Jurnal Info Kesehatan
Vol. 20, No. 2, December 2022, pp. 117-126
P-ISSN 0216-504X, E-ISSN 2620-536X
DOI: *10.31965/infokes.Vol20Iss2.628*
Journal homepage:*http://jurnal.poltekeskupang.ac.id/index.php/infokes*

RESEARCH **Open Access**

Toddler Growth in the Working Area of Kuok Public Health Center, Kampar Regency

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Received: 17 December 2021 Revised: 16 July 2022 Accepted: 18 August 2022

Abstract

Toddler Growth in the Working Area of Kuok Public Health Center, Kampar Regency. The first five years of a child's life are critical for growth and development because these years assist in generating the adult they will become. Data from WHO discovered that in developing countries, almost 45% of children under five suffer from growth and development disorders. Data from Kuok Public Health Center also demonstrated that in the last three years, there was an increase in the cases of malnutrition were 27 toddlers in 2018. Meanwhile, the were 32 cases in 2019 and 44 in 2020. This study aims to examine factors associated with toddler growth in the working area of Kuok Public Health Center, Kampar Regency. It was a cross-sectional study conducted in the working area of Kuok Public Health Center, Kampar regency, Riau Province. It was performed in January 2021. The samples are 60 toddlers aged 12-60 months with a growth chart. They were selected to be the sample of the study through consecutive sampling. A Chi-square test was administered to evaluate the bivariable. Bivariable analysis displayed a relationship among nutritional status (p-value 0.003, OR 8.321), parenting (p-value 0.003, OR 7.342), exclusive breastfeeding (p-value 0.002, OR 9.201), and parental income (p-value 0.031, OR 4.486) with the growth in toddler. In conclusion, the relationship among nutritional status, parenting, exclusive breastfeeding, and parental income with toddler growth was revealed.

Keywords: Toddler, Growth, Factors Associated.

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1. INTRODUCTION

The objective of health development is to escalate awareness and implement healthy living behavior in the community to formulate quality health degrees as an investment for human resource development, one of which is to realize this starting from the necessity for special attention to the period of growth and development of toddlers (Arfan et al., 2021). Growth is a physiological change that occurs as a result of the normal maturation of physical functions in children and healthy people over time. Growth is merely temporary and lasts until people are physically mature. If the body's growth threshold has surpassed the point of maturity, it signifies that the person will not grow larger or taller (Musthofa, 2022).

The infant growth period is critical for development because these years assist in generating the adult they will become (Yunita et al., 2020). The growth and development of a toddler's brain during this period influence the inability to perform intellectual tasks that should be completed if normal development is not disrupted by damage to brain development due to malnutrition (Setiawati et al., 2020).

In 2015, the numbers of cases of growth disorders by toddlers were still high (27.5%) or around 3 million toddler experienced growth and development disorders (UNICEF, 2015). The World Health Organization (WHO) revealed that almost 45% of toddlers in developing countries experience disorders and delays in growth and motor development (WHO, 2015).

Data from Basic Health Research in 2018 reported that in Indonesia, the percentage of severely underweight toddlers was 3.9%, while the percentage of underweight was 13.8% (Kementerian Kesehatan Republik Indonesia, 2018). In 2020, the nutritional surveillance for two-year-old infants were discovered to be 58.425 (1.3%), two-year-old infants with very low body weight, and as many as 248.407 (5.4%) two-year-old infants with underweight. The province with the highest percentage of malnutrition in two-year-olds is East Nusa Tenggara, while the lowest is Bali (Kementerian Kesehatan Republik Indonesia, 2021).

Data from Riau Province Health Profile uncovered that the nutritional status of the toddler with weight index presented an escalating trend in 2017 by 6.9%. In 2018, it escalated to 10.7%, while the nutritional status of children in 2017 by 3.3%, and in 2018, it exceeded 3.5% (Dinas Kesehatan Provinsi Riau, 2018). Data from Kuok Public Health Center unveiled that malnutrition cases increased in the last three years. In 2018, there were 27 toddlers, and as many as 32 toddlers in 2019, and in 2020 increased to 44 toddlers suffering from malnutrition (Dinas Kesehatan Kabupaten Kampar, 2020).

Several factors associated with toddler growth disorders are nutritional intake, nutritional status, early stimulation, parenting, and exclusive breastfeeding. Nutritional status, parenting patterns, and exclusive breastfeeding are the major influential factors in the growth disorders of the toddler. Riau Province Health Profile data revealed that toddlers experience growth and development delays. One of the primary factors is nutrition, which is 18.83% of toddlers (Dinas Kesehatan Provinsi Riau, 2018).

The growth and development of toddlers are significantly affected by nutritional status. Poor dietary quality could significantly inhibit physical, mental, and thinking abilities, ultimately diminishing toddlers' working abilities in performing their activities (Setiawati, Yani and Rachmawati, 2020). The study conducted by Solecah & Fitriahadi's in 2017 presented that there was a relationship between nutritional status and the growth of toddler aged 1-3 years in the working area of the Jetis Public Health Center, Yogyakarta City, which indicates that the better the nutrition of toddlers, the better their development (*p-value* 0.000) (Solechah & Fitriahadi, 2017).

A study conducted by Masyudi, Mulyana, and Rafsanjani in 2019 uncovered that there was a relationship between parenting (p = 0.021; OR = 3.6) and weaning age (p = 0.042; OR = 3.5) with the nutritional status of the toddler, in which parenting was not excellent and fast. Weaning age impacts high cases of malnutrition in toddlers under five years in Muara Batu District, North Aceh (Masyudi, Mulyana, & Rafsanjani, 2019). Another research by Hendrawan, Hernawan, and Saleh (2020), displays a significant relationship between exclusive breastfeeding and child growth based on weight with a p-value of 0.004.s

In accordance with a preliminary survey in the Kuok Health Center Work Area, it was revealed that there are problems in growth and delays in the development of toddlers. 15 of 20 toddlers possess poor nutritional status, resulting in developmental delays such as speaking, walking, drawing and interacting with others. Therefore, numerous factors are associated with growth disorders in toddlers and the dreadful impact that the researchers are interested in examining toddler growth in the working area of Kuok Public Health Center, Kampar Regency.

2. RESEARCH METHOD

It was an analytic observational study with a cross-sectional design. The study was performed in the working area of Kuok Public Health Center, Kampar regency, Riau province. The study was conducted in January 2021. The formula acquired the total sample size as follows: NZ(1- α/2) 2 P (1 - P) / Nd2 + Z(1 - α/2) 2 P (1 - P) with n= sample size, N= population size a number 148, Z(1-α/2) = 1.96, P= proportion (0.5), 1-P= 0.5, d= desired level of precision (0.05) (Riyanto, 2019). The research samples were selected through consecutive sampling. This study's sample number was 60 toddlers aged 12-60 months with a growth chart. Kuok Public Health Center officially acknowledges this research through research permit letter number: 445/PKM-KUOK/I/2021/190.

The data obtained in this research were primary data. The independent variable measurement of nutritional status employed an anthropometric examination of Body Weight per Age (WW/U) in accordance with the nutritional status category of the Ministry of Health of the Republic of Indonesia in 2020. Researchers evaluated the weight of toddlers by administering a scale with an accuracy of 0.1 cm, while the age of toddlers was administered a growth chart. The categorization of nutritional status is as follows; 1) Undernourished if it is in the >-2SD range, 2) Good nutrition if it is in the >-2SD -1SD range, 3) Over nutrition, if > 1SD.

To collect the data on parenting, the researcher employed a questionnaire accommodating 20 questions which have been examined for validity and reliability. The categorization of parenting patterns is as follows; 1) Good Parenting, if you answer 16-20 questions correctly, 2) Bad Parenting, if you answer <16 questions correctly. The exclusive breastfeeding data collection tool employs a questionnaire with two questions under the categories; 1) Yes, exclusive breastfeeding, 2) No, exclusive breastfeeding. The data collection tool for parents' income utilizes a questionnaire incorporating two questions with categories 1) High, if income is > Rp.2,500.00/month 2) Low if income is Rp.2,500.00/month.

The dependent variable is the growth chart, classified into a) Good is the growth chart increase (bodyweight crosses the growth line above or in accordance with and body weight increase is higher than minimum weight obtained). b). The growth chart decrease is poor (body weight crosses the growth line under or horizontally or decreases, and minimal weight is lower than minimum weight gain). A Chi-square test was performed to examine the bivariable.

3. RESULTS AND DISCUSSION

The research was conducted in January 2022 with 60 infants as a sample. The characteristics of parents and toddlers are displayed in Table 1, while the research results on the relationship between nutritional status, parenting, exclusive breastfeeding history, basic immunization history, and family income with toddler growth are presented in Table 2 below.

Table 1. The Characteristics of Parents and Toddler

Characteristic	Number	Percentage (%)
Mother Age		3.3
<20 years old	2	81.7
20-35 years old	49	15
>35 years old	9	3.3
Mother Educational Level		
No School	1	1.7
Elementary (Elementary-Junior High School)	17	28.3
Middle (Senior High School)	28	46.7
Higher (Diploma-Bachelor)	14	23.3
Mother's Job		
Working	10	16.7
Not Working	50	83.3
Parental Income		
High	42	70.0
Low	18	30.0
Parenting		
Good	43	71.7
Poor	17	28.3
Gender of Child		
Male	30	50.0
Female	30	50.0
History of Exclusive Breastfeeding		
Yes	19	31.7
No	41	68.3
Nutritional Status of Child		
Abnormal (Lower than-Higher than)	20	33.3
Normal	40	66.7
Basic Immunization History		
Complete	34	56.7
Incomplete	26	43.3
Toddler Growth		
Good	40	66.7
Poor	20	33.3
Characteristics	**Mean (Month)**	**Std. Deviation**
Toddler Age	27,4	13.34

Table 1 reveals that the majority of toddler mothers are aged 20-35 years, possess high school education, do not work, own high income, and possess good parenting patterns. Most toddlers received exclusive breastfeeding, normal nutritional status, and complete immunizations.

Table 2. Relationship among Nutritional Status, Parenting, Exclusive Breastfeeding History, Basic Immunization History, and Family Income with Toddler Growth.

Study Variable	Toddler Growth		Total	p-value	OR (CI 95%)
	Good (%)	Poor (%)			
Nutritional Status					
Normal	32 (53.3)	8 (13.3)	40 (66.7)	0.003	8.3 (2.101-32.121)
Abnormal	4 (6.7)	16 (26.7)	20 (33.3)		
Parenting					
Good	32 (53.3)	11 (18.3)	43 (71.7)	0.003	9.4 (2.542-35.161)
Poor	4 (6.7)	13 (21.7)	17 (28.3)		
Exclusive Breastfeeding History					
Yes	11 (18.3)	8 (13.3)	19 (31,6)	0.002	2.8 (1.963-8.139)
No	25 (41.7)	16 (26,7)	41(68,4)		
Parental Income					
High	35 (58.3)	7 (11.7)	42 (70)	0.031	4.4 (3.926-16.278)
Low	2 (3.3)	16 (26.7)	18 (30)		

Table 2 shows that 32 (53.3%) toddlers with normal nutritional status experienced good growth, while 16 (26.7%) toddlers with abnormal nutritional status experienced poor growth. The Chi-Square test of the bivariable analysis revealed a p-value of 0.003 ($p<0.05$), which indicates that there was a relationship between nutritional status and infant growth with an OR value of 8.3 (CI 95%; 2.101-32.121). It implies that the toddler's abnormal nutritional status was eight times the risk of experiencing poor growth compared to the normal nutritional status.

Bivariate analysis on parenting shows that 32 (53.3%) toddlers with good parenting encountered good growth, while 13 (21.7%) toddlers with poor parenting experienced poor growth. The Chi-Square test of bivariable analysis unveiled a p-value of 0.003 ($p<0.05$), which indicates that there was a relationship between parenting and child growth with an OR value of 9.4 (CI 95%; 2.542-35.161). It implies that poor parenting was seven times possessing greater risk of experiencing poor growth compared to good parenting.

Bivariate analysis of exclusive breastfeeding history displays those 11 (18.3%) infants with exclusive breastfeeding encountered good growth, while 16 (26.7%) toddlers with poor exclusive breastfeeding encountered poor growth. The Chi-Square test of bivariable analysis acquired a p-value of 0.002 ($p <0.05$), which signifies that there was a relationship between exclusive breastfeeding and toddler growth with an OR value of 2.8 (CI 95%; 1.963-8.139), which implies that poor exclusive breastfeeding was nine times possessing greater risk of experiencing poor growth compared to good exclusive breastfeeding.

Bivariate analysis on parental income displays that 35 (58.3%) of toddler parental with high income experienced possess good growth, while 16 (26.7%) of toddler parental with low income encountered poor growth. Chi-Square test of bivariable analysis

unveiled p value of 0.031 (p <0.05), which indicates that there was a relationship between parental income with the toddler growth with an OR value of 4.4 (CI 95%; 3.926-16.278) which signifies that toddler low family income was 4 times having greater risk of experiencing poor growth compared to high income.

a. The Relationship between Nutritional Status and Toddler Growth.

The bivariable analysis illustrates a relationship between nutritional status and toddler growth with an OR value of 8.3 (CI 95%; 2.101-32.121), which implies that toddlers with abnormal nutritional status possess eight times greater risk compared to normal. The results of this study corroborate previous research performed by Insani and Latifah, (2015), which discovered that multivariable analysis on the most dominant factor associated with great toddler growth is the nutritional status with p value 0.000 and OR=122.213, indicating toddler nutritional status obtaining 122 times significantly impacted toddler growth as nutritional plays essential role on body defense (Insani & Latifah, 2015).

The findings unveiled that the nutritional status of toddlers is associated with growth, that is, toddlers who possess normal nutritional status experience appropriate growth, while toddlers who have abnormal nutritional status (undernutrition and overnutrition) experience inappropriate growth. It emerges as the quality of food intake is not good; it significantly affects nutritional status problems. Toddlers who are malnourished do not possess balanced nutritional content such as vegetables, side dishes, and fruits, while toddlers who are undernourished are frequently provided with fast food, such as instant noodles and frozen food. This undernutrition and overnutrition are the causes of inappropriate growth in toddlers, which can be observed in physically unfit toddlers and weak muscle tone. The findings are in accordance with the theory proposed by Capriani et al. (2021). Toddler nutritional status is enormously affecting toddler growth because parents believe that providing adequate nutrition for toddlers is crucial to corroborate and optimize toddler growth. On the other hand, the low nutrition food will tremendously influence the toddler's growth, affecting their growth. Therefore, it is necessary for parents to put serious attention to toddlers' nutritional status because malnutrition during this period is an additional critical (Capriani et al., 2021).

Nutritional status is considered by the quality and quantity of nutritional intake, which does not merely influence the process of toddler growth but also toddler health as they grow up. Nutritional intake is significantly essential, particularly in the first five years of life, as it is the critical time of brain and physical growth (Kementerian Kesehatan Republik Indonesia, 2016). Toddler nutritional status is considered by the food intake, in accordance with a study performed by Widyaningsih, Kusnandar, and Anantanyu, that there was a relationship between various food intakes and toddler growth experiencing stunting, and the most dominant factor associated with stunting is numerous food intakes (Widyaningsih, Kusnandar & Anantanyu., 2018).

In accordance with the results of research by Azizah, Darmawansyih, and Fauziah, it is revealed that there was a relationship between nutritional status and development of preschool children in the age period of 3-5 years in the working area of the Batua Raya Public Health Center (Azizah, Darmawansyih, & Fauziah., 2021). The finding is corroborated by the theory that when a child obtains enough food intake but frequently suffers from infectious diseases, their nutritional status will be severely affected. Likewise, children who were provided with inappropriate food may have a weak immune system, ultimately affecting their nutritional status (Siddiq, 2018).

b. The Relationship between Parenting and Toddler Growth.

Bivariable analysis displays a relationship between parenting and toddler growth with an OR value of 9.4 (CI 95%; 2.542-35.161). It indicates that poor parenting possesses a nine times greater toddler growth risk than good parenting. It is in accordance with research conducted by Masyudi, Mulyana, and Rafsanjani in 2019, poor parenting corroborated by a quick weaning age influences malnutrition cases in Muara Batu, North Aceh. It is also uncovered that poor parenting poses 3.6 times great risk to nutritional status compared to good parenting (Masyudi, Mulyana & Rafsanjani, 2019).

The findings revealed that good parenting causes appropriate growth of infants. On the contrary, bad parenting patterns cause inappropriate growth in toddlers. In accordance with the results of the questionnaire, parents implement good parenting by getting children to sleep regularly with a duration of 8-9 hours, getting children to wear footwear when playing outside the house, providing colostrum to toddlers when they are born until they are three days old, providing complementary foods. Breast milk with nutrition and texture appropriate for the child's age, hand-washing with soap before distributing food to children, hand-washing with soap after eating food, taking sick children to medical facilities, taking children to Integrated Health Unit for immunizations, and giving children vitamin A capsules are all things that can assist. According to the stages of age supported by the theory Rizyana and Yulia, (2018), parenting is the expression of behavior and attitude conveyed by parents through an interaction, encompassing teaching discipline and also controlling. The care provided causes the toddler's growth to be normal. It possesses a robust connection to toddler growth. Food, health, and psychosocial factors play a significant role in infant growth and contribute to optimum development. (Rizyana & Yulia, 2018).

Parenting is the associated factor that contributes to toddler growth, encompassing stunting. The roles were providing food intake, raising education, implementing healthy life, and providing health services to ensure adequate nutrition for toddlers (Gunardi et al., 2017). A study by Ahmad, Azis, and Fadli., 2021, on parenting discovered that several factors correlated with lower parenting are working activities and poor knowledge of infant parents. It was uncovered that 33.3% of infant parents were actively working, and 33.3% of toddler parents were poor knowledge. The Chi-Square test unveiled that the p-value was $<\alpha=0.000$ that there was a relationship between parenting and stunting cases.

c. The Relationship between Exclusive Breastfeeding History and Toddler Growth.

The bivariable analysis uncovered that p-value was 0.002 ($p<0.05$). It indicates a relationship between exclusive breastfeeding history and toddler growth with OR value of 2.8 (CI 95%; 1.963-8.139), meaning that children with poor exclusive breastfeeding possess a twice greater risk of poor growth than the exclusive one. The results of this study corroborate previous research performed by Sampe, Toban & Madi in 2020, that there was a relationship between exclusive breastfeeding and stunting. The odds ratio test obtained an OR = 61. It implies that toddlers who are not exclusively breastfed possess a 61-fold chance of experiencing stunting compared to toddlers who are exclusively breastfed. Exclusive breastfeeding can reduce the risk of stunting (Sampe, Toban & Madi, 2020).

Toddler growth could encounter a problem due to poor exclusive breastfeeding for six months. Most of the toddler growth process is affected by the provision of breastfeeding intake incorporating other nutrition. Therefore, a case of malnutrition was associated with toddler growth. Another problem was low brain development as well as

decreased or low body resistance to infectious diseases (Yuanta, Tamtomo & Hanim, 2018).

Mother is the closest person to the child in providing care. The mother's parenting determines the quality of infant growth. Early detection is crucial in discovering growth disorders in toddlers. Growth and development disorders that are revealed early will receive tremendous valuable interventions to prevent permanent disability (Indrayani, Legiati & Hidayanti, 2019)

A study performed by Abbas et al. on the history of breastfeeding patterns incorporating breastfeeding, colostrum, exclusive breastfeeding, and breastfeeding schedules obtained a p-value <0.05. It indicates a significant relationship between breastfeeding history and the nutritional status of toddlers under five years. A toddler should be exclusively breastfed for at least four months and, if possible, until six months. Breastfeeding provides all the energy and nutrients required for healthy growth. Breastfeeding incorporates anti-infective ingredients which protect the toddler from diarrhea and other diseases (Abbas et al., 2020).

d. The Relationship between Parental Income and Toddler Growth

The chi-square on bivariable analysis revealed that the p-value was 0.031 (p<0.05). It indicates a relationship between parental income and toddler growth with an OR value of 4.4 (CI 95%; 3.926-16.278), which indicates that low parental income poses a four times greater risk in toddler growth compared to high family income.

Growth disorders such as stunting could be stimulated by low parental income. Parental income affects the level of nutrition intake availability. Therefore, low-income parental is more at risk of encountering stunting due to the minimum nutrition intake. The provision of inadequate intake of nutrients associated with the amount, type, and frequency, particularly of the long-term total macronutrients and micronutrients, will result in malnutrition and lead to physical growth deficits in toddlers (Juwita et al., 2019).

A study conducted by Chipili et al. (2018), discovered that high-income mothers associate with good weight toddler growth. It indicates that the financial factor is essentially associated with food availability and optimizing toddler nutrition, educational services, and health services (Chipili et al., 2018).

A Study by Mulazimmah (2017) discovered that statistically, family income possesses a significant relationship with toddler nutritional status with a p-value was = 0.014 (< 0.05). Family income significantly influences toddler's nutritional status. A family with a high income could provide adequate nutrition (Mulazimmah, 2017). It is in accordance with a study conducted by Illahi (2017), Spearman correlational analysis revealed that the p-value was 0.08 (p<α=0.05) and that there was a relationship between family income and stunting in Ujung Piring Village. The theory corroborates it; the high-income family could provide adequate nutrition. Conversely, low-income families find it challenging to provide sufficient nutrition (Illahi, 2017).

4. CONCLUSION

The findings revealed a relationship between nutritional status, parenting, exclusive breastfeeding, and parental income with the growth of a toddler in the working area of Kuok Public Health Center. For future research, it is recommended to conduct research on other variables correlated with toddler growth by employing different research designs, such as prospective cohort designs, to complete future research.

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