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The Relationship Between Exclusive Breastfeeding and the Growth of Infants Aged 6-11 Months at Payahe Public Health Center

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Abstract: *Breast milk is the ideal natural food for babies, especially in the first months. Based on data from the UNICEF and WHO, exclusive breastfeeding in the world is still relatively low. The purpose of this study was to determine the effect of exclusive breastfeeding on the growth chart of the KMS. This study was an observational study with a cross-sectional design. The subjects in this study were all infants aged 6 - 11 months in the working area of the Payahe Public Health Center in Payae, who were 172 people. The minimum sample in this study was 105 infants selected using the Stratified Random Sampling technique. The Data collection in this study uses secondary data in the form of KMS to assess the growth of infants, and primary data collected by using a questionnaire to assess exclusive breastfeeding. Data analysis was performed using the Chi-Square test with Fisher's exact test. This study indicates that more infants were not given exclusive breastfeeding, which was equal to 59% and infants who grow normally are 78.1%. The results of bivariate analysis showed that there was a relationship between exclusive breastfeeding and the growth of infants aged 6-12 months in the work area of Payahe Public Health Center.*

Keywords: *Baby; Exclusive Breastfeeding; Growth; KMS; Payae.*

1. INTRODUCTION

Growth involves not only physical growth but also the size and structure of body organs and the brain. One of the most fundamental efforts to ensure optimal growth and development is to provide the best nutrition for children from birth to two years of age (Decree of the Minister of Health of the Republic of Indonesia Number: 1995/MENKES/SK/XII/2010 Concerning Anthropometric Standards for Assessing Child Nutritional Status, 2011). Breast milk is the best food for infants to grow and develop. In addition to its complete nutritional content, breastfeeding also provides babies with comprehensive sensory stimulation (tactile, olfactory, auditory, warmth, and affection) from their mothers (Hariani et al., 2016).

Research in several developing countries has revealed that the primary cause of malnutrition and stunted growth in toddlers is related to low breastfeeding intake. Globally, exclusive breastfeeding coverage was only around 36% between 2007 and 2016, while Indonesia's exclusive breastfeeding rate was 54.3% (Research and Development Agency, Ministry of Health, 2013).

The percentage of infants exclusively breastfed in Bangka Belitung Province was 53.5%. In Payahe City, exclusive breastfeeding coverage was 45.9%, the second-lowest in the Bangka Belitung Islands (Bangka Belitung Islands Provincial Health Office, 2016). Payahe District has the highest exclusive breastfeeding coverage in Payahe City, at 75%. However, this

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is still low compared to the government's target of 80% exclusive breastfeeding (Ministry of Health, 2015).

Low exclusive breastfeeding rates are one of the causes of the poor nutritional status of infants and toddlers. Exclusively breastfed babies experience optimal growth and development. Growth can be measured by weight gain, height gain, or head circumference. Optimal development can be seen from improvements in motor, psychomotor, and language skills (Sulistyoningsih, 2011). The Health Card (KMS) is an important tool for monitoring child growth and development, depicting a regular and coherent growth pattern (Hariani et al., 2016).

Previous research has shown that exclusively breastfed infants have normal growth compared to non-exclusively breastfed infants (Fitri et al., 2014; Megawati et al., 2012), and there is a significant relationship between breastfeeding patterns and the growth chart on the KMS (Hariani et al., 2016). Therefore, researchers were interested in examining the relationship between exclusive breastfeeding and the growth chart on the KMS for infants aged 6–11 months at the Payahe Community Health Center.

2. RESEARCH METHOD

This study is an observational analytical study with a cross-sectional design. The subjects of this study were all 172 infants aged 6-11 months in the Payahe Community Health Center working area. The minimum sample size in this study was 105 infants selected using stratified random sampling. The study was conducted in the Payahe Community Health Center working area, Payahe City, from June to August 2024. Data collection was carried out using a questionnaire to obtain information on maternal and infant characteristics, as well as exclusive breastfeeding, and using the Child Health Card (KMS) book to assess infant growth. Data analysis techniques to determine the relationship between variables used the chi-square test with the help of SPSS software.

3. RESULTS AND DISCUSSION

The results showed that the majority of mothers were aged 20-35 years (82.9%), with a high level of education (53.3%), and were unemployed/housewives (84.8%). The average age of infants was 7.9±2.097 months, with the youngest being 6 months and the oldest being 12 months. Most infants were boys (51.4%) (Table 1). Fifty-nine percent of infants were not exclusively breastfed, citing the lack of milk production. The earliest duration of breastfeeding was until the baby was 1 month old, and the longest was until the baby was 8 months old, with an average duration of 3.03±1.585 months (Table 2). Based on the Child Health Card (KMS)

growth chart, the majority of infants grew normally (78.1%) (Table 3). 97.7% of infants who were exclusively breastfed had normal growth, while 35.5% of infants who were not exclusively breastfed had inadequate growth. This indicates a significant relationship between exclusive breastfeeding and infant growth charts (p=0.000) (Table 4).

Table 1. Respondent Characteristics.

Variabel	Total	Percentage(%)
Mother's Age (years)		
< 20	3	2,8
20-35	87	82,9
> 35	15	14,3
Mother's Education Level		
Higher education	56	53,3
Low education	49	46,7
Mother's Employment Status		
work	16	15,2
Doesn't work	89	84,8
Baby Gender		
Male	54	51,4
Female	51	48,6

Table 2. Distribution of Infant Ages in the Payahe Community Health Center Work Area.

Variables	Mean	SD	Min-Max
Age (Month)	7,9	2.097	6-12

Based on table 3, the majority of respondents have a positive perception, namely 76 respondents (83.5%).

Table 3. Exclusive Breastfeeding and KMS Growth Chart for Infants.

Variables	Total	Percentage(%)
Exclusive Breastfeeding		
Exclusive Breastfeeding	43	41
Not Exclusive Breastfeeding	62	59
KMS Growth Chart		
Normal Growth	82	78,1
Inadequate Growth	23	21,9

Pemberian ASI Eksklusif	wth Chart				Total		*p Value*
	Normal Growth		Inadequate Growth				
	n	%	n	%	n	%	
Exclusive Breastfeeding	42	97,76	1	2,3	43	100	0,000
Not Exclusive Breastfeeding	40	4,5	22	35,5	62	100	
Total	82	78,1	23	21,9	105	100	

Discussion

Age is one of the factors influencing infant growth and development. The average age of respondents was 7.9 months, with the youngest being 6 months and the oldest 12 months. This indicates that infants are experiencing very rapid growth and development, a period that will continue until the age of five. During the first five years, often referred to as the golden age, growth and development must be closely monitored, as this is when babies experience rapid growth. Not only physical growth, but also rapid brain growth. The composition and volume of a baby's brain is 80% that of an adult. To achieve optimal brain growth, adequate nutrition is required (Fikawati, 2015).

In this study, the highest level of maternal education was higher education. A mother's education level is not necessarily related to a lack of maternal knowledge. According to Notoatmodjo's theory (2013), the lack of exclusive breastfeeding can be influenced by behaviors regarding health issues, the presence or absence of family support, the mother's education level, and the availability of adequate information about the importance of exclusive breastfeeding (Notoatmodjo, 2003).

In terms of maternal occupation, the majority of respondents were unemployed and housewives. Being a housewife for many mothers has a positive impact on infant growth and development, as it allows mothers to devote more time to caring for their babies, allowing them to provide optimal breast milk (Bahriyah et al., 2017; Koba et al., 2019) (Sihombing, 2018). According to Putri (2015), only a few countries legally guarantee breastfeeding for working mothers, allowing mothers to leave their jobs and take short breaks to breastfeed (Putri, 2015).

Breast milk is the best and most natural food for babies. Exclusive breastfeeding is breastfeeding from birth to 6 months of age. Breast milk is the perfect food for babies, containing all the nutrients in the ideal proportions needed by babies. One of the reasons mothers do not provide exclusive breastfeeding is that mothers experience difficulties in providing breast milk, so they only provide breast milk for a few days, after which they replace it with formula milk (Prasetya et al., 2019) (Faristasari et al., 2019). This problem can be caused by two things: blocked milk ducts and insufficient milk production (Safitri & Minsarnawati, 2012). In addition, the assumption that by providing formula milk, the family's social standing will increase in the community also contributes to the failure of the 6-month Exclusive Breastfeeding program.

Growth and development encompass all aspects of progress achieved from conception to adulthood. Assessments based on growth charts revealed 78.1% of infants with normal growth and 29.1% with inadequate growth. The growth of breastfed infants was largely normal,

especially those who were exclusively breastfed. This is because the nutritional content of breast milk meets the needs of infants up to 6 months of age. These results align with research conducted by Fitri et al. (2014) that found that growth assessments based on nutritional status found 66% of infants with normal growth and 34% with stunted growth (Fitri et al., 2014).

Infants receiving adequate nutrition will experience an average weight gain of 700-1000 grams per month in the first trimester and 500-600 grams per month in the second trimester. Fikawati et al. (2015) stated that breast milk is the primary nutrient because it contains various nutrients that are good for brain development, such as fat and protein. The breastfeeding process, such as cuddling, caressing, and conversation between a mother and her baby, also stimulates their brain development. Growth during this golden period determines the child's subsequent growth and development (Fikawati, 2015).

Infants, from birth to one year of age, experience growth and development. Growth and development are two distinct processes, but they are not mutually exclusive; they occur simultaneously and are interconnected from conception to adulthood. This study showed that 97.7% of babies who received exclusive breastfeeding experienced normal growth. The growth of breastfed babies was largely normal, especially those who were exclusively breastfed. This is because the nutritional content of breast milk meets the needs of babies up to 6 months of age.

The bivariate analysis of this study revealed a significant relationship between exclusive breastfeeding and the infant growth chart on the Child Health Card (KMS). Exclusive breastfeeding influences breast milk intake and improves the infant's growth chart. The relationship between breastfeeding and infant growth charts means that maternal behavior in breastfeeding affects the child's growth and development (Nazirun & Mutiara, 2019) (Suryana & Fitri, 2019) (Al Rahmad, 2017). Breastfeeding will affect intake and have an impact on improving the infant's growth chart. This is in accordance with Bloom's theory which states that the pattern of breastfeeding by the respondents is supported by an understanding of breastfeeding and a good attitude so that the infant's growth chart is normal (Faristasari et al., 2019) (Al Rahmad, 2017). The results of this study are in line with research conducted by Hariani et al. (2016) which found a significant relationship between breastfeeding patterns and growth charts on the KMS (Hariani et al., 2016).

Studies on nutritional status have shown a relationship between breastfeeding and infant growth charts. This relationship between breastfeeding and infant growth charts is Adequate breastfeeding indicates a positive maternal attitude toward breastfeeding techniques, frequency, and duration. This is in line with research by Ridzal et al. (2013), which found a significant

relationship between breastfeeding patterns based on duration of breastfeeding and nutritional status in children aged 6-23 months in the coastal area of Tallo District, Makassar City (Ridzal et al., 2013). Research by Megawati et al. (2012) showed that infants with developmental abnormalities were most often those who were not given colostrum (Megawati et al., 2012). This suggests a significant relationship between breastfeeding history and infant development.

Research by Fitri et al. (2014) on the results of infant growth assessments according to nutritional status found that infants who were given exclusive breastfeeding had more normal growth than infants who were given non-exclusive breastfeeding (Fitri et al., 2014). In a study by Cahyadi (2012) in Tasikmalaya City, it was stated that the relationship between breastfeeding and infant growth was not significant. The insignificant relationship between breastfeeding and infant growth was caused by the quantity and quality of breast milk given by mothers which was still insufficient so that infant growth was not optimal. In addition, other factors that also influenced this were nutritional intake in mothers during pregnancy and breastfeeding, and inappropriate and incorrect breastfeeding methods so that breast milk production was insufficient (Cahyadi, 2012). In addition, formula milk has prevented exclusive breastfeeding in disaster locations. The role of health workers was quite good, but the role of families was less supportive in providing exclusive breastfeeding (Fadjriah et al., 2020). The duration of breastfeeding for infants up to 2 months was 62.2%, while 86.5% of infants not exclusively breastfed (Devriany et al., 2019).

Field observations show that the growth charts of infants who are exclusively breastfed are better than those who are not exclusively breastfed because breast milk is the best nutrient for optimal growth (Nazirun & Mutiara, 2019), (Suryana & Fitri, 2019), and (Al Rahmad, 2017). Optimal child growth and development require adequate nutritional support and stimulation. Breast milk can meet all of a child's basic needs for growth and development.

Knowledge of Basic Immunization

Fifty-two respondents (57.1%) had a good level of knowledge, as shown in Table 2. Knowledge is the collection of information that enables a person to know something through experience or from birth.

This aligns with research (Undarti et al., 2013), which found that age, education, and occupation are some of the factors influencing a person's level of knowledge. Age is a factor that influences respondents' good knowledge. A person's level of maturity and strength increases with age.

This finding is also consistent with the theory of measuring knowledge, attitudes, and behavior (Wawan & M, 2011), which states that a person's comprehension and mindset can be

influenced by age. A person's comprehension and mindset improve with age, thus enhancing the knowledge gained (Putra & Podo, 2017).

This is also in line with research (Astuti, Yudiernawati, & Maemunah, 2016), which shows that the majority of people aged 17 to 25 have a greater level of knowledge, and with age, a person's knowledge increases. Some respondents were in their mature years, which is the age when comprehension and reasoning skills improve, thus enhancing their knowledge. With age, a person becomes more mature in their thinking and work. According to (Faot, Sulastri, & Widayati, 2018), more mature people are more trusted by society than less mature people.

Education can also influence knowledge. Information is more easily accessible with a higher level of education (Rahmah, Ambardini, 2016).

Changes in the attitudes and behavior of an individual or group, as well as efforts to mature individuals through training and teaching, are known as education. According to (Bagaskoro, 2019), a higher level of education and the amount of training attended will undoubtedly influence the breadth of a person's knowledge. Everyday life involves education. A person's level of education impacts their cognitive abilities. Research results show that respondents with higher education have better knowledge. Education increases knowledge about diseases (Ermalynda & Nia, 2019). According to research conducted by Fadlilah and Rahil (2019), respondents from universities had a better understanding of futsal compared to respondents from secondary schools. According to Nursalam (2017), education is directly related to a person's knowledge, so it is expected that higher education can increase a person's knowledge. It is expected that someone with higher education will apply their knowledge, especially when family members need assistance. Mass media, electronic media, manuals, health workers, etc. are some common sources of knowledge.

A person's brain performance and ability to store (memory) increases or improves when used frequently, such as in jobs that require frequent brain activity (Putra & Podo, 2017). The work environment can provide a person with direct and indirect experience and knowledge (Faot et al., 2018). This research aligns with research by Karina & Warsito (2012) that found that most mothers had good knowledge about immunization.

Therefore, according to the researchers, occupation can also influence knowledge. A person's knowledge and experience can be influenced by their occupation. Unemployed mothers have more time to learn about immunization, so they understand it better. Mothers who are knowledgeable about vaccination have obtained this information from various sources, including mass media, electronic media, and health workers.

Perceptions of Basic Immunization

The results showed that the majority of parents who responded had positive perceptions of basic immunization.

The survey also found that parents with negative perceptions agreed that basic immunization can cause additional illnesses, such as fever in infants after vaccination. Furthermore, parents believed that immunized and unimmunized infants were no different. Parents who believed that their babies were not sick and did not need vaccinations also preferred to give their children medicine when they were sick rather than prevent them from receiving basic vaccinations. Negative perceptions of immunization are also influenced by information from those around them. Perceptions about immunization are influenced by the dominant party. Seeing himself as the dominant party, a husband forbade his wife from immunizing their baby. He did this because he did not want to be disturbed by the baby's constant crying after the immunization (Etni, 2020).

The results of this study align with the theory (Kusumaningrum et al., 2022) which states that perception is one of the factors influencing parents' decision to vaccinate. According to the survey results, respondents with positive perceptions agreed that vaccination can prevent infectious diseases. Parents had been well-informed by health workers, both toddler health post (Posyandu) cadres and local community health center (Puskesmas) staff, as immunization is considered important for building immunity in infants.

Therefore, parents who participated in the study also saw the benefits of basic immunization, believing that immunized infants are less likely to get sick. Parents also believed that, even if they were not in an environment prone to infection, they should still receive basic immunizations to prevent unwanted diseases. Parents also disagreed about whether vaccination causes disabilities.

Immunization Compliance

The results showed that the majority of respondents (78 respondents) were compliant with immunizations.

According to Lolong (2017), this study found a relationship between maternal education and maternal compliance with basic immunizations at the Tongkaina Community Health Center, Bunaken District, Manado City. This study also found a relationship between family support, maternal motivation, maternal attitudes, knowledge level, maternal actions, and health services with maternal compliance with basic immunization. Furthermore, there was a relationship between family support and maternal motivation. Although many other factors

play a role, this study suggests that knowledge plays a role in determining compliance. However, this study did not consider the extent to which knowledge contributes to compliance.

The results of this study are objectively consistent with the findings of Momomuat et al. (2014) regarding the relationship between maternal knowledge level about the importance of measles vaccination and their compliance with it at the Kawangkoan Community Health Center. However, this study only covered measles immunization and cannot be generalized to basic immunization as a whole. This study also offers an opportunity to explore the contribution of knowledge and compliance levels.

The results of this study align with research conducted by Rizani et al. (2019), which examined the relationship between maternal knowledge, attitudes, and behavior during the administration of hepatitis B immunization for 0-7 days in Banjarmasin City. The study found that mothers with no knowledge were 5.96 times more likely to engage in inappropriate behavior during hepatitis B immunization compared to mothers with good knowledge. Furthermore, negative maternal attitudes also posed a risk. Mothers' behavior during the 7-day period following hepatitis B vaccination was associated with their knowledge and education level. However, this study did not quantify this behavior as compliance. Therefore, it can be concluded that mothers' knowledge and perceptions contribute to their compliance with vaccination.

The results of this study align with those of Astinah et al. (2013), who examined the relationship between education, knowledge, attitudes, and the practice of administering basic immunizations to infants at the Teratai Integrated Health Post (Posyandu) at the Tamamaung Community Health Center in Makassar. The study found a relationship between education, knowledge, attitudes, and practices related to immunization. Furthermore, this study showed that education and knowledge had the most significant influence on immunization administration. The extent of their contribution to shaping behavior and compliance remains unclear.

Given the importance of immunization for children, researchers estimated that respondents had participated in immunization sessions. The study above shows that many variables play a role in maternal compliance with immunization. However, among these variables, knowledge appears to be the most prominent factor in determining maternal compliance with immunization.

The Relationship Between Knowledge and Compliance

There is a relationship between maternal knowledge about basic immunizations and infant compliance with immunizations, according to statistical test results, with a p-value of 0.000 ($\rho < 0.05$).

This aligns with research conducted by Lolong (2017), which analyzed variables related to maternal compliance with basic immunizations. The study showed a relationship between maternal knowledge and compliance with basic immunizations. The higher the level of education, the better the mother's knowledge, making it easier to change behavior to provide basic immunizations to infants.

According to Anggraini's research, there is a significant correlation between maternal knowledge about implementing complete basic immunizations and child compliance with complete basic immunizations (p=0.017). The mother's level of knowledge is related to the child's compliance with complete basic immunizations.

Researchers assume that maternal knowledge about immunizations significantly influences maternal compliance. This is due to parents' awareness of the importance of vaccinating their children, which in turn contributes to their compliance.

Parents play a crucial role in health promotion campaigns, especially in vaccinating infants. Knowledge largely influences a person's actions. Behavior based on knowledge will be more lasting than behavior without it. Mothers who understand the purpose and benefits of immunization will be more likely to complete basic immunizations. Therefore, every mother is expected to understand the importance of immunization for their children so that they will be healthy in the future.

Relationship Between Perception and Compliance

Based on the results of the research, data showed a relationship between mothers' perceptions about basic immunization and infant compliance with basic immunizations. Statistical tests showed a p-value of 0.001 ($\rho < 0.05$). This means the p-value obtained is less than 0.005.

According to Ajzen's theory of planned behavior (2020), perceptions control behavior, or the behavior observed can help someone perform a behavior. One of the three factors that can influence the intention to perform a behavior is perception.

This aligns with research conducted by Dariah Elis Deti (2015), which found a relationship between parental perceptions of immunization compliance and their perceptions of basic immunizations for infants. Respondents in the previous study overwhelmingly held positive opinions.

According to the researchers, those with positive perceptions who did not complete their infants' basic immunizations were largely influenced by several factors, such as prohibitions from their husbands, friends' opinions that immunizations would make babies sick, and many who said that not immunizing wouldn't be a problem, or even that immunizations would weaken the child. These views and thoughts contributed to mothers or parents' tendency to choose not to immunize their infants. A mother's decision to take her child for basic immunizations was also heavily influenced by the role and support of the father. Although community health center staff had provided sufficient information and some respondents were aware of the benefits of immunization, due to a lack of support from those around them, they did not complete their infants' immunizations. Therefore, parents who have completed their children's basic immunizations have a positive perception of basic immunization.

4. CONCLUSION

In general, more infants aged 6-12 months in the Payahe Community Health Center (Puskesmas) work area are not exclusively breastfed (59%). 78.1% of infants aged 6-12 months in the Payahe Community Health Center work area have normal growth, while 21.9% have abnormal growth. There is a correlation between exclusive breastfeeding and the growth of infants aged 6-12 months in the Payahe Community Health Center work area. Given the low prevalence of exclusive breastfeeding in the Payahe Community Health Center work area, health cadres, midwives, and the Community Health Center's nutrition counseling department should consistently provide information to breastfeeding mothers about the importance of breastfeeding to support child growth and development.

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