



The Effect of Knowledge and Parenting on *Stunting* of Toddlers in Muna Barat, South East Sulawesi

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Abstract

Stunting is a nutritional problem that has lasted a long time in toddlers aged 6-59 months. Stunting is assessed based on the ratio of a child's height to the standard height of a child in a normal population according to age and gender. The purpose of this study was to analyze the direct and indirect influence of knowledge factors on stunting through parenting of toddlers. This research is a quantitative study using a case control study approach. A sample of 100 respondents consisting of 50 case samples and 50 control samples was obtained by taking techniques using fixed disease sampling. The data analysis using *chi square test* and *multivariate analysis*. The result of this study showed that the knowledge directly affects the stunting with values ($b=1.25$; $CI\ 95\% = 0.27$ to 2.23 ; $p=0.012$). The knowledge has an indirect but insignificant effects on stunting events through the mediation of parenting with values ($b=0.21$; $CI\ 95\% = -0.78$ to 1.2 ; $p=0.667$). Parenting directly affects stunting with values ($b=1.2$; $CI\ 95\% = 0.13$ to 2.26 ; $p=0.027$). The conclusion of this research was knowledge directly affects the stunting in Toddler. The results of this study are expected to be a reference material for related parties in improving nutrition problems (stunting), especially in increasing mothers' knowledge and parenting.

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INTRODUCTION

Stunting is a hidden problem caused by chronic malnutrition during the first 1.000 days of child's life. Stunting resulted in irreversible (unchangeable) growth and development that child cannot develop its potential and capability in itself optimally (Ni'mah & Nadhiro, 2015; Triharno & Atmarita, 2015)

Stunting is a condition of nutritional status that is identified based on the height of ratio of a child to the child's high standard in the normal population according to the same age and gender. According to WHO, stunting is presented based on the height of the age with the Z-score value of the <-2 standard deviation which is a short category and the Z-score value of the <-3.0 standard deviation is a very short category (Rahmayana, Ibrahim, & Damayanti, 2014; Triharno & Atmarita, 2015)

The evidence shows that stunting has long and short-term impacts such as health problems, low learning achievement in school, low-quality human resources, and low household income as well as increased risk of disease cardiovascular in adulthood. Short nutrition problems (stunting) is a threat that needs to be addressed immediately. The global data shows that around 171 million children under 5 years are stunted. This condition is experienced by >90% of children in Africa and Asia regions (Hagos, Hailemariam, WoldeHanna, & Lindtjorn, 2017; Triharno & Atmarita, 2015; Wang et al., 2017)

The prevalence in Indonesia is higher than others countries in Southeast Asia, such as Vietnam with stunting prevalence of 23% and Thailand 16%. The prevalence of stunting in Indonesia in 2016 is 27.5% increased by 29.6% in 2017 and in 2018 as much as 30.8%. The figure consists of 11.5% of toddlers under very short category and 19.3% toddlers under short nutrition category (Direktorat Gizi Masyarakat, 2017; Kemenkes RI, 2018).

The high prevalence of stunting is influenced by many factors. Stunting determinant factors are maternal nutritional knowledge and maternal parenting (Picauly & Toy, 2013); Rahmayana et al., 2014). Parenting or parenting care that applied by parents includes feeding

practices, hygiene practices, and the use of medical services. The result of previous studies proves that there are influences of parenting that included feeding practices and health practices on *stunting*. The practice of feeding hygiene practices has influence of each other (OR= 2.037; p= 0.001 and OR= 1.447; p= 0.046) on the incidence of stunting in children under five (Niga & Purnomo, 2016).

Parenting or parenting care in their implementation is based on the values in the family. A mother plays a major role in parenting and childcare. The form of treatment provided to children includes the practice of feeding, health, and psychological support that will have an impact on child growth. But sometimes the nurturing pattern of mothers with worker status of career women will be different from the mother who is only at home. The result of the study also stated that nutritional parenting is the most dominant factor affecting the incidence of stunting among children under five (Nabuasa, Juffrie, & Huriyati, 2013; Supartini, 2014)

Parenting role is not obtained from formal education but in the implementation is also influenced by the knowledge that is derived from the experience of *trial* and *error*. The knowledge of maternal nutritional affects the nutrition received by the children, related to the selection of ingredients and diversity of food types that will be given to toddlers. A mother is responsible for providing food for the family members and parenting patterns for children, so that each individual in the family carries out the nutritional behavior applied by mothers first in meal and childcare needs (Supartini, 2014; Uliyanti, Tantomo, & Anantanyu, 2017)

The research that conducted in the Ketapang area, Kalimantan showed that only 27.5% of mothers who have a level of nutritional knowledge with high category. Knowledge has huge effect of 9.1%. The knowledge impact direct and indirectly on stunting with value 0.310, associated with nutrition that given to the (Uliyanti et al., 2017). The result of other studies also stated those mothers who have no education or good knowledge of nutrition are one of the factors that can affect stunting in children. The result of the study by Madani et al, also showed that there is correlation between maternal knowledge related to

malnutrition with stunting value $p=0.0001$ (Khopkar, Virtanen, & Kulathinal, 2014; Mardani, Wetesin, & Suwanwaipahattahana, 2015).

Muna Barat regency is one of the districts that has high prevalence of stunting in the last year and no research has been conducted regarding nutritional status in the area, it is important to study more deeply about the lack of nutritional problems. From 15 public health center in Muna Barat there are 3 public health center with the highest number of stunting incidents including public health center Tiworo Tengah, public health center Sidamangura, and public health center Marobebe. The result of the preliminary study shows that the level of knowledge of stunting is still low and has never held health education related to stunting to the community in Muna Barat. The numbers of stunting incidence in the period of May-November 2018 in the three public health center in a row are public health center Tiworo Tengah 104 cases, public health center

Sidamangura 73 cases, and public health center Marobebe 28 cases.

The purpose of this study is to analyze the direct and indirect influences from the knowledge of stunting through parenting pattern in toddlers.

METHODS

The approach that used in this research was quantitative with *case control research design*. The population in this study is all toddlers in Muna Barat while the number of samples is as much as 100 toddlers aged 6-59 months in the district of Puskesmas Marobebe, Puskesmas Sidamangura, and Puskesmas Tiworo Tengah. The sampling technique in this study is fixed disease sampling. Using univariate, bivariate analysis with chi-square and multivariate analysis.

RESULTS AND DISCUSSION

Table 1. Frequency distribution of variables

Variable	N	%
Knowledge		
Good	41	41
Poor	59	59
Parenting pattern		
Good	48	48
Poor	52	52
Weight according to height		
Z score < -2 SD	50	50
Z score \geq -2 SD	50	50

Table 1. Showing the result in the variable knowledge of the 100 respondents as many as 59 respondents or (59%) have poor knowledge while respondents who have good knowledge amount to 41 respondents or (41%). It can be concluded that the knowledge of mother under five about nutrition and stunting in Muna Barat Regency is in the poor category. Parenting variables from 100 respondents as many as 52 respondents or (52%) apply poor parenting pattern to their toddlers at least 48 respondents or (48%) apply good parenting pattern. The stunting variable shows that the number of children under five who experience

stunting is 50 respondents or 50% is proportional to the number of toddlers who do not experience / do not stunting with the number of 50 respondents or 50%. The characteristics of the research respondents were seen from the age of the toddler, gender, and work of the mother.

Table 2. The Relation of Knowledge with Parenting

Group of Variables	Parenting		OR	p
	Good (%)	Poor (%)		
Knowledge				
Good	23 (56,10)	18 (43,90)	1,73	0,176
Poor	25 (42,37)	34 (57,73)		
Total	48	52		

Table 2. shows about bivariate analysis of the relationship between knowledge and parenting, the value of *Odds Ratio* (OR) is 1.73 with the value $p = 0.178 > 0.05$; CI (95%) = 0.72 to 4.20. The result showed that there was an influence of 1.73 times between knowledge and parenting patterns in toddlers and statistically is not significant.

Table 3. The Relationship of Parenting and Knowledge on Stunting

Group of Variables	Stunting		OR	p
	Not Stunting (%)	Stunting (%)		
Parenting Pattern				
Good	35 (72,92)	13 (27,08)	6,6	0,000
Poor	15 (28,85)	37 (71,15)		
Knowledge				

Table 4. The Result of Multivariate Analysis

Independent Variable	Independent Variable	b	CI 95%		p
			Lower Limit	Upper Limit	
Indirect Influence					
Parenting pattern	← Knowledge	0.55	-0.78	1.2	0.178
Direct Influence					
Stunting	← Knowledge	1.2	0.27	2.23	0.007
	← Parenting pattern	1.8	0.13	2.26	0.000

Good	28 (68,29)	13 (31,71)	3,6	0,002
Poor	22 (37,29)	37 (62,71)		
Total	100 (100,00)	100 (100,00)		

Table 3. presenting bivariate analysis of the relationship between parenting pattern and *stunting*, obtained a value of *Odds Ratio* (OR) of 6.6 with a value of $P = 0.000 < 0.05$; CI (95%) = 2.55 to 1.73. The result showed that there was an influence and statistically significant relationship between maternal parenting pattern and *stunting* incidence in toddlers.

Table 3. presenting bivariate analysis of the relationship between knowledge and *stunting*, obtained the value of *Odds Ratio* (OR) of 3.63 with the value of $P = 0.002 < 0.05$; CI (95%) = 1.44 to 9.23. The result showed that there was influence and statically significant relationship between knowledge and *stunting* incidence of toddlers.

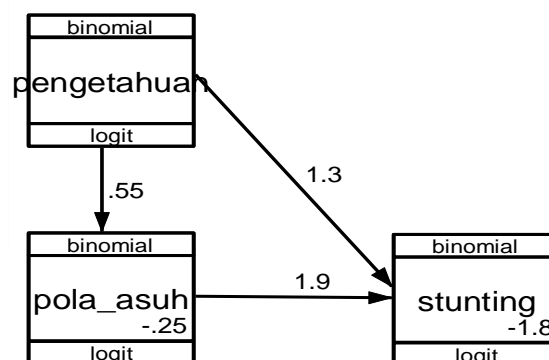


Figure 1. Multivariate Analysis

The result of the analysis showed that there is an indirect relationship between mother's knowledge and stunting through parenting pattern and statistically insignificant. The lack of mother knowledge has a value of Odds Ratio (OR) parenting is 0.55 points higher than the mother who has good knowledge ($b = 0.21$; $CI = -0.78$ to 1.2 ; $p = 0.178$). The poor parenting has a value of Odds Ratio (OR) stunting is 1.8 points higher than the mother who has good parenting pattern ($b = 1.2$; $CI = 0.13$ to 2.26 ; $p < 0.027$). The knowledge of mother who lack an influence of 0.55 times increases stunting through parenting pattern, compared to mothers who have good knowledge.

The result of the analysis showed that there is a positive influence and statistically is significant correlation between knowledge of stunting in children under five in Muna Barat Regency. Mothers of toddlers with poor knowledge of stunting were 1.2 points higher than mothers with good knowledge ($b = 1.2$; $CI = 0.27$ to 2.23 ; $p = 0.007$). This means that knowledge is less influential at 1.2 times for stunting in infants compared to with mothers who have good knowledge.

The result of the analysis shows that there was a positive influence between the parenting pattern of stunting in children under five in Muna Barat Regency and statistically significant. The poor parenting pattern has a value Odds Ratio (OR) stunting 1.8 points higher than a mother who has a good parenting pattern. ($b = 1.8$; $CI = 0.13$ to 2.26 ; $p = 0.000$). It means that the poor parenting pattern has an effect of 1.8 times in increasing the incidence stunting of children, it is an unequal mother who implements a good parenting pattern.

The results showed that the knowledge of mothers has a direct influence on the stunting incidence of toddlers in Muna Barat, but there is indirect effect on stunting through the parenting pattern. Mothers with good knowledge do not necessarily apply good parenting patterns in the parenting practices given to children.

The results of this study are not in line with the research has done by Subekti et.al, showing that knowledge of nutrition with

parenting style has a positive and significant relationship with value ($r = 0.49$; $p < 0.01$). This result explained that the increasing value of mothers' nutritional knowledge, cause the food parenting applied by the mother to her child is getting better (Subekti & Yulia, 2012).

Similar results were also obtained by Aji et al, indicating that between the level of knowledge and the parenting pattern there is a significant relationship with the value of $p = 0.000$. These results explain that knowledge is the most dominant factor in improving good parenting patterns. Parents who have a good knowledge of nutrition and good parenting pattern of children will be more aware of the practice in fulfilling the nutritional needs and the provision of parenting pattern to children every day. Parents with excellent knowledge of nutrition will be positive about parenting behavior in children. Knowledge can give a boost to parents in providing the best parenting pattern to his son in the optimal process of growth (Aji, Wati, & Rahardjo, 2016)

Some research results show that knowledge has a correlation with the parenting nutritional pattern that applied by mothers but in the implementation of parenting pattern is not always influenced by knowledge but many other factors related to the parenting.

According to Irianto in Izhar, there are factors that influence the pattern of administration of complementary breastfeeding; Economic factors, large families, the division of eating in the family. Mothers who have a good knowledge of the application of the parenting practice will have children with good nutritional status, but there are some mothers who have good knowledge, but do not apply their good obedience, so that his children suffer from poor nutritional status. This may be due to several factors for example, mother working outdoors, so they have little time to monitor their children's growth. Some mothers also have lower family income form UMP, so the family difficulties to provide adequate and nutritious food for the child (Izhar, 2017)

There is no influence that the difference between mother knowledge and parenting

pattern is also found in the research results in Jambi City which shows that mother knowledge of good nutrition in terms of eating nutritional status and parenting pattern also has no Significant correlation (value $P = 0,208$). This results in explaining that there are other factors that can affect parenting pattern in addition to knowledge (Izhar, 2017)

The results of this study showed that the knowledge of mothers directly affects stunting and statistically significant. Mothers who have a less-than-related knowledge of nutrition can increase the incidence of stunting in toddlers. Than mothers who have good knowledge.

The results of this study are supported by Saaka showed that there is a positive influence between knowledge of mothers with stunting (HAZ) with a value ($b = 0:10$, $p = 0.005$) (Saaka, 2014).

This research is also in line with the results obtained by Rahayu, et al is the knowledge of mothers who are less risk that can increase the incidence of stunting in toddlers ($OR=5.29$; $95\% CI=1.30-21.54$; $P=0.002$) means that the less knowledge of mother can increase the stunting incidence by 5.29 times compared with children from mothers with good knowledge (Rahayu, Pamungkasari, & Wekadigunawan, 2018)

Similar results were also conducted in Rwanda by Habyarimana et al, which found that knowledge is an influential and significant predictor with stunting incidence in children. Children born from mothers with low nutritional knowledge have a chance of 1,296 ($P = 0.0047$) times has high growth or stunting compared to a child born to a mother who has good nutritional knowledge (Habyarimana, Zewotir, & Ramroop, 2016).

A mother with good nutritional knowledge can set the type of food that will be given to her child. Thus, children's nutritional intake is better thereby reducing nutritional problems in children

Health care in the first year of life is crucial for child development. Differences in mothers' nature have different treatment models that will affect the child's nutritional status.

Mothers with good knowledge will do it appropriate care for toddlers with their needs and development (Anindita, 2012)

The findings of UNICEF explain that lack of knowledge and the implementation of nutritional practices is still not good in the exclusive provision of ASI and improper delivery of a companion meal is one of the factors that caused the high incidence of stunting in toddlers in Indonesia (Dewi & Aminah, 2016)

Mother's knowledge of nutrition/nutrition is the most basic factor related to nutrition for children. This is related to the nutritional practices and care that mothers will give to their children. Mothers who have a lack of nutritional care will not be able to provide and implement good nutrition and treatment practices so that they will have an impact on the lack of nutrients that children can obtain (Habyarimana et al., 2016)

Mothers with good nutritional knowledge will be easy and understand to choose and set the type of meal to be consumed by the child so that the intake of nutrients fulfilled and the child's nutritional status becomes good (Rahayu et al., 2018).

CONCLUSION

The conclusion of this research was knowledge directly affects the stunting in Toddlers. The results of this study are expected to be a reference material for related parties in improving nutrition problems (stunting), especially in increasing mothers' knowledge and good parenting.

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