RELATIONSHIP BETWEEN EARLY BREASTFEEDING COMPLEMENTARY FOODS AND MOTHER'S KNOWLEDGE OF TODDLER NUTRITION WITH STUNTING INCIDENCE AT THE IKUR KOTO COMMUNITY HEALTH CENTER, PADANG CITY

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ABSTRACT

Background*: Stunting* (short body) is long-term outcomes of nutrient deficiencies with height according to age less than -2 SD (Standard Deviation) below the median length. Which has an impact on motor and sensory developmental disorders and decreased quality of life. The purpose of this study was to determine the relationship of early breastfeeding supplementation and the level of maternal knowledge about nutrition of toddlers aged 24-36 months to *stunting* at the IkurKoto Community Health Center, Padang City.

Methods: This research is a quantitative study withdesign *cross sectional*, carried out in the workarea of the Ikur Koto Community Health Center from January 2019 to August 2019. The samplein this study was mothers who had children aged 24-36 months as many as 80 people. Mothers as respondents were interviewed directly using a questionnaire. The incidence of *stunting* in children is measured by TB / U indicators and interpreted with *software* WHO-anthro. Univariateand bivariate data analysis using analysis *chi-square* ($p \leq 0.05$).

The results showed the percentage of *stunting* was 42.5%. The results of bivariate analysis showed that there was a relationship between early MP-ASI (p = 0.001; OR =8,680; Cl =2,320- 32,476) and maternal nutritional knowledge (p = 0.001; OR =23,864; Cl = 6,879-82,789) with *stunting* in children. age 24-36 months.

Conclusion: There is a significant relationship between early breastfeeding supplementary nutrition and maternal nutrition knowledge and the incidence of *stunting* in children aged 24-36months.

Suggestions: It is expected that efforts to prevent stunting focused in the first 1000 days of life are preventive efforts in detecting stunting events.

Keyword : *Stunting,* early breastfeeding, maternal nutrition knowledge

INTRODUCTION

Stunting (short) is one of the nutritional problems in the world (WHO-UNICEF The World Bank, 2017).*Stunting* is a result of chronic malnutrition that occurs within the first 1000 days of a child's life (Bloem, 2013). Children under five years old are said to be *stunting*if they have been measured length by age (PB / U) or height by age (TB / U) then compared to the standard WHO-MGRS (*Multicentre Growth Reference Study*) and the results are below-2 Standard Deviations (SD) (UNICEF, 2013).

In 2016, an estimated children under five suffering from *stunting* in the world as much as 22.9% (155juta) (WHO, 2017). Around 22.2% or around 150.8 million children under five in the world experienced *stunting* in 2017 (Ministry of Health Republic of Indonesia, 2018).

About 55% ofchildren *stunting* are from Asia, while more than a third (39%) live in Africa. Based on the proportion oftoddlers *stunting* in Asia in 2017, therate *stunting* in South Asia was 58.7%, East Asia 4.8%, West Asia 4.2%, Central Asia 0.9% and Southeast Asia 14.9%. In Southeast Asia Regional, the fiveprevalence sequences *stunting* highestin 2005- 2017 were Timor Leste (50.2%), India (38.4%), Bangladesh (36.1%), Nepal (35.8%) and Indonesia (36.4%) (RI Ministry of Health, 2018). In Indonesia, the country with the fifth highest prevalence of stunting is around 37% (nearly 9 million) children under five are stunted(TNP2K, 2017).

In Indonesia's health profile in 2017, there were 23,848,283 toddlers in Indonesia, 29.6%of whom weretoddlers *stunting*. It is known from the total percentage, 19.80% of short children and 9.80% of toddlers are very short. The prevalence of *stunting* in 2017 has increased from 2016 which is 27, 5% (Ministry of Health Republic of Indonesia, 2018). From the results of the Basic Health Research (Riskesdas) in 2018, nationally the proportion of nutritional status is very short and short in toddlers in 2018 is 30.8%. The highestprevalence of *stunting* in children aged 0-59 months in 2017 is East Nusa Tenggara while the lowest prevalence is Bali (Ministry of Health, 2018). According to data from the Ministry of Health, in West Sumatra the number ofchildren *stunted* is 30.6%. Percentage of children aged 0-59 months according to nutritional status with the West Sumatra TB / U index in 2016-2017 is 21.30% short toddlers and 9.30% toddlers very short (Ministry of Health, 2018).

According to Nutrition Status Monitoring (PSG) data. The prevalence of *stunting* in 2016was 25.6% in children under 5 years old consisting of 6.7% very short and 18.9% short. Theprevalence *stunting* highestwas in Pasaman Regency which was 37% and the lowest in Sawahlunto City was 7.5%, while Padang City had aprevalence *stunting* of 21.1%. Data from the Padang City Health Office showed that the highest prevalence of short and very short toddlers in the TB / U category in Padang in 2017 was Pauh Health Center which was 32% (96 people) and in 2018 in the work area of the Ikur Koto Health Center which was 35.1% (115). Ikur Koto Health Center also experienced an increase, where in 2017 the prevalence of stunting was 25%, while theprevalence *stunting* lowestwas in the working areaof Alai Health Center which was 1.8%.

Stunting has short-term and long-term effects. Short term such as increasing morbidity and death, motor and sensory developmental disorders, while long term such as decreased quality of life, health and economy, while reduced cognitive ability and mental development are also other effects onchildren *stunted* (WHO, 2014). Factors that influence stunting are divided into 2 factors, namely direct and indirect factors. Direct factors are food intake and infectious diseases, while indirect factors are knowledge about nutrition, parental education, parental income, early breastfeeding, and family size (Supariasa *et al*, 2002). Factors affecting stunting are influenced by family and household factors (martenal factors and environmental factors), breastfeeding (late early breastfeeding initiation and non- exclusive breastfeeding) and infection, namely diarrhea (WHO, 2014).

Based on research conducted by Picauly and Toy in 2013 in the city of Kupang,children *stunting* in general have a lack of learning achievement in the amount of 41.18% and each decrease in nutritional status according to age (TB / U) of children by 1 elementary school, the learning achievement children will decrease by 0.444 (Picauly and Toy, 2013). Children who experience *stunting* in the first 2 years after birth will cause health problems, low achievement in school and increase degenerative diseases (Bloem, 2013).

Stunting can be prevented through infant feeding focused on the first 1000 days of life (Ministry of Health, 2016). Based on the results of the study, optimal feeding can prevent mortality in infants of about 13% (WHO, 2019). Feeding infants aged 0-6 is enough with Breast Milk (ASI) without any additional (exclusive breastfeeding). Starting at the age of 6

months, it is permissible to give complementary food but still accompanied by breastfeeding until the age of 2 years (WHO, 2013).

Providing appropriate ingredients and food for toddlers in an effort to improve nutritional status will be realized if the mother has a good level of nutritional knowledge (Lestariningsih,2000). Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences the attitude and behavior of mothers in choosing food ingredients, which further influences the family's nutritional state (Suhardjo, 2003).

The level of mother's knowledge about nutrition is very important in improving the nutritional status of her child. Starting from determining, selecting, processing to presenting a daily nutritional menu (Ministry of Health, Republic of Indonesia,2007). Based on the results of Ni'mah's research (2015) there is a significant relationship between the level of maternal nutrition knowledge and the incidence of stunting.

Based on a preliminary study conducted by researchers at the Ikur Koto Health Center, where from 10 respondents found 4 children stunted and 6 other children have normal height. From interviews with parents, it was found that 5 out of 10 mothers had given food other than breast milk to their children before the age of 6 months. then 6 out of 10 parents also still lack nutritional knowledge. Based on the explanation above, the researcher is interested in researching the Early Breastfeeding Supplementary Food and the Level of Mother's Knowledge of Toddler Nutrition Age 24-36 Months Against *Stunting* Relationship of at the Ikur Koto Community Health Center, Padang City.

METHODS

This study was an analytic study with a design *cross-sectional.* The study was conducted from February to September 2019. The population of the study was all children 24-36 months in the Ikur Koto Health Center as many as 363 people. The study sample was children aged 24-36 months in the Ikur Koto Health Center who met the inclusion criteria and were not included in the exclusion criteria as many as 80 people. Mothers as respondents were interviewed directly using a questionnaire. Height in children is measured by the indicator TB / U by using a height gauge (*Microtoise*) with the accuracy of 0.1 cm. and interpreted with *software* WHO-anthro. Data processing was performed bytest *chi-square* ($p \leq 0.05$) using SPSS software.

RESULTS

Univariate Analysis

Mother Characteristics

Table 1. Frequency distribution of maternal characteristics according to age, education, occupation of mothers and maternal height in the Work Area of the Ikur Koto Health Center.

No	Characteristics	f	%
1	Mother's age		
	- <20 years	0	0
	- 20-29 years	28	35.0
	- 30-39 years	44	55.0
	- ≥40 years	8	10.0

2	Mother's education		
	- Never attended school / Not graduated from elementary school	0	0
	- Complete primary / MI / equivalent	0	0
	- SLS graduation / equivalent	6	7.5
	- SLS SLTA / equivalent	58	72.5
	- SL graduated PT / equivalent	16	20.0
3	Mother's job		
	- CivilCivil	4	5.0
	- ServantsServants PrivatePrivate	0	0
	- Entrepreneurs	2	2.5
	- Housewiveshousewives	72	90.0
	- Other(specify):	2	2.5
4.	Mother's height		
	- <145 cm	0	0
	- 146-155 cm	50	62.5
	- 156-165 cm	30	37.5

Table 1. Shows that the majority of mothers are located in the 30-39 years age group. Most of the mothers had the highest education graduated from high school / equivalent, amounting to 72.5% (58 people). The majority of unemployed mothers / housewives is 90.0% (72 people). And most maternal height is in the range 146-155 (62.5%).

Table 2. Mean maternal age and height of mothers of children aged 24-36 months in Puskesmas Ikur field Koto

No	Variable	Mean ± SD	Minimum-maksimal
1.	CapitalAge	31.53 ± 5.190	22- 46
2.	High maternal body	154.56 ±	3.897 148-165

Table 2 shows that the average age of the mother is 31.53 years. The minimum age of the mother in this study was 22 years and the maximum age of 46 years. The average maternal bodyweight was 154.56 cm and the minimum height of the mother in this study was 148 cm and maximum height was 165 cm.

Characteristics of Children

Gambar 1. Characteristics of childrenby sex in the Work Area of the Ikur Health Center.

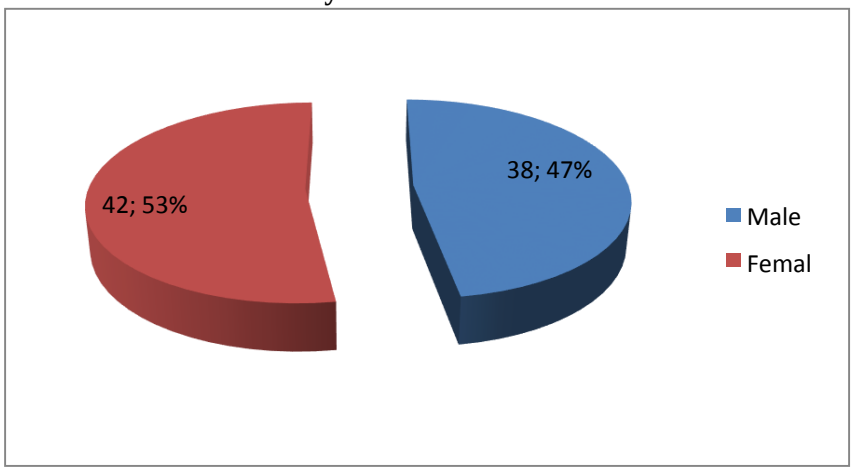


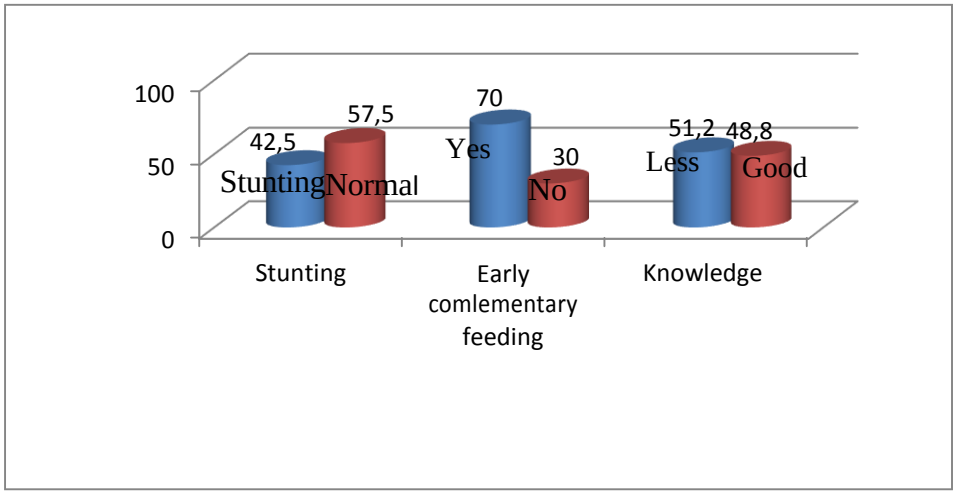
Table 3. shows more than half of the children who were respondents of the study were generallyfemale.

Table 3. Average Age, Height, and *Z-Score* TB / U of Children Age 24-36 Months in the Work Areaof the Ikur Helath Center

Variable	Mean	SD ±
Age of Child (month)	29.45	4.263
Height of Child Body	85.99	5.343
***Z-Score* Child**	**-1.5664**	**1.03859**

Table 3. above shows that the average age of children is 29.45 months, while the average height of children aged 24-36 months is 85.99 cm and the average Z -Score TB / U is -1.5664.

Ganbar 2. Univariate Variable



Based on table 5. above it can be seen that 42.5% of children aged 24-36 months stuntedin the work area of the Ikur Koto Padang Health Center. Above it can be seen that from 80 respondents 56 mothers (70.0%) provide Complementary Early BreastfeedingFeeding (MP-ASI) at her child. It can be seen that from 80 respondents 41 mothers (51.2%) have less knowledge.

Bivariate Analysis

Table 4. Giving Relationship Complementary feeding (solids) Early Genesis *Stunting* in childrenaged 24-36 months

MPASI		Levels *Stunting*					OR (95% CI)	*p-value*
		Stunting		Normal				
Early			f%		f%		f%	
55.4	Yes	31	25	44.6	56	100.0	8,680 (2,320-32,476)	0,00
12.5	No	3	21	87.5	24	100.0		
42.5	**Total**	34	46	57.5	80	100.0		

Based on table 4. Can be concluded that *stunting was* most common in mothers giving MP-ASI early to their children (55.4%) compared to mothers who did not give MP-ASI early totheir children (12.5%). Statistical test results using *Chi-Square* obtained p = 0.001 (p≤0.05). Based on these results it can be concluded that there is a significant relationship between Early complementary feeding (MP-Early Breastfeeding) and Occurrence *Stunting* Complementary Feeding children aged 24-36 Months in the working area of Ikur Koto Padang Health Center.

Table 5. Relationship of mother's level of knowledge about nutrition of children under five to theincidence of *stunting* in children aged 24-36 months

mother'sknowledge	level of *stunting*				Total		OR (95% CI)	*p-value*
	Stunting		Normal					
	%		%		F	%		
Less	5	73.2	1	26.8	4	100.0	23,864 (6,879-82,789)	0.001
Good	4	10.3	35	89.7	39	100.0		
Total	34	42.56	46	57.50	80	100.0		

Based on table 9. It can be concluded that theevents *stunting* most frequentoccurred in mothers who have poor knowledge (73.2%) compared to mothers who have good knowledge (10.3%). Statistical test results using thetest *Chi-Square* obtained the value of *p* = 0,000 (*p*,00.05). Based on these results it is known that there is a significant relationship between levelsof knowledge Relations mother about nutrition with Genesis *Stunting* in children aged 24-36 months.

Multivariate Analysis

Table 6. Multivariate logistic regression analysis

Variable	B	SE	Wald	df	value P	95% CI OR	Min	Max
Knowledge maternal nutritional	2,961	0,655	20,408	1	0,000	19,312	5,345	69,773
Early complementary feeding	1,722	0,782	4,856	1	0,028	5,597	1,210	25,894

Table 10. Based on knowledge of nutrition can be seen that the mother is found to significantly most associated with the incidence of stunting with p = 0.000 by the *odds ratio* 19.312 which meaning that mothers who have less nutritional knowledge have a risk of 19,312 times the child experiences stunting and compared with good nutrition knowledge of mothers (95% CI 5,345-69,773).

DISCUSSION

Events *Stunting*

In this study showed that the incidence of *stunting* in children aged 24-36 months in the working area of the Ikur Koto Community Health Center is 42.5% and the percentage of children who are m have normal height is 57.5%. When compared with the percentage of *stunting* globallythe 2017 data is 22.2% and the national data in 2018 is 30.8%, higher than the percentage of *stunting* in West Sumatra in 2016-2017 which is 30.6% (Ministry of Health RI, 2013 ; Riskesdas, 2018; Ministry of Health Republic of Indonesia, 2018). And the percentage of stunting in Padangcity in 2017 was Pauh Health Center which was 32% and in 2018 in the work area of Ikur KotoHealth Center which was 35.1% (et al, 2017-2018). This might be due to the relatively wide area coverage in data collection in thesurvey *stunting* globally, nationally, and the 2018 riskesdas data.

The results of this study, the number ofevents *stunting* in the working area of the Ikur Koto Health Center is lower when compared to the percentage of research results conducted by Oktarina and Sudiarti (2013) in Sumatra at 44.1%, lower than the results of research found in East Nusa Tenggara Province at 51.7% (Ministry of Health Republic of Indonesia, 2013a) and lower than the research conducted by Ibrahim and Faramita (2014) in the working area of the Makassar City Barombong Public Health Center in 2014 with aproblem *stunting* of 54.7%.

The high percentage ofevents *stunting* in this study can be caused by improper feeding practices, where the nutrition given in the first 2 years by the mother to the child does not match her age. Based on research conducted on children aged 6-24 months in Penanggalan Subulussalam district, Aceh province, showed that non-exclusive breastfeeding, premature feeding of MP-ASI and feeding practices that did not contribute to the incidence of *stunting* respectively 74.5% , 74.5% and 63.7% (Lestari *et al*, 2014). Providing complementary foods tooearly can result in infants experiencing more frequent diarrhea disorders, this is because the wayof preparing unclean foods and the formation of anti-intestinal substances by infants is not perfect(Molika 2014).

According to research conducted by Ni'mah (2015), the factors associated with the incidence of *stunting* in infants are the length of the body of birth of infants, history of exclusive breastfeeding, family income, family education, and mother's nutritional knowledge of *stunting*in infants. Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences the attitude and behavior of mothers in choosing food ingredients, which further influences the family's nutritional state (Suhardjo, 2003).

Stunting can occur due to malnutrition, especially on 1000 HPK (First Day of Life) (Ministryof Health, 2018). The incidence of *stunting* can be influenced by educational factors, where most of the mothers namely 76.3% have secondary education (high school or equivalent) and 17.5% have higher education (graduated diploma, undergraduate and master's degree). The better the mother's education, the better the mother's knowledge about child nutrition and will prevent theoccurrence of *stunting* (Pormes, *et al.*, 2014.

Early complementary feeding (MP-ASI)

The results of this study indicate that more than half of mothers (70%) provide complementary feeding early for children (<6 months) in the Work Area of the Ikur Koto PadangHealth Center. Early breastfeeding complementary foods (MPASI) are supplementary foods given to babies at less than 6 months of age other than breast milk (Prawesti, 2016). The

results of this study are in line with research conducted by Arie Nungroho (2016) inTanjung Karang Barat Subdistrict, Bandar Lampung City which states that more than half of mothers (53.3%) provide early breastfeeding complementary food to children aged (<6 months). The results of another study conducted by Dwi Puji Khasanah (2018) in Sedayu Subdistrict, more than half (56.8%) showed the time of complementary feeding (MPASI) associated with the incidence of stunting of children aged 6-23 months.

ASI complementary foods (MPASI) are foods or drinks that contain nutrients that are given to infants or children aged 6-24 months, to meet nutritional needs other than (ASI). MPASI is a food transition from breast milk to family food. The introduction and administration of MP-ASI should be done in stages both in form and amount, according to the ability of the baby (Mufida, 2015). Based on this study the provision of MP-ASI given early by mothers to their children is still high (70%). Most of the mothers who give early MPASI to their children are due to the childbeing fussy (hungry), and the mother feels that the ingredients are not enough.

Level of Mother's Knowledge about toddler nutrition

The results of the study showed that more than half (51.2%) of mothers had poor knowledge of mother's knowledge about toddler nutrition. The results of this study are in line with research conducted by Khoirun Ni'mah (2015) which states that more than half (61.8%) ofmothers have low nutritional knowledge. According to research conducted by Agus (2008) mother's knowledge about nutrition isone of the factors that influence the nutritional status of children. Mother's knowledge about nutrition will affect the way mothers choose food according to the correct nutritional rules and present it to children.

Knowledge is the result of knowing someone after sensing a particular object. Every human being has a different level of knowledge, the higher the level of one's knowledge, the higher the ability of the individual to make an assessment of a material or object, where this assessment is the basis for forming one's actions (Notoadmojo, 2010). Knowledge is a very important factor in shaping the actions of someone who is very instrumental in determining the attitude to be taken (Notoadmodjo, 2012). The results of the questionnaire on the knowledge of mothers about toddler nutrition is known that more than half do not know how many MP-ASI are given to infants 12-24 months, most mothers answer many MPASI given according to the wishes of the baby or child.

Bivariate Analysis

Relationship of Early complementary feeding (MP-ASI) to the incidence of stunting in children aged 24-36 months

Bivariate test results in this study indicate that respondents who experience stunting are more likely to occur due to early complementary feeding (MP-ASI) (55.4%) <6 months The reason mothers give early complementary foods (MP-ASI) to babies is because the child is fussy (hungry), and the mother feels that her milk is not enough. and the mother provides complementary feeding (MP-ASI) early such as bananas, biscuits, and water. Compared to complementary feeding (MPASI)> 6 months (12.5%). Based on statistical tests obtained *p value* ≤0.05 (Complementary*p* = 0.001) meaning that there is a significant relationship between Early BreastfeedingFoods (MP-ASI Early) andEvents *Stunting* in children aged 24-36 Months in the Work Area of the Ikur Koto Padang Health Center.

The results of this study are in line with research conducted by Dwi Puji Khasanah (2016) in Sedayu District, which shows that there is a significant relationship between early breastfeeding) and stunting with the result of *p value* supplementation (MPASI≤0.05 (*p* = 0.002). The results of this study are also in line with research conducted by Aridiyah et al (2015), in which there is a relationship between the first age of giving MP-ASI with the incidence of stunting. Children under five who are given exclusive breastfeeding and MP-ASI

according to their needs by reducing the risk of stunting. This is because at the age of 0-6 months toddlers who provide exclusive breastfeeding which can form immunity or immunity for toddlers so they can avoid infectious diseases. After that, at the age of 6 months children under five are given MP-ASI in sufficient quantities and frequencies so that children under five are fulfilled their nutritional needs which can reduce the risk of stunting.

The Relationship Between Mother's Knowledge Level of Toddler Nutrition to Incidence *Stunting* in Children aged 24-36 Months

Bivariate test results in this study showed that respondents who experienced stunting were in the category of poor knowledge (73.2%) than mothers with good knowledge (10.3%). Based on statistical tests obtained *p value* ≤0.05 (*p* = 0,000) meaning that there is a significant relationship between Mother's Knowledge about toddler nutrition and the incidence of *Stunting*in children aged 24-36 Months in the working area of Koto ikur puskesmas.

The results of this study are in line with research (Afriyanti, 2015) that there is a significant relationship between maternal knowledge about nutrition and the incidence of *stunting* obtained p≤ 0.05 (p = 0.01). This study is also in line with the research of Ismanto etal (2014), there is a significant or significant relationship between parents' knowledge about nutrition and stunting.

The provision of appropriate ingredients and diet for toddlers in an effort to improve nutritional status will be realized if the mother has a good level of nutritional knowledge (Lestarininggsih, 2000). Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences attitudes and behaviors in choosing food ingredients, which will further affect the nutritional situation of her family (Suhardjo, 2003).

The analysis also found that there was a stunting of as much as 10.3% in mothers with good nutritional knowledge. The incidence of stunting in these cases can be caused by other factors, such as research in Manado (2014) about the relationship of parental knowledge about nutrition with *stunting* in children, found that the incidence of *stunting* but parental knowledge about good nutrition is influenced by factors such as the distance of the child too close , family income, diseases such as infection, diarrhea, etc. (Pormes, 2014)

Multivariate Analysis

Based on the results of the study it can be seen that maternal nutritional knowledge is proven to be most significantly related to the incidence of stunting with a value of p = 0,000 withan *odds ratio of* 19,312 which means mothers who have lack of nutritional knowledge has a risk of 19,312 times the child stunting and compared with good maternal nutrition knowledge (95%CI 5,345-69,773).

The reason why mother's nutritional knowledge is related to the incidence of stunting is related to the way and attitude of mothers in choosing food. Mother's knowledge about nutritionwill affect the way mothers choose food according to the correct rules of nutrition and present itto children (Agus 2008). Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahnien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences attitudes and behaviors in choosing food ingredients, which will further affect the nutritional situation of her family (Suhardjo, 2003). Therefore, low maternal nutritional knowledge increases the chances of a child experiencing stunting.

CONCLUSION

Conclusions of research are: there is a relationship between complementary feeding (MP-ASI) early on the occurrence of *stunting*; There is a relationship between the level of mother's knowledge about toddler nutrition in the event of *stunting.* Based on the results of the study it can be seen that maternal nutritional knowledge is proven to be most significantly related to theincidence of stunting with a value of p = 0,000 with an *odds ratio of* 19,312 which means mothers who have lack of nutritional knowledge has a risk of 19,312 times the child stunting and compared with good maternal nutrition knowledge (95% CI 5,345-69,773).

RECOMMENDATIONS

It is expected that efforts to prevent stunting focused in the first 1000 days of life are preventive efforts in detecting stunting events.

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