). There are toddlers who also need balanced nutrition, namely food that contains nutrients needed by the body according to age. Balanced food at this age needs to be applied because it will affect the quality of adulthood to old age. Disorders that occur in these factors can cause abnormal growth (Setyowati, 2018).

Growth is the increase in the size and number of cells and intracellular tissue, meaning an increase in the physical size and structure of the body in part or in whole, so that it can be measured in units of length and weight (Ministry of Health of the Republic of Indonesia, 2017). Growth is related to

the problem of changes in size, size, number, or dimensions at the cellular, organ, or individual level. Growth is quantitative so that it can be measured in units of weight (grams, kilograms), units of length (cm, meters), bone age, and metabolic balance (calcium and nitrogen retention in the body) (Soetjningsih, 2017). The toddler period is a determinant of the success of a child's growth and development in the next period. The growth and development period at this age is a period that occurs rapidly and will not be repeated, therefore it is often called the golden age. Toddlers are known as passive consumers, meaning they accept the types of food served by their parents, so parents must strictly control their food intake. Their dislike of certain types of food must be overcome with persuasive introduction efforts (Setiadi et al., 2020). Parents must be creative in making variations of the menu, both in choosing ingredients, processing techniques and presentation so that children do not get bored and are interested in eating. In compiling a menu, parents must always refer to the 3 balanced menu pattern. As a guideline, in one day, children must consume foods that contain vegetable protein, animal protein, fat, carbohydrates, vitamins, minerals, fiber and enough water in the child's growth process (M. G. Putri et al., 2021). One thing that is related to growth is the provision of vitamin A and exclusive breastfeeding. Toddlerhood is the most important period in the process of child growth and development. During this period, sufficient vitamin A is needed for growth and body resistance to disease. Vitamin A deficiency can reduce the immune system of toddlers and increase the risk of illness and death. Vitamin A deficiency is also a major cause of preventable blindness in children.

Vitamin A is one of the important nutrients that dissolves in fat and is stored in the liver, cannot be made by the body, so it must be met from outside (essential). Vitamin A functions for vision, growth and increasing the body's resistance to disease. Vitamin A deficiency among toddlers can no longer be underestimated because it not only causes permanent blindness, but also increases the risk of death caused by decreased immunity to infection. The function of vitamin A in the body is like a catalyst that strengthens cells in the body. Children who are deficient in vitamin A (VAD) are susceptible to infectious diseases such as diarrhea, pneumonia, pneumonia and ultimately death (Afifa et al., 2023). Vitamin A in Indonesia was initially given in order to prevent blindness in children. The prevalence of xerophthalmia in toddlers in Indonesia was 1.33% in 1978 decreasing to 0.34% in 1992 (National Xerophthalmia Survey). In 1978, the provision of high-dose vitamin A was initiated targeting children aged 12–59 months (Kemenkes RI, 2018) in collaboration with Helen Keller International (HKI)(Kemenkes RI, 2018). Cases of xerophthalmia were rediscovered in 1998 along with the emergence of cases of kwashiorkor and marasmus, which were then introduced with the term malnutrition. Subclinical Vitamin A Deficiency (VAD) research in toddlers found that 52% of toddlers had serum retinol levels in the blood of less than 20 mcg/dl which would result in decreased immunity in children. Therefore, serum retinol in the blood is an indicator that VAD is still a public health problem (Viera Valencia & Garcia Giraldo, 2019). The results of a study on micronutrient problems in 10 provinces conducted by the Center for Nutrition and Food Research and Development, Ministry of Health of the Republic of Indonesia in 2006 showed that toddlers with serum retinol of less than 20 mcg/dl were 14.6%. The strategy for overcoming VAD by providing vitamin A supplementation has been carried out every February and August (Vitamin A Capsule Month) since 1991 based on an agreement between the Ministry of Health, Ministry of Home Affairs, National Family Planning Coordinating Board and Ministry of Agriculture. The results of a study in Bogor in 2001 showed that 18% of breastfeeding mothers had retinol levels in breast milk of 11.1 µg/dl and 54% of babies aged 2-10 months had serum retinol levels of less than 20 µg/dl (Husna & Izzah, 2021).

One of the growth and development factors of toddlers is largely determined by the amount of breast milk obtained, including energy and other nutrients contained in the breast milk. Breast milk without other foods can meet the growth needs of around six months of age. Providing breast milk without other foods for six months by breastfeeding exclusively. Breast milk has various benefits that are good for the growth and development of children and can also reduce the risk of acute and chronic diseases (Utami & Daulay, 2020b)(Utami & Daulay, 2020a). Exclusive breastfeeding provides benefits for babies such as breast milk as nutrition can prevent infant malnutrition, increase endurance, increase cognitive intelligence in babies, prevent digestive tract infections (vomiting and diarrhea), prevent respiratory tract infections, prevent the risk of death (Setyowati, 2023). The impact of not giving

exclusive breastfeeding to babies is respiratory tract infections, digestive tract infections (vomiting and diarrhea), increasing the risk of death, reducing the development of cognitive intelligence, increasing the risk of malnutrition (M. G. Putri et al., 2021). Although the advantages and benefits of exclusive breastfeeding in supporting the lives of babies have been widely known, in reality it has not been followed by the utilization of exclusive breastfeeding properly. In fact, there is a tendency for more and more mothers not to give exclusive breastfeeding because they think that breast milk is not enough for their babies. Some people think that breastfeeding is the business of the mother and her baby. The role of the family in providing exclusive breastfeeding is very large for breastfeeding mothers (Umniyati, 2012). The Indonesian government through the Decree of the Minister of Health Number 450 / SK / Menkes / VIII / 2004, dated April 7, 2004 has stipulated the provision of exclusive breastfeeding for 6 months for babies in Indonesia. Based on the decision of the Minister of Health of the Republic of Indonesia in 2004 which refers to the resolution of the World Health Assembly (WHA) states that in order to achieve optimal growth, development and health, babies must be given exclusive breastfeeding for the first 6 months. Based on WHO research (2010) in six developing countries, the risk of infant death between the ages of 9-12 months increases by 40% if the baby is not breastfed, for babies under two months old, this mortality rate increases to 48% (M. G. Putri et al., 2021).

Significant health problems in developing countries, especially in children and pregnant women are mostly caused by vitamin A deficiency and exclusive breastfeeding. Giving vitamins or exclusive breastfeeding can help prevent vitamin A deficiency and reduce the risk of related diseases. And has an important role in the immune system, helps maintain healthy skin and mucous membranes, and increases the body's ability to fight and reduce the risk of infection, allergies, and other diseases. Both vitamin A and exclusive breastfeeding are relatively easier to implement in health programs through existing health systems (Nurlita Septiani et al., 2023)(Adolph, 2016)(J. Putri et al., 2023). Socioeconomic factors are one of the important factors in providing vitamin A and exclusive breastfeeding because the development of health programs that consider socioeconomic factors can help increase compliance with recommendations on vitamin A and exclusive breastfeeding. The program will involve the community and family so that it can help increase social support and influence maternal compliance with recommendations on vitamin A and exclusive breastfeeding (Hayuningtyas et al., 2020)(Farida et al., 2022).

Based on the description of the results of previous studies above and preliminary studies conducted in Lawak, Ngimbang District, Lamongan Regency, there are still many toddlers who experience problems with their growth which can be seen from their low body weight and low height. Based on the results of initial observations of 10 toddlers, 5 toddlers were found to have low body weight, 3 toddlers had normal body weight and 2 toddlers were overweight. Toddlers who are underweight have poor nutrition because they get vitamin A and exclusive breast milk, so the author wants to research the "Relationship between Giving Vitamin A and Exclusive Breast Milk with Toddler Growth in Lawak Village, Ngimbang District, Lamongan Regency.

2. Methods

This study uses a quantitative method because the researcher wants to describe the Relationship between Vitamin A Provision and Exclusive Breastfeeding with Toddler Growth in Lawak Village, Ngimbang District, Lamongan Regency. Meanwhile, the approach used is a cross-sectional study, namely a study to study the dynamics of the correlation between risk factors and effects, by means of an approach, observation, or data collection at once at one time (Adiputra et al., 2021).

This research was conducted in Lawak Village, Ngimbang District, Lamongan Regency. The research period will be carried out from November 2023 to February 2024. Population is a generalization area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied. Population is the entire object of research or the object being studied (Adiputra et al., 2021). The population in this study were all mothers who had toddlers in Lawak Village, Ngimbang District, Lamongan Regency. The sample is part of the entire object being studied and is considered to represent the entire population (Notoatmodjo, S., 2021) The sample in this study was all

mothers who had toddlers in the village, totaling 30 mothers. Sampling is a process in completing a portion of the population to be able to represent the entire population. The sampling method used in this study is the random sampling technique. A variable is a measure or characteristic possessed by members of a group that is different from that possessed by other groups. Another definition, a variable is something that is used as a characteristic, nature or measure possessed or obtained by a study on a particular concept of understanding, for example age, gender, education, marital status, occupation, knowledge and so on (Notoatmodjo, S., 2021). The variables in this study are: Independent variables (free variables) Provision of Vitamin A (X_1) and Exclusive Breastfeeding (X_2). While the dependent variable (dependent variable) is the growth of Toddlers.

Data collection is a process of approaching the subject and the process of collecting the characteristics of the subject needed in a study. In this study, the survey method is used, namely a data collection method that uses a questionnaire and is given to respondents to obtain data in the form of responses or responses from the research sample. The data collection method used in this study is by conducting: Observation by weighing BB, measuring TB and lila toddlers, then interviews by conducting interviews with mothers of toddlers while distributing questionnaires to be filled in according to the answers to the questions in the questionnaire, and documentation by taking data on the number of toddlers in Lawak village, Ngimbang sub-district. In data collection, bias will definitely occur, therefore, to collect data, valid and reliable measurement instruments such as interviews or questionnaires are used to dig deeper into the history of exclusive breastfeeding and vitamin administration.

Data analysis is a process or analysis that is carried out systematically on data that has been collected with the aim that relationships can be detected. Data analysis in this study uses linear regression calculations. The analysis method used in this study is multiple linear regression analysis. For the selection of multiple linear regression models, it is the right choice to analyze the relationship between two independent variables and one dependent variable, namely the variables of exclusive breastfeeding and vitamin A administration for the independent variables, while the dependent variable is toddler growth.

3. Results and Discussion

This study describes the Study of Vitamin A Provision and Exclusive Breastfeeding with Toddler Growth in Lawak Village, Ngimbang District, Lamongan Regency. Based on the results of the questionnaire and observations that have been conducted on mothers who have 30 toddlers, some data were obtained on the characteristics of the respondents, namely age, occupation and last education. Based on these results, the characteristics of the respondents can be described as follows: a) Respondents based on age <20 years old totaled 2 people (6.67%), 20-35 years old totaled 20 people (66.67%), and 8 people >35 years old totaled 26.67%; b) Respondents based on private employment level totaled 9 people (30%), housewives totaled 15 people (50%), self-employed totaled 5 people (16.67%) and civil servant employment totaled 1 person (3.33%); c) Respondents based on elementary school education level totaled 1 person (3.3%), junior high school totaled 1 person (3.3%), high school totaled 24 people (80%) and university education totaled 4 people (13.3%); d) The ages of toddlers with the most ages were 12, 24, 39, and 56 months totaling 2 toddlers each (6.7%); e) The gender of the toddlers is male, totaling 15 toddlers (50%) and the gender of the toddlers is female, totaling 15 toddlers (50%).

Analisis Multiple linear regression analysis of the Study on Vitamin A Provision and Exclusive Breastfeeding with Toddler Growth in Body Weight is as follows: $Y = 0.050 + 0.770 (X_1) + 0.922 (X_2) + 1.436$. From the equation, a positive constant value is obtained and the regression coefficient value is also positive. The better the provision of vitamin A and Exclusive Breastfeeding with Toddler Growth. In this case, it means that every increase in one variable X_1 will affect the Y variable by 0.770, every increase in one variable X_2 will affect the Y variable by 0.922. Multiple linear regression analysis of the Study on Giving Vitamin A and Exclusive Breastfeeding with Toddler Growth in Height is as follows: $Y = 43.104 + 2.133 (X_1) + 4.401 (X_2) + 6.397$. From the equation, a positive constant value is obtained and the regression coefficient value is also positive. The better the provision of vitamin A and Exclusive Breastfeeding with Toddler Growth. In this case, it means that every increase in one variable X_1 will affect the Y variable by 2.133, every increase in one variable X_2 will affect the Y variable by 4.401.

Table 1.
Values of Regression Variance Analysis and Regression Coefficient Analysis

Variable	Tcount	Ttable	Sig.	Fcount	F _{0,05}	RSquare :
Giving Vitamins A (X1) with weight	3,488	2,052	0,002	128,091	3,35	0,905
Exclusive Breastfeeding (X2) with weight	3,680		0,001			
Giving Vitamins A (X1) with height	2,490	2,052	0,019	123,225	3,35	0,901
Exclusive Breastfeeding (X2) with height	4,525		0,000			

Based on the table above, the regression analysis of variance obtained the F count value of 128.091> from the F value of 0.05 (3.35) meaning that there is a significant influence between the variables of vitamin A provision (X1) and Exclusive Breastfeeding (X2) with Toddler Growth in weight (Y) in Lawak Village, Ngimbang District, Lamongan Regency. While the significant relationship between the independent variables is determined through the t count value of each variable with the t count value of the vitamin A provision variable (X1) of 3.488> t table 2.052 meaning that there is a significant relationship between vitamin A provision (X1) with Toddler Growth in weight (Y). The t count value of the Exclusive Breastfeeding variable (X2) of 3.680> t table 2.052 meaning that there is a significant relationship between Exclusive Breastfeeding (X2) with Toddler Growth in weight (Y). The regression coefficient value (Rsquare) of 0.905 means that the relationship between the independent variable and Toddler Growth in body weight is 90.5%, while the other 9.5% is influenced by other factors that are not studied. Judging from the relationship between the two independent variables (X) and the dependent variable (Y), it can be concluded that variable X2 (Exclusive Breastfeeding) is more dominant in Toddler Growth in body weight (Y) as evidenced by the calculated t value of X1 3.680> calculated t X2 3.488. While the results of the regression analysis of variance on growth with height at the F count value of 123.225> from the F_{0.05} value (3.35) means that there is a significant influence between the variables of vitamin A provision (X1) and Exclusive Breastfeeding (X2) with Toddler Growth in height (Y) in Lawak Village, Ngimbang District, Lamongan Regency. While the significant relationship between the independent variables determined through the t count value of each variable with the t count value of the vitamin A provision variable (X1) of 2.490> t table 2.052 means that there is a significant relationship between vitamin A provision (X1) with Toddler Growth in height (Y). The t count value of the Exclusive Breastfeeding variable (X2) of 4.525> t table 2.052 means that there is a significant relationship between Exclusive Breastfeeding (X2) with Toddler Growth in height (Y). The regression coefficient value (Rsquare) of 0.901 means that the relationship between independent variables and Toddler Growth in weight is 90.1%, while the other 9.9% is influenced by other factors that are not studied. Judging from the relationship between the two independent variables (X) and the dependent variable (Y), it can be concluded that the Exclusive Breastfeeding variable (X2) is more dominant in Toddler Growth in height (Y) as evidenced by the calculated t value of X2 4.525> calculated t X1 2.490.

Based on the analysis results, the t-value of the vitamin A provision variable (X1) was 3.488> t table 2.052, meaning that there is a significant relationship between the provision of vitamin A (X1) and Toddler Growth in weight (Y). And the t-value of the vitamin A provision variable (X1) was 2.490> t table 2.052, meaning that there is a significant relationship between the provision of vitamin A (X1) and Toddler Growth in height (Y) in Lawak Village, Ngimbang District, Lamongan Regency. The results of this study are in accordance with the theory of (Utami & Daulay, 2020b)(Wulandari & Arianti, 2023). which states that Vitamin A is one of the important nutrients for infants and toddlers because vitamin A will protect infants and toddlers from several risks of disease so that the growth and development of infants and toddlers are more optimal. In addition, Vitamin A is one of the essential nutrients needed by toddlers to be able to grow and develop properly. Vitamin A in the body stimulates the production of white blood cells which play a role in bone formation, maintaining and supporting the growth of body

cells, and increasing endurance. Vitamin A is an important nutrient that the body needs for growth and resistance to disease. providing a single nutrient (mineral zinc) and a combination of 2-3 types of nutrients (Zinc, Iron, Vitamin B12, Vitamin A, Fat). In contrast, the intervention of the combination of zinc mineral nutrients, prebiotics, and food supplements in the form of micronutrient powder sachets did not show a significant difference in the length gain of toddlers (Siahaan et al., 2023). The risk of stunting can be caused by low birth weight (LBW), exclusive breastfeeding for less than 6 months, parents' education level, parents' income, and parents' height. To overcome the problem of stunting, the Government through Presidential Decree Number 42 of 2013 concerning the National Movement for the Acceleration of Nutrition with a focus on the age group in the first 1000 days of life (Ministry of Health of the Republic of Indonesia, 2013), including: Pregnant women receive a minimum of 90 Blood Supplement Tablets during pregnancy, Providing Supplementary Food to pregnant women, Fulfillment of nutrition, Delivery with an expert doctor or midwife, Providing Early Breastfeeding Initiation, Providing exclusive breast milk (ASI) to babies up to 6 months of age, Providing Complementary Foods for Breast Milk (MP-ASI) for babies over 6 months to 2 years, Providing complete basic immunization and vitamin A, Monitoring the growth of toddlers at the nearest integrated health care center, Implementing Clean and Healthy Living Behavior (Wardani et al., 2023).

Based on the results of the analysis, the t-value of the Exclusive Breastfeeding variable (X_2) was $3.680 > t_{table} 2.052$, meaning that there is a significant relationship between Exclusive Breastfeeding (X_2) and Toddler Growth in weight (Y). The t-value of the Exclusive Breastfeeding variable (X_2) was $4.525 > t_{table} 2.052$, meaning that there is a significant relationship between Exclusive Breastfeeding (X_2) and Toddler Growth in height (Y) in Lawak Village, Ngimbang District, Lamongan Regency. This study is in accordance with Nina's theory (2013) which explains that one of the benefits of breast milk for babies and toddlers is that they can start their lives well, babies who get breast milk have good weight gain after birth, growth after the perinatal period is good and reduces the possibility of obesity. In addition, it is also in line with research conducted (Setyowati, 2023)(Setyowati, 2018) which shows that exclusive breastfeeding is one of the factors that influences growth in assessing nutritional status in toddlers. Therefore, the promotion of exclusive breastfeeding must be implemented in every health facility and social media so that the information reaches the wider community so that it can reduce the incidence of stunting in toddlers (Rayhana & Amalia, 2021). In the context of child growth, the clinical significance of research findings showing associations between particular variables and child growth can be assessed based on whether those results can help improve child growth, reduce the risk of disease, or improve the child's quality of life.

4. Conclusion

Based on the results of the study entitled Study on Provision of Vitamin A and Exclusive Breastfeeding with Toddler Growth in Lawak Village, Ngimbang District, Lamongan Regency, it can be concluded that: There is a significant relationship between the provision of vitamin A and toddler growth as seen from the t-value of the vitamin A provision variable (X_1) of $3.488 > t_{table} 2.052$, meaning that there is a significant relationship between the provision of vitamin A (X_1) and toddler growth in weight (Y). And the t-value of the vitamin A provision variable (X_1) of $2.490 > t_{table} 2.052$ means that there is a significant relationship between the provision of vitamin A (X_1) and Toddler Growth in height (Y) in Lawak Village, Ngimbang District, Lamongan Regency. There is a significant relationship between exclusive breastfeeding and toddler growth as seen from the t-value of the exclusive breastfeeding variable (X_2) of $3.680 > t_{table} 2.052$, meaning that there is a significant relationship between exclusive breastfeeding (X_2) and toddler growth in weight (Y). The t-value of the exclusive breastfeeding variable (X_2) of $4.525 > t_{table} 2.052$ means that there is a significant relationship between exclusive breastfeeding (X_2) and toddler growth in height (Y) in Lawak Village, Ngimbang District, Lamongan Regency. The F-value of $128.091 >$ from the F-value of $0.05 (3.35)$ means that there is a significant influence between the variables of vitamin A provision (X_1) and exclusive breastfeeding (X_2) with toddler growth in weight (Y) in Lawak Village, Ngimbang District, Lamongan Regency. With a regression coefficient value (Rsquare) of 0.905 , it means that the relationship between the independent variable and toddler growth in body weight is 90.5% , while the other 9.5% is influenced by other factors that were

not studied. The Fcount value of 123.225 > from the F_{0.05} value (3.35) means that there is a significant influence between the variables of vitamin A provision (X₁) and Exclusive Breastfeeding (X₂) with toddler growth in height (Y) in Lawak Village, Ngimbang District, Lamongan Regency. With a regression coefficient value (Rsquare) of 0.901, it means that the relationship between the independent variable and toddler growth in weight is 90.1%, while the other 9.9% is influenced by other factors that were not studied. For further improvements expected for Health Workers is Education about the importance of vitamin A, Effective distribution of vitamin A, Monitoring and evaluation and Collaboration with the Community, so that there can be an increase in the quality and availability of vitamin A education and distribution programs, so that it can help improve the health and quality of life of children in Indonesia.

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