

Jurnal Ilmu Kesehatan Masyarakat (JIKM)



FAMILY PROFILE AND ITS RELATION TO THE GROWTH OF TODDLERS 36-59 MONTHS IN PALEMBANG CITY

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ARTICLE INFO

Article History:

Received: October 25, 2023 Accepted: December 07, 2023 Published: January 09, 2024

DOI:

https://doi.org/10.26553/jikm.2023.14.3.293-

306

Available online at

http://ejournal.fkm.unsri.ac.id/index.php/jikm

ABSTRACT

The toddler period is a golden period or golden age. At the age of 0-5 years, the growth and development of the toddler's brain increases rapidly. Growth is related to changes in size, quantity, or size that can be measured in units of weight (grams, kilograms) and units of length (centimeters, meters). What affects toddlers' growth can come from the family and the environment. This research aims to analyze to analyze the relationship between family profiles and characteristics with the growth of toddlers 36-59 months in Palembang City. A cross sectional method was conducted on 148 respondents from mothers of toddlers aged 36-59 months in Palembang City, and the sample collection method used cluster sampling. The results showed there are six factors that affect the growth of children under five: The father's smoking status, milk formula, breakfast habits, the child's gender, the mother's occupation, and the influence of the mother's knowledge. The most dominant factor affecting children's growth is the habit of breakfast with Prevalence Risk 5.833, which means that toddlers who have no habit have a growth risk of 5.833 times to experience abnormality compared to toddlers who have breakfast habits after controlling for variables such as father smoking status, milk formula, child gender, mother's occupation, and mother's knowledge.

Keywords: breakfast, family, toddler, growth, 36-59 months.

Introduction

To create a quality generation, it is necessary to start with quality individuals. The toddler period is a golden period in preparing quality individuals for the future. The first five years of a toddler's life is a time that is responsive to the environment. The Toddler period is a golden age of 0-5 years. The growth and development of the toddler's brain increases rapidly at this age. During this stimulation period, parenting and nutritional patterns will continue to be adopted by children into adulthood, so every family needs to understand that in golden age, children's growth and development can be achieved optimally. A parent is a person who accompanies and guides children at several stages of growth, namely starting from caring for, protecting, educating, and directing the child's new life at every stage of development for the next period.²

The Toddler period is also called "critical period" if at that time children under five are not properly nurtured, then the child will experience emotional development disorders, social, mental, intellectual and moral which might be affect attitudes and behavior in adulthood.³ This period is also a critical period in a child's life. It is caused by around 100 billion brain cells at this time are ready to be stimulated, so that a child's intelligence can develop optimally in the future.⁴ Growth is related to changes in size, quantity, or size that can be measured in units of weight (grams, kilograms), and units of length (centimeters, meters). Physical growth disorders in toddlers can be in the form of wasting, stunting and overweight. Nationally, in Indonesia the prevalence of toddler nutritional status consists of 3.9% malnutrition, 13.8% malnutrition, 79.2% good nutrition, and 3.1% over nutrition. According to the National Basic Health Research (*Riset Kesehatan Dasar* or Riskesdas) report in 2018, toddlers were experiencing malnutrition and less is 17.7% and fat 8%.⁵

According to report from World Health Organization with the title WHO in Early Childhood: Development and Disability, there are factors that affect the growth and development of children, such as: Poverty rate, Stigma and discrimination in society or family, Parent-child interaction, Institutionalization (procedures that apply in the country or place of residence), Violence, utilization, exploitation, and neglect of children, Humanitarian situation (the humanitarian situation in the area where you live), and Access to limited facilities and infrastructure. These factors come from the family and the environment. So, preparing quality family planning is an important knowledge for young couples. Unpreparedness to become a parent to a new couple can have serious consequences for children in the future. Family factors, including indirect factors, play an important role in children's growth. Currently, improvements in direct factors such as food intake and infectious diseases are not enough if the basic factors of the family, especially fathers and mothers, are not improved. So, this research aims to see how family characteristics can influence the growth of children aged 36-59 months.

Method

This study used a cross-sectional study design, which was conducted on 148 respondents from mothers of toddlers aged 36-59 months in Palembang City. The sample collection method used cluster sampling, and the clusters were Ilir Timur 1, Ilir Barat 1, Kemuning, and Sukarame. The inclusion criteria in this study were children aged 36-59 months, lived in Palembang, and had a complete mother and father. Meanwhile, the exclusion criteria are children who suffer from serious illnesses (heart disease, cancer) and have disabilities. Dependent in this study was the growth, which is represented by measurements of weight and height. Body weight was measured using a weight scale, while height used a microtoise. The results of growth measurements using weight per height were then grouped into 2 categories: good nutrition was categorized as normal, while over and undernutrition were categorized as abnormal nutrition. Independent of this study was consisted of the characteristics of the father, the characteristics of the mother, and the characteristics of the toddler. The variables were the father's education, father's occupation, father's age, father's smoking status, mother's education, mother's occupation, mother's knowledge, gender of toddler, the formula milk, the duration of breastfeeding, and breakfast habits. Categories of independent variables such as education, occupation, and gender are adjusted to the provisions of the Central Statistical Agency. Father's smoking status was divided into heavy smoker, light smoker and non-smoker. The duration of breastfeeding is adjusted to the provisions of the Ministry of Health, those are above 2 years and under 2 years. The use of formula milk was divided into yes and no, while breakfast habits used the Food Frequency Questionnaire category, namely seldom/never and often/always. Independent variables were measured using a questionnaire whose validity and reliability have been tested.

The analysis used statistics software. Univariate analysis was used to determine the distribution of respondents' characteristics, numerical univariate analysis to see the average, standard deviation, minimum, and maximum values, and categorical univariate analysis to see the distribution of frequencies and percentages. Bivariate analysis/selection using chi-square statistics and fulfill the requirements. Chi-square was used to determine the relationship between variable categories and variable categories. Chi-square used to analyze the relationship between independent variables (father's education, father's occupation, father's age, father's smoking status, mother's education, mother's occupation, mother's knowledge, gender of toddler, formula milk, the duration of breastfeeding and breakfast habits) related to the variables dependent (toddler growth).

And using multivariate analysis with multiple logistic regression to see the most dominant factor affecting toddler growth and control for confounders. This research has been approved by the ethics team of the Faculty of Public Health Sriwijaya University with the number 249/UN9.FKM/TU.KKE/2021.

Results

Based on table 1, it is known that the majority of respondents have a father who has a high school education (56.1%) and at least a college education (6.8%). Most of the respondents have fathers who work as laborers (67.6%) and a small proportion are civil servants/army/police (0.7%). Most respondents' fathers have a smoking habit (74%) with heavy smoking status (58.1%).

Table 1. Participants Characteristics (Categorical)

Variable	Frequency (n = 148)	Percentage (%)
Father's Education	(11 110)	(/*/
Primary School	14	9.5
Junior High School	41	27.7
Senior High School	83	56.0
University	10	6.8
Father's Occupation		
Civil Cervant/Army/Police	1	0.7
Entrepreneur	24	16.1
State-owned Enterprises	1	0.7
Private Employment	22	14.9
Laborer	100	67.6
Smokers		
Yes	110	74.3
No	38	25.7
Smoking Status		
Light Smoker/Non-Smoker	62	41.9
Heavy Smoker	86	58.1
Mother's Education		
Primary School	21	14.2
Junior High School	42	28.4
Senior High School	72	48.6
University	13	8.8
Mother's Occupation		
Work	38	25.7
Not Work	110	74.3
Mother's Knowledge		
Yes	110	74.3
No	38	25.7
Gender		
Male	68	45.9
Female	80	54.1
Formula Milk	00	51
Yes	117	79.1
No	31	20.9
Duration of Breastfeeding	31	20.9
< 2 Years	73	49.3
≥2 Years	75 75	50.7
Ereakfast	73	30.7
Seldom/Not	19	12.8
Always/Often	129	87.2
The Growth	127	01.2
Abnormal	12	20.1
Normal	43	29.1
1 Willian	105	70.9

From Table 1, it can be seen that the majority of education that has been completed by mothers is high school level, which is 48.6%. Meanwhile mothers who have the lowest education level are college/university, which is 8.8%. As for other mothers' education levels, such as

elementary school as much as 14.2% and junior high school as much as 28.4%. In terms of employment status, the majority of mothers are unemployed, as many as 74.3%, while the other 25.7% are employed. The majority of mothers have good knowledge about children's growth and development which is 774.3% while the other 25.7% have less knowledge, it can be seen that most of the respondents under five are female (54.1%) and (45.9%) are male. The majority of toddlers consume formula milk (79.1%), most of them are exclusively breastfed and have been breastfed for 2 years or more (50.7%). The toddlers in this study were mostly exposed to gadgets. The majority of toddlers always/often do breakfast in the morning (87.2%), and most toddlers have normal growth or not thin and not fat (70.9%).

Table 2. Participants Characteristics (Numeric)

Variable	n	Mean	SD (min-max)
Father's Characteristics			
Father's Age	148	37	6.06(23-52)
Cigarette	148	9.17	7.99(0-60)
Mother's Characteristics			
Mother's Age	148	34.04	6.19 (22-47)
Toddler's Characteristics			
Toddler's Age	148	46.1	7.7(36-59)
Baby's Birth Weight	148	3060	516.22(1900 – 4850)
Toddler's Height	148	98.41	7.55(81-117)
Toddler's Weight	148	13.52	2.38(9.1-22.10)
Characteristics of Family			,
Welfare			
Father's Income	148	3,2 M	2,6 M(1 M – 20 M)
Mother's Income	148	528,716	1,1 M(null- 6 M)
Expenditure for Eating	148	1,9 M	919,943.27(500,000 -4,500,000)

From table 2 it can be seen that the average age of the respondent's father is 37 years with a standard deviation of 6.06. The youngest respondent's father is 23 years old and the oldest is 52 years old. on cigarette consumption, the average father can spend 9.17 cigarettes per day with a standard deviation of 7.99. with the minimum consumption of 0 cigarettes/no smoking and the maximum consumption of 60 cigarettes. Most of the respondents' mothers had an average age of 34 years, with a minimum of 22 years and a maximum of 47 years. Most of the respondents toddlers were 46 months old or equivalent to 3 years 10 months, with an average birth weight of 3060 grams. The lowest birth weight of a baby is 1900 grams, with the heaviest being 4850 grams. The average height of toddlers in this study was 98.41 cm, with a weight of 13.52 kg. These are the characteristics of the respondent's family in terms of welfare. Most of the respondents have fathers with an income of Rp. 3,232,770, and the mother with an income of Rp. 528,716. Expenditures on food ranged on average Rp. 1,946,283 with a minimum of Rp. 500,000 families spending the largest being Rp. 4,500,000 for a month's expenses for family meals. The average number of household members is 4-5 people.

Table 3. Family Nutrition Characteristics

Variable	Frequency (n=148)	Percentage (%)
Main Food Frequency	- 7	\(\frac{1}{2}\)
2-3 times	95	64.2
3-4times	52	35.1
> 4 times	1	0.7
Frequency of Vegetable Consumption		
Never	6	4.1
1-2times	23	15.5
3-5times	65	43.9
> 5 times	54	36.5
Frequency of Snack Consumption		
Never	1	0.7
1-2times	20	13.5
3-5times	21	14.2
> 5 times	106	71.6
Frequency of Instant Noodles Consumption		
Never	24	16.2
1-2times	73	49.3
3-5times	41	27.7
> 5 times	10	6.8
Frequency of Fruit Consumption		
Never	5	3.4
1-2times	74	50.0
3-5times	32	21.6
> 5 times	37	25.0
Frequency of Fish Consumption		
Never	10	6.8
1-2times	52	35.1
3-5times	53	35.8
> 5 times	33	22.3
Frequency of Meat Consumption		
Never	30	20.3
1-2times	79	53.4
3-5times	29	19.6
> 5 times	10	6.8
Frequency of Egg Consumption		
Never	10	6.8
1-2times	38	25.7
3-5times	56	37.8
> 5 times	44	29.7

Based on Table 3, most of the respondents in this study had their main meal with a frequency of 2-3 times a day, eating vegetables 3-5 times a week, fruit 1-2 times a week, instant noodles 1-2 times a week, snacks > 5 times a week, fish 3-5 times a week, meat 1-2 times a week and eggs 3-5 times a week. Based on Table 4, it is known that the factors that significantly affect growth are the father's smoking status factor, breakfast habits, formula milk, and mother's knowledge. Factors that increase abnormal growth (thin or fat) are fathers who smoke heavily,

rarely or never eat breakfast, consume formula milk, and the mother's knowledge about the growth and development of children.

Table 4. Factors Affecting Toddler Growth

******	The G	The Growth		DD (050/ CI)	
Variable -	Abnormal	Normal	- P- Value	PR (95% CI)	
Father's Smoker Status					
Heavy Smoker	37 (39.8%)	56 (60.2%)	< 0.0001	3.649 (1.644-8.064)	
Light Smoker/Non-Smoker	6 (10.9%)	49 (89.1%)			
Formula Milk					
Yes	39 (33.3%)	78 (66.7%)	0.045	2.583 (1.103 – 10.325)	
No	4 (12.9%)	27 (87.1%)			
Mother's Knowledge					
Less	23 (39.7%)	35 (60.3%)	0.036	1.784 (1.082 – 2.943)	
Good	20 (22.2%)	70 (77.8%)		,	
Child's Gender					
Male	21 (30.9%)	47 (69.1%)	0.787	1.123 (0.679 -1.857)	
Female	22 (27.5%)	58 (72.5%)		,	
Mother's Occupation Status					
Work	12 (31.6%)	26 (68.4%)	0.849	1.121 (0.643-1.952)	
Not Work	31 (28.2%)	79 (71.8%)			
Mother's Education					
Low	16 (25.4%)	47 (74.6%)	0.509	0.800 (0.473 - 1.352)	
High	27 (31.8%)	58 (68.2%)			
Father's Education					
Low	13 (23.6%)	42 (76.4%)	0.353	0.733 (0.419 - 1.281)	
High	30 (32.3%)	63 (67.7%)		,	
Duration of Breastfeeding					
< 2 years	25 (34.2%)	48 (65.8%)	0.233	1.427 (0.702 -1.066)	
2 years or more	18 (24%)	57 (76%)		,	
Breakfast Habits					
Seldom/Never	10 (52.6%)	9 (47.4%)	0.031	2.057 (1.225 – 3.455)	
Always/Often	33 (25.6%)	96 (74.4%)		,	

Based on multivariate results Table 5 with multiple logistics, there are 6 factors that affect the growth of toddlers, such as the father's smoking status, formula milk, breakfast habits, the child's gender, the mother's occupation, and the mother's knowledge. The variables of mother's occupation and mother's knowledge are confounding variables because after the variables are removed, the Prevalence Risk (PR) changes by more than 10%, while the variables of father's smoking status, formula milk, child's gender, and breakfast habits are risk factor variables. The most dominant factor influencing the growth of children is the habit of having breakfast with PR 5.833, which means toddlers who have no breakfast habits are at risk 5.833 times to experience abnormal growth compared to toddlers who have breakfast habits after controlling for the variables of father's smoking status, formula milk, child's gender, mother's occupation, and mother's knowledge.

Table 5. The Most Dominant Factors Affecting Growth

Variable	P-value	PR	95% CI PR
variable	r-value	IV	9376 CI FK
Father's Smoking Status	0.001	4.599	1.788- 11.627
Formula Milk	0.041	3.429	1.050 - 11.203
Breakfast Habits	0.004	5.833	1.765 - 19.281
Child's Gender	0.029	2.620	1.105 - 6.209
Mother's Occupation	0.080	2.364	0.904 - 6.187
Mother's Knowledge	0.089	2.025	0.898 - 4.567

Discussion

From multivariate results, breakfast habits are the most dominant variable influencing growth in this study. As many as 74.4% of toddlers who always/often have breakfast whose growth is normal, and 52.6% of toddlers who rarely/never eat breakfast have abnormal growth. With a Prevalence Risk calculated in the logistic regression of 5.833, which means that toddlers who have no breakfast habits are at risk of 5,833 times to experience abnormal growth compared to toddlers who have breakfast habits after controlling for variables such as father's smoking status, formula milk, child's gender, mother's occupation, and knowledge mother. Children who eat breakfast have a 20 to 60% higher intake of iron, vitamins B and vitamin D, compared to those who did not eat breakfast. Therefore, nutritional intake is very important for children to get in the morning because the menu obtained from breakfast generally comes from whole grains (cereals and oatmeal), healthy protein (eggs and milk), and fiber (fruit, oatmeal).

Energy is needed by everyone to sustain life, supporting growth and perform physical activity. Energy is obtained from carbohydrates, fats and proteins in foodstuffs. Protein is needed to build, and repair body cells, then become a producer of energy for the body, which its lack will inhibit growth, the immune system becomes weak and causes kwarshiorkor and marasmus. Therefore, breakfast is very important.⁸ Breakfast also effect on nutritional status, namely through fulfilling nutritional needs because breakfast can contribute nutrients per day. Children who do not eat breakfast will be at risk of nutritional deficiencies. If this continues for a long time, it will affect the nutritional status. A good breakfast will contribute as much as 20% energy. Good or optimal nutritional status will have an effect if the body gets enough nutrients that are used efficiently, thus enabling physical growth, brain growth, brain work ability. A healthy and normal child will grow according to his genetic potential, but this growth will also be influenced by the intake of nutrients consumed in the form of food. Good breakfast habits are also associated with a healthier Body Mass Index (BMI) and higher physical activity in children.⁹

Breakfast habits can indirectly improve learning achievement through usually in influencing power concentration, memory, and growth brain in children. Then the negative impact of skipping meals in the morning (loss of blood glucose in the morning) can affect morning work activities day as a result of the system collapse central nervous system followed by dizziness, body shaking, and

feeling tired.¹⁰ Literature research by Lundqvist M, Vogel NE, and Levin finding long-term effects of breakfast, namely there is a relationship between poor breakfast habits and future risk of developmentoping metabolic syndrome. And breakfast consumption is also related to quality of life and well-being. Skipping breakfast also has an impact on stress, anxiety, and depression.¹¹

In every family whose parents are smokers, it is certain that their children will become passive smokers.¹² Most people already understood the dangers of cigarette smoke for active smokers but did not understand the risks of smoking for passive smokers, so awareness of tobacco in places far from the reach of children under five was not yet there is.¹³ The International Agency for Research on Cancer (IARC) explains that approximately 4,000 chemical components are produced from cigarette smoke. Qualitative studies show that the chemical components produced by mainstream smoke, sidestream smoke, and secondhand smoke are almost the same. About 250 components are carcinogenic.¹⁴ The effects of the smoke from this cigarette cause obstacles to nutritional absorption in children, which can inhibit growth and cause stunting.¹⁵

The results of this study show that toddlers who consume formula milk will be at risk of 3 times better growth than toddlers who do not consume formula milk. The majority of toddlers who consume formula milk and have normal growth are 66.7% and 33.3% consume formula milk with abnormal growth. Milk contains nutrients needed for the growth of a child. Calcium, Vitamin D, Phosphorus and Protein are nutrients found in milk which are very important in the formation of bones and growth of a child. Calcium and phosphorus play a role in strengthening and increasing bone growth which is aided by vitamin D absorption. In addition, milk also contains Insuline Like Growth Factor-1 (IGF-1) which is a growth factor for bone length. IGF-1 is stimulated by growth hormone and plays a role in increasing osteoblast activity and the proliferation and differentiation of bone cells so that bone formation and growth occurs. ¹⁶

The other research informed in the provision of 850 gram packs of Pedia Complete Vanilla milk for 16 toddlers in Tawang Mas Village in the context of stunting prevention literacy, which provides a significant positive effect on body weight changes and height of the children every month. This program implemented from September to November with the main objective of overcoming the problem of stunting among toddlers in Tawang Mas District. In prevention efforts against stunting, giving formula milk such as Pedia Complete Vanilla has a very important role. This formula milk is specifically designed to meet the nutritional needs necessary for growth and children's development.¹⁷

Gender can also affect the growth of toddlers (p-value = $0.029 < \alpha$), namely the rate of growth. In logistic regression, the prevalence risk is 2,620. Which means boys will grow 2.6 times taller than girls. The results of research by Artaria¹⁸ showed that the difference in average body weight between men and women was not significant at the age of 6 years. The study explained that the acceleration of growth occurred earlier in women than in men and that the acceleration was not

too large in women compared to the acceleration of growth in men. Then, the cessation of female body growth is faster. Results for women are generally lower than for men. Furthermore, because women stop growing faster than men, women look more infantile than men. Infantiles have a more childlike or "cute" (cute) morphology, which is clearly visible in their facial features, both in living humans and in skulls.

However, the growth spurt for boys is more slow. This is one of the reasons some parents of male children to provide more care to stimulate children's physical growth to grow optimally; slower physical growth than women will not experience such obstacles later height becomes shorter and heavier not enough. 19 The mother's employment status influences the nutritional quality of toddlers, and the nutritional status of toddlers is greatly influenced by the nutritional intake they receive. The nutritional intake strongly affects the nutritional status of the toddler. Giving attention to and providing good nutritional intake for toddlers requires more time for parents, especially mothers, to be together with toddlers; if the mother spends 6-7 hours working outside the home, it will reduce the time with her child. This condition can affect the fulfillment of nutritional intake in the child. So, the mother's work status can affect the nutritional intake of toddlers, which impacts the nutritional status of their children. The nutritional status of toddlers can lead to disruption of physical growth.²⁰

Various causes cause nutritional problems in children. One of the causes is the consumption of food that does not meet the child's needs. Nutrition knowledge is the mother's knowledge about nutrition, which is very influential on the child's growth. The mother's knowledge about toddler nutrition is essential for the process of growth and development of her child. Mothers have a significant role in the progress of their toddlers' growth and development, from proper stimulation and parenting to regulating the pattern of nutritional intake for their toddlers. Parental knowledge about nutrition helps improve nutritional status in children to achieve growth maturity. 21,22

Increased knowledge is not obtained from formal education alone but can be obtained through non-formal education. A person's understanding of an object contains two aspects, namely, positive aspects and negative aspects. These two aspects will determine a person's attitude; the more positive elements and objects that are known, the more positive attitudes will be towards particular objects that a high level of the mother's knowledge does not guarantee having a toddler with normal nutritional status.^{23,24} Mothers who have good knowledge are expected to be able to apply the knowledge they have in everyday life. However, behavior to being influenced by the level of knowledge was also influenced by other factors, such as socioeconomic, sociocultural, and environmental.25

Getting a list of the toddlers in the field is the research's main limitation. Consequently, researchers need to re-record toddlers. Nonetheless, because the sample was predetermined and adhered to random sampling guidelines, it is representative of the study.

Conclusions

Factors that significantly affect growth are the father's smoking status, breakfast habits, formula milk, and the mother's knowledge. Factors that increase abnormal growth (thin or fat) are fathers who smoke heavily, rarely or never eat breakfast, consume formula milk, and the mother's knowledge about the growth and development of children. Based on the multivariate results, there are 6 factors that influence the growth of children under five, namely the father's smoking status, formula milk, breakfast habits, the child's gender, the mother's occupation, and the mother's knowledge. The most dominant factor influencing the growth of children is the habit of having breakfast with PR 5.833, which means toddlers who have no breakfast habits are at risk 5.833 times to experience abnormal growth compared to toddlers who have breakfast habits after controlling for father's smoking status variables, formula milk, child's gender, mother's occupation, and mother's knowledge. Therefore, it is necessary to increase parents' awareness about the importance of breakfast for their children. Not just breakfast, but also pay attention to its nutritional content.

Acknowledgement

Thanks to cadres and the community health center of Ilir Timur 1, Ilir Barat 1, Kemuning dan Sukarami.

Funding

This research was funded by Sriwijaya University.

Conflict of Interest

The authors declare that they have no conflict of interest.

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