

The Relationship of Maternal Knowledge about Nutrition, to Toddlers' Growth and Development, in Public Health Waena Perumnas I, Jayapura, Indonesia

Jems K. R. Maay^{a*}, Mohd Arifin^b, Siti Roshaidai^c, ^{a,b,c}Nursing School, Health Polytechnic Ministry of Health Jayapura, Papua, Padang Street, Bulan 2, Hedam, Districk Heram, Jayapura City, Papua, Indonesia, Kulliyyah of Nursing, International Islamic University Malaysia, Malaysia, Email: ^{a*}jemskrmaay@yahoo.co.id

'Toddler' is a general term for children aged 1-3 years (toddlers). Children this age are still heavily dependent on parents when completing important activities, such as bathing, eating and cleaning themselves after defecating. Their speaking and walking has improved, but other abilities are still limited. This study aims to identify the relationship of maternal knowledge about nutritional status, to growth and development in toddler-age children in Puskesmas Waena Perumnas I. This study used a descriptive analysis design, employing a cross-sectional approach. The subjects were mothers who had toddlers with the nutritional status of fewer than two people and good nutrition as many as 50 people. Univariate analysis with frequency distribution was undertaken, and bivariate analysis with the Spearman correlation test. The analysis related maternal knowledge about nutritional status to growth and development obtained p values (0.01). There is a correlation between the mother's knowledge about the nutritional status of growth and development.

Key words: *Knowledge, Toddler, Nutritional Status.*

Introduction

The Malaysian Law on Child Protection No. 23 of 2002 explains that a child is not yet 18 years old, including children in the womb (Hidayat, 2005). Children are individuals in a range of developmental changes, from infancy to adolescence (Mottan, 2019). Growth and development in children take place quickly, influenced by many factors. One factor that supports the optimal growth and development of children is optimal nutrition; sufficient nutrients from daily food (Arumugam et al., 2019).

According to Arumugam et al. (2019), 'toddler' is a general term for children aged 1-3 years (toddlers). Toddlers are still depend entirely on parents to do important activities, such as bathing, eating, and cleaning themselves after defecating (Sutomo & Anggraini, 2010). Aspects of child development are monitored, including gross motoric, fine motoric, speech and language skills as well as socialisation and independence (Uliyah & Hidayat, 2006). One effort to find out the developmental deviation of infants and toddlers is to detect early deviation of child development. Early detection aims to reveal problems in the child's development; recovery can then occur earlier, to optimise the child's growth and development (Marimba, 2010). Mothers are primary carers with direct involvement in the care and feeding of toddlers, therefore mothers have a very important role in meeting the needs of children (Turnip, 2008). When providing nutrition, mothers play a role in planning variations in food, providing a list of menus needed by children and families, and identifying the nutritional needs of children (Zuraida & Nainggolan, 2012).

Nutrition is an environmental factor and support for growth and development that can be managed satisfactorily. This requires the provision of good quality and good quantity, to support the developing body, so the baby can grow normally and healthily, free from disease (Sala et al., 2004). Nutritional problems in children can be caused by several factors. They include unbalanced food intake and infectious diseases, and food security in the family. Food must be adequate to meet the needs of all family members, both in quantity and nutrition.

Other nutritional problems are attributable the habit of consuming bad food. For example, if children drink too much milk it decreases the child's interest in other foods, they consume fewer vegetables, and the energy that enters their bodies is not balanced by the energy that goes out. Indonesia currently has a double burden, namely undernutrition and malnutrition. According to Basic Health Research data (Risksedas, 2010), the number of toddlers in Indonesia who experienced weight loss reached 17.9%; consisting of 13% malnutrition and 4.9% poor nutrition. Toddlers in Central Java experience shortages of nutrition by 15.7%, comprised of undernutrition (12.4%) and malnutrition (3.3%, Data obtained Wednesday, April 15, 2015, from the Waena Public Health Center Perumnas I). During one year (2014) toddlers numbered 440 (Santoso & Ranti, 2004). There are cases of children with undernourished status still found

in the weighing, conducted at the Puskesmas Waena Prumans I. In January 2014 two new cases were found. Three new cases were found in February 2014, five new cases in March 2014, 10 new cases in April 2014, four new cases in September 2014, three new cases in October 2014, and as many as three new cases were found in December 2014. The present researcher interviewed a nurse about mothers' knowledge of the nutritional status of children aged 1-3 years in the Working Area of Waena Puskesmas Perumnas I. Mothers did not know the nutritional needs of the child, because after inspection the mothers immediately took children home without asking about those needs (Saputra, 2012). Based on the above, the author wants to relate the mother's knowledge about the nutritional status of toddlers (1-3 Years), to the growth and development of children (Pradipta, 2011).

Research Methods

This research can be described as follows. Analysis research was used to relate mothers' knowledge about the nutritional status of toddlers, to the growth and development of children in the Puskesmas Waena Perumnas I. This study also used a cross sectional approach. It is data that shows a specific time point or data collection carried out together. The population in this study is mothers who have children aged 1-3 years (toddler) at the time of the study. Purposive sampling was used.

This study was conducted at the Waena Perumnas I Public Health Center in Jayapura City, in February 2015. The instrument used by researchers in studying the relationship of maternal knowledge about nutritional status, to maternal growth regarding nutritional status on growth and development in toddler-age children, is a questionnaire sheet, to find out the variables in the study (Apooh & Krekling, 2005).

Results and Discussion

Results

Research Data Analysis

Univariate Analysis

Table 7: Distribution of Mother's Knowledge of Nutrition in the Community Health Centre Waena Perumnas I, Feb, 2015 (n = 52)

Mother's Education	n	%
Less	1	1,9
Good	51	98,1
Total	52	100

Source: 2015 Primary Data

Table 7 shows the data of maternal knowledge about nutritional status obtained from scores summed from statement items and then categorised, as less knowledge and good knowledge. So getting results from 52 mothers, as much as 1 mother (1.9%) has less nutritional knowledge and as many as 51 mothers (98.1%) have good knowledge, about nutrition.

Table 8: Nutrition Status Distribution of Waena Public Health Center Perumnas I, Feb, 2015 (n = 52)

Nutritional status	n	%
Malnutrition	2	3,8
Good Nutrition	50	96,2
Total	52	100

Source: 2015 Primary Data

Based on the results of the study, two toddlers (3.8%) had malnutrition, while as many as 50 toddlers (96.2%) experienced good nutrition.

Table 9: Growth Distribution at Puskesmas Waena Perumnas I, Feb, 15 (n = 52)

Growth	n	%
Doubtful	2	3,8
Normal	50	96,2
Total	52	100

Based on the results of the study, the number of children under five who grew abnormally was 2 (3.8%) while 50 (96.2%) had normal growth.

Table 10: Distribution of Progress in Waena Perumnas I Health Center, Feb, 2015 (n = 52)

Development	n	%
Doubtful	1	1,9
Normal	51	98,1
Total	52	100

Source: 2015 Primary Data

Based on the research results, the number of children under five with abnormal development was 1 (1.9%), while the number of children with normal development was 51 (98.1%).

Bivariate Analysis

Table 11: Mother's knowledge level about nutritional status

Mother's Knowledge	Nutritional status				Total	p-value
	Less		Good			
Less	F	%	F	%	1,9	0,01
	1	1,9	0	0		
Good	1	1,9	50	98,1	98,1	
	Total	2	3,8	50	96,2	

Source: 2015 Primary Data

A Spearman Rank statistical analysis test can correlate mother's knowledge about nutrition, with nutritional status in the toddler age for children who are underweight and have good nutritional status. Thus, the P value is $0.01 \leq \alpha (0.05)$. This means that H_a is accepted as a meaningful relationship regarding the level of maternal knowledge about nutritional status in Puskesmas Waena Perumnas I.

Table 12: Level of maternal knowledge about nutrition with growth

Mother's Knowledge	Nutritional status				Total	p-value
	Doubting		Normal			
Less	F	%	F	%	1,9	0,01
	1	1,9	0	0		
Good	1	1,9	50	98,1	98,1	
	Total	2	3,8	50	98,1	

Source: 2015 Primary Data

Based on Spearman Rank statistical analysis correlation, between maternal knowledge about nutrition with growth in toddler age children with doubtful and normal growth in toddler, the P value is $0.01 \leq \alpha (0.05)$. This means H_a is accepted. There is a meaningful relationship between the level of mothers knowledge about nutrition with growth in Puskesmas Waena Perumnas I.

Table 13: Level of mother's knowledge about nutrition with development

Development	Nutritional status				Total	p-value
	Doubting		Normal			
Doubting	F	%	F	%	1,9	0,01
	1	1,9	0	0		
Normal	1	1,9	51	98,1	98,1	
Total	2	3,8	51	98,1	100	0,01

Source: 2015 Primary Data

Based on Spearman Rank statistical analysis tests correlation between mother's knowledge about nutrition, with development in toddler age children with doubous and normal development in toddlers, the P value is $0.01 \leq \alpha (0.05)$. This means H_a is accepted. There is a significant relationship between mothers knowledge about nutrition and development in Public Health Center Waena Perumnas

Discussion

Level of Knowledge

The research on the mothers' knowledge regarding nutritional status of growth and development, show that mothers who lack knowledge number one mother (1.9%), while 51 mothers (98.1%) have good knowledge. A person's level of knowledge is influenced by various factors including age, education, and occupation. Age influences knowledge. In this study, most mothers were aged 20-30 years (69.3%). The mother's age shows maturity. It is expected that her knowledge is good. The age of 20-40 years is that of a young adult. At this age, people tend to focus on themselves and family, being physically mature, stable. Significant psychological and psychological changes occur about education and work.

Education also influences the level of knowledge heavily. Mothers who have a higher level of education have better knowledge, especially about nutrition. The mothers are educated, with high school and bachelor degrees. In this study some mothers have low knowledge. This causes mothers to absorb information less, so that when filling out the questionnaire they often ask questions. Mothers with high school education and higher education are able to absorb information more quickly. The higher a person's education, the easier it is to receive information. On the contrary if someone has a low level of education it will hinder the development of one's attitude towards receiving information and others.

Job status can also affect the level of knowledge. If a person's ability to work differs from others, that ability can be developed through education and experience. The work environment

can make a person gain experience and knowledge, both directly and indirectly. Most of the mothers do not work (80.8%). This gives them more time to attend more to family needs, among them the need to attend to children's nutritional status. Nutritional education can provide knowledge that enables a person to choose and maintain a diet based on nutritional principles. Research shows a significant relationship between the level of maternal knowledge and the nutritional status of children under five.

Toddler Nutrition Status

The results of the nutritional status of toddlers at the Community Health Centre Waena Permuna 1 showed the nutritional status of toddlers as follows. Two toddlers (3.8%) were undernourished while 50 toddlers (96.2%) had good nutrition. One influence upon the nutritional status of children is the socio-economic factor of the family. Socio-economic status is related to the ability to meet children's nutritional needs. Children in high socioeconomic families tend to have more nutritional needs than low socioeconomic status children. In this study there is still the nutritional status of children who suffer from malnutrition. This is due to only one of them working. The average husband works as a builder or brickmaker, and the mother depends on her husband's income. That causes her family income to be insufficient to meet the child's nutritional needs. Family income greatly influences the supply of processed food. The family knows how to compile a balanced menu, but because of limited funds, it is not possible to arrange a balanced menu (Uripi, 2004). Research shows a relationship between the economic status of the family and the nutritional status of children under five. The lower the economic status of the family the worse the nutritional status of toddlers.

Growth and Development

The results of growth research, at the Public Health Center Waena Perumnas I, show the following toddler growth. As many as two toddlers (3.8%) have doubtful growth, while there were 50 toddlers (96.2%) with normal growth. Growth (growth) is associated with changes in size, number, size or level of dimensions of cells, organs and individuals which are usually measured by weight (grams, pounds, kilograms), length (cm, metres), bone age and balance metabolic (calcium and nitrogen retention).

Growth in nutritional anthropometry is used as an indicator of nutritional status. The nutritional state or growth of the child contributes independently to the child's general development. Good growth causes a high level of children's readiness to receive information. Based on the theory, if the child's body is smaller or shorter, according to certain reference points, the children get less energy and nutrients than they need to optimise growth.



Lack of food input isolates children from information based on their surroundings, which in turn causes developmental barriers. Malnourished children tend to isolate themselves by reducing interaction with their environment. Stunted children show less activity, are fussier, and show less curiosity when compared to well-nourished children.

The results of research at the Community Health Center Waena Perumnas I showed the development of toddlers as follows Satu Balita mengalami perkembangan kurang sebanyak (1,9%) dan sebanyak 51 Balita (98,1%) mengalami perkembangan baik (Mubarak & Chayatin, 2009). Gross motor and fine motor skills are considered so that children can develop optimally. The difference is that gross motors skills are very dependent on the maturity of children, while fine motors skills can be trained. Each individual is different in developing, because the child's development is influenced by several factors, both hereditary and environmental.

One of the factors influencing a child's development is interpersonal relationships. Relationships with the closest people are examined in terms of the role of mothers, especially aspects of the mother's knowledge in providing stimulation to play, which has an important role in development, especially in the development of emotions, intellect, and personality (Adriani & Wirjatmadi, 2012).

Relationship of Mother's Knowledge about Nutritional Status in Toddlers

The results of the Spearman Rank statistical correlation test with a significant level (p-value) of 0.01. It concludes that there is a correlation between the level of maternal knowledge about nutritional status in toddler age, at the Public Health Center Waena Perumnas I. The results of this study are in line with the proposition that the mother's knowledge correlates highly with toddler nutritional status. It shows that mothers who have toddlers with good nutritional status get high knowledge. Conversely, mothers who have undernourished toddlers lack nutritional knowledge. High maternal knowledge greatly influences how to choose diverse types of food so that it affects consumption, and has an effect on improving the nutritional status of children. Conversely, low levels of knowledge about nutritious foods can affect the pattern of children's, because mothers cannot choose and provide food that can meet the nutritional needs of children.

The results of this study are consistent with previous research. Earlier, knowledge and nutritional attitudes of mothers, and the nutritional status of toddlers, was conducted on 159 respondents in the working area of Rajabasa Indah Health Center, Rajabasa Raya Village, Bandar Lampung. The results were meaningful between maternal knowledge and the nutritional status of children (p-value 0,000). This study also accords with research relating the knowledge, attitudes and behaviour of mothers children under the age of five, who had underweight nutritional status, and 100 under five children with normal nutrition in Sragen

Jaya Tengah District in 2007. There was a relationship between knowledge variables with variable nutritional status of children under five (p-value 0,000, OR 17.02, 95% CI) (Mardiana, 2006). The results of this study are also consistent with research on the relationship of mother's knowledge of toddlers about toddler nutrition (1-5 years), in Posyandu, Modopuro Hamlet, Modopuro Village, Mojosari Mojokerto Subdistrict towards 70 respondents. The results of the study proved a significant relationship between mother's knowledge and the nutritional status of children under five (p-value 0,000).

Relationship between Mother's Knowledge with Growth and Development

A significance level (p-value) of 0.01 was recorded, in a Spearman Rank correlation statistical test. Therefore, there is a relationship between growth and development in toddler-age children at the Public Health Centre Waena Perumnas. The results of the study reveal that mothers' level of knowledge, about the development of infants aged 0-12 months, a 'good' category (56.25%). At the level of understanding, the knowledge of respondents in the 'good' category amounted to 33.33%. The conclusion that can be drawn is that mothers who have infants aged 0-12 months know much about the growth and development of infants aged 0-12 months, but they have not been able to understand that it is the ability to explain growth and development, of the infants studied and interpreted, that is true.

Child development is influenced internally and externally. External factors include prenatal, natal, and postnatal factors. The growth and development of a good child cannot be separated from the level of a good mother's knowledge. This maternal knowledge can be obtained through formal and non-formal education.

Conclusion

This research was conducted at the Public Health Center Waena Perumnas I, regarding the relationship of the level of maternal knowledge about nutritional status, to the growth and development of toddler-age children. The following results emerge. From 52 respondents, one mother (1.9%) had less knowledge about nutrition, and as many as 51 mothers (98.1%) had good knowledge about nutrition. Mothers' knowledge of growth and development, and mothers' knowledge of nutritional status on growth and development in toddler age children with poor nutritional status and good nutrition in toddlers, is given a P value of 0.01 α (0.05). It means H_a is received. There is a meaningful relationship between the levels of mothers' knowledge of nutritional status for growth and development, and poor nutritional status and good nutrition at the Puskesmas Waena Perumnas I.



REFERENCES

- Adriani, M., & Wirjatmadi, B. (2012). *The role of nutrition in cycles life*. Jakarta: Kencana
- Apooh, L.Y & Krekling, S. (2005). *Maternal Knowledge and Child Nutrition. Status in the Volta Region of Ghana*. Blackwell Pubing.
- Arumugam, S., Kway , E. H., & Mohamed Isa, Z. (2019). Methodology of developing symptomatic behavior screening tool (symbest) for children aged 3-4 years old with behavior problems. *Muallim Journal of Social Sciences and Humanities*, 3(3), 324-341. <https://doi.org/10.33306/mjssh25>.
- Hidayar, A. A. (2005). *Introduction to Child Nursing 1*. Jakarta: Salemba Medika
- Mardiana. (2006). *Relationship between Mother Behavior and Toddler Nutrition Status in Puskesmas Tanjung Beringan, Hinai District, Langkat District, 2005*. Thesis. USU School of Public Health: Medan.
- Marimba. (2010). *Growth and Development, Nutritional Status, and Basic Immunization in Toddlers*. Yogyakarta: NuhaMedika.
- Masyitha. (2011). *Relationship Between Toddler Nutrition Status in Srirogo Village Sidoarjo District Sidoarjo Regency*. Scientific papers. YARSIS STIKES: Surabaya.
- Mottan, K. (2019). Impact of kineasthetic gamification on disruptive behaviour among children with attention deficit disorder/attention deficit hyperactive disorder (ADD/ADHD) in primary school learning disabilities programme . *Muallim Journal of Social Sciences and Humanities*, 3(4), 398-405. <https://doi.org/10.33306/mjssh/30>
- Mubarak, W. I. & Chayatin, N. (2009). *Introductory Community Nursing and Theory*. Jakarta: Salemba Medika.
- Pradipta, D. A. (2011). *Relationship Between Mother's Knowledge Level and Nutritional Status in Toddlers Age 1-3 Years at Dewi Sri Manukan Kulon Posyandu Surabaya*. Scientific papers. YARSIS STIKES Surabaya.
- Sala, A. M. D., Pencharz, P. M. B., Ronald, D., & Barr M. B. (2004). Children, cancer, and nutrition—A dynamic triangle in review. *Vol. 100(4)*, p. 677-687, <https://doi.org/10.1002/cncr.11833>.
- Santoso, S., & Ranti, A. L. (2004). *Health and nutrition*. Jakarta: Rineka Cipta.
- Saputra, L. (2012). *Introduction to Basic Human Needs*. Tangerang: Binapura Script.



- Sutomo & Anggraini. (2010). Natural Healthy Menu for Toddlers and Toddlers. Jakarta: Demedia.
- Turnip, F. (2008). Positive influence on mothers of poor families on the nutritional status of children. July 15th. <http://www.undp.or.id>.
- Uliyah, M., & Hidayat, A. A. (2006). Basic Skills of Midwifery Clinic Practice. Jakarta: Salemba Mendika.
- Uripi, V. (2004). Healthy Menu for Toddlers. Jakarta: Puspa Swara.
- Zuraida, R., & Nainggolan, J. (2012). Relationship between knowledge and nutritional attitudes of toddlers in the working area of the Rajabasa indah Raya Health Center in Bandar Lampung. Retrieved July 1.