Mother's nutritional knowledge and behavior to stunting prevalence among children under two years old: case-control

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ABSTRACT

Introduction: Stunting among children still becomes a public health problem that needs serious attention. Stunting often occurs in 1000 days of a child's life. Some factors often cause stunting, such as lack of knowledge and nutrition for children. Aim to study the correlation between mother's nutritional knowledge and behavior in providing nutrition for children under two years old and the prevalence of stunting in Banteran Village, Sumbang District.

Methods: This study is an analytical observational study with a case-control study design. The population in this study was 210 people. The research sample was 68 respondents taken by proportional random sampling technique. Research instrument for measuring height by measuring height/age with a z-score on the Kartu Menuju Sehat (KMS) chart. Data analysis was done by chi-square test.

Results: The correlation between the level of nutritional knowledge of mothers and the prevalence of stunting based on the Chi-Square test results obtained p = 0.015 OR = 0.246. There is a significant correlation between the mother's nutritional knowledge and behavior and the stunting prevalence among children under two years old (p = 0.014; OR value = 0.284).

Conclusion: There is a correlation between mothers' level of nutritional knowledge and the prevalence of stunting in Banteran Village, Sumbang, Banyumas Regency.

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INTRODUCTION

Globally, it is estimated that out of 171 million stunted children worldwide, there are 167 million children (98%) living in developing countries, about 1 out 4 children under five is stunted. Furthermore, it is predicted that 127 million children under 5 years will be stunted in 2025 if the current trend rises.[1]

Indonesia is one of the 3 countries with the highest prevalence of stunting in Southeast Asia. The reduction in the prevalence of stunting in Indonesia is not so significant compared to Myanmar, Cambodia, and Vietnam.[2] The prevalence of Nutritional Status (TB/U) in children aged 0-23 months in Indonesia in 2013 in the very short category was 18% and in 2018, it decreased by 11.5%. In 2013 the short category was 19.2% but in 2018 this category increased by 19.3%.[3]

Prevalence of Nutritional Status (TB/U) in Children aged 0-23 months in Central Java in 2018 which is very short 13.9% and short 19.4%. The prevalence of stunting in Banyumas based on data from a preliminary study at the Banyumas Health Office was 32%. The prevalence of stunting is based on data from Public Health Center Sumbang 1 in February 2019 in Banteran Village, there were 21 very short and 51 short children.[4]

Previous studies state that stunting impacts various factors such as low birth weight, improper stimulation and parenting of children, insufficient nutritional intake, recurrent infections, and various other environmental factors.[4] Stunting in children under five is a consequence of several factors often associated with poverty, including nutrition, health, sanitation, and the environment. The five main factors causing stunting are poverty, social and cultural conditions, increased exposure to infectious diseases, food insecurity, and public access to health services.[5]

The first 1000 days of life are the period from the time the child is in pregnancy until a child is two years old. This phase is called the golden period because there is very rapid brain growth during this period. Malnutrition in this period will result in damage or stunted growth that cannot be repaired in the future life. Enough nutrition during the womb will make the fetus grow well and then be born as a healthy, strong, and perfect baby in every phase of development and growth.[6] Nutritional problems, especially stunting in toddlers, can hinder children's development, with negative impacts that will last in the next life such as intellectual decline, susceptibility to non-communicable diseases, decreased productivity, causing poverty, and the risk of giving birth to babies with low birth weight.[1] Pre-birth factor can be maternal nutrition during pregnancy. In contrast, post-birth factors can be children's nutritional intake during growth, socioeconomic, exclusive breastfeeding,

infectious diseases, health services, and other factors.[4] Based on the above background, the researcher was interested in examining the correlation between the mother's nutritional knowledge and behavior in providing nutrition to the prevalence of stunting among children under 2 years old in Banteran Village, Sumbang Sub-District.

METHODS

This study is an analytical observational study with a case-control study design. The research was conducted in October 2019 in Banteran Village, Sumbang District, Banyumas Regency, Indonesia. The population in this study were all mothers who had children less than 2 years of age, totaling 210. The sample of this study with inclusion criteria was mothers who had children aged 0-24 months, residents of Banteran Village, Sumbang District, and willing to be respondents. The exclusion criteria were respondents who did not cooperate. The research sample was 68 respondents taken by proportional random sampling technique.

Research instrument for measuring height by measuring height/age with a z-score on the KMS chart. The validity test of the mother's knowledge of 25 questionnaires was carried out on 23 questionnaires with r value (0.436-0.793) more than r table (0.444) so it was categorized as a valid statement. Then the 2 questionnaires obtained the calculated r-value (0.12-0.23) less than the r table and it is said that the questionnaire is not valid. The results of the validity test of the nutrition pattern questionnaire were tested on 20 questionnaires, it was found that 2 questionnaires obtained the results of r count (0.141 and 0.224) < 0.444, so that the questionnaire was said to be invalid. Furthermore, 18 questionnaires obtained r count (0.442 - 0.711) more than the r table (0.444) so that it is said to be a valid questionnaire.

Furthermore, 18 questionnaires obtained r count (0.442-0.711) more than the r table (0.444) so that it is said to be a valid questionnaire. The reliability of the mother's knowledge was obtained from the test results of 23 questionnaires with a calculated r-value (0.896) more than the r table (0.6) so that it was categorized as a

reliable statement and this questionnaire could be used. The results of the reliability test of the nutrition pattern showed that the test results of 18 questionnaire items had a calculated r-value (0.863) more than the r table (0.6) so that it was categorized as a reliable statement. This questionnaire could be used The homogeneity test was carried out in the control and case groups and obtained a significance value of 0.101 which means the data was homogeneous. Data analysis was done by chi-square test to measure the significance of the differences between the two groups of research data with a significant degree of < 0.05.

RESULTS

This research is a case-control study conducted from August 2019 to December 2019. The research data collection was conducted in November in Banteran. The number of respondents in this study was 68 respondents taken by proportional random sampling technique.

Based on table 1, the majority of the parity characteristics, it is known that this study's case group had one child, and the control group had two children. Based on the age characteristics, the majority in the

case group were mostly 26-35 years old and 26-35 years old in the control group. Most of the mothers in the case group did not work, and most of the mothers did not work in the control group. The income mothers in the case group and a control group were mostly less than the Regional minimum wage. The table of Education level shows in the case group, and a control group was mostly junior high school graduates.

Based on table 2, the majority of known female respondents are in both groups. Respondents were mostly not exclusively breastfed in both groups. The average children's age is 13.91 in the case group and 14.9 in the control group. The mean birth weight is 2.69 kg in the case group and 2.95 kg in the control group. The birth length of children was with a mean value of 46.44 cm in the case group and a Mean value of 48.26 cm in the control group. The current bodyweight of children means the value of 8.176 kg in the cases group and a Mean of 9.52 kg in the control group. The children's current height was 69.6 cm in the case group and 76.34 cm in the control group.

From table 3, 58.8% of all the case group had good knowledge, and 29

Table 1. Characteristics of mother.

Variable	Case		Control	
	n	%	n	%
Parity				
1 child	14	41,2	10	29,4
2 children	12	35,3	22	64,7
3 children	5	14,7	1	2,9
4 children	2	5,9	1	2,9
5 children	1	2,9	0	0
Respondents' age				
17- 25 years old	9	26,5	13	38,2
26 – 35 years old	20	58,8	14	41,2
36 – 45 years old	5	14,7	7	20,6
Mothers' Employment Status				
Not working	25	73,5	26	76,5
Working	9	26,5	8	23,5
Mothers' Income				
<Regional minimum wage 600.000	27	79,4	26	76,5
>=Regional minimum wage 1.600.000	7	20,9	8	23,5
Mothers' Education Level				
Elementary School	5	14,7	3	8,8
Junior High School	22	64,7	23	67,6
Senior High School	7	20,6	8	23,5

Table 2.   Characteristics of children.

Variable	Case		Control	
	N	**%**	**Frequency**	**%**
Sex				
Male	12	35,3	16	47,1
Female	22	64,7	18	62,9
Exclusively Breastfed				
Yes	3	8,8	2	5,9
No	31	91,2	32	94,1
Respondents' age (month)				
Mean ± SD		13,91± 6,097		14,9± 7,19
Min – Max		4- 26		3- 24
Birth Weight kg				
Mean ± SD		2,69± 0,558		2,95± ,44
Min – Max		1,20 – 3,7		1,70- 3,8
Birth Length cm				
Mean ± SD		46,44± 2,99		48,26± 2,247
Min – Max		35 – 50		42-53
Birth weight (at present) kg				
Mean ± SD		8,176± 1,84		9,52± 2,04
Min – Max		3,30- 11,6		4,5 – 15
Height (at present)				
Mean ± SD		69,6±10,21		76,34±10,105
Min – Max		46- 84		55- 96

Table 3.   The knowledge and pattern of providing nutrition characteristic.

Variable	Case		Control	
	n	**%**	**n**	**%**
Knowledge				
Good	20	58,8	29	85,3
Poor	14	41,2	5	14,7
Pattern of Providing Nutrition				
Good	15	44,1	25	73,5
Poor	19	55,9	9	26,5

Table 4.   Analysis of the correlation between the level of mother's nutritional knowledge and the prevalence of stunting.

Knowledge	Stunting		Total N (%)	OR (95% CI)	ρ-value
	Stunting N (%)	**Not Stunting** N (%)			
Good	20 (58,8)	29 (85,3)	49 (72,1)	0,246	0,015*
Poor	14 (41,2)	5 (14,7)	19 (27,9)	(0,077 – 0,793)	
Total	34 (100)	34 (100)	68 (100)		

* Note: Significant on ρ-value ≤0,05, n=68

Table 5.   Analysis of the correlation between the nutritional behavior with the prevalence of stunting.

The Pattern of Nutritional Feeding	Stunting		Total N (%)	OR (95% CI)	ρ-value
	Stunting N (%)	**Not Stunting** N (%)			
Good	15 (44,1)	25 (73,5)	40 (58,8)	0,284	0,014*
Poor	19 (55,9)	9 (26,5)	28 (41,2)	(0,103– 0,788)	
Total	34 (100)	34 (100)	68 (100)		

* Note: Significant on ρ-value 0,05, n=68

respondents (85.3%) in the control group had good knowledge. The pattern of providing nutrition to children done by 19 respondents (55.95) in the case group was poor. Nevertheless, 25 respondents (73.5%) in the control group made a good nutrition pattern.

Based on table 4 above, it can be seen that based on the Chi-Square test, p-value = 0.015 (<0.05) is obtained, which means that there is a correlation between the level of mother's nutritional knowledge and the prevalence of stunting in the village of Banteran, Sumbang, Banyumas. The analysis results also obtained an OR (odds ratio) of 0.246, which means that respondents with a poor level of nutritional knowledge had a 0.246 times chance of the risk of stunting in children than respondents with a less good level of nutritional knowledge.

Based on table 5 above, it can be seen that based on the Chi-Square test, p-value = 0.014 (<0.05) is obtained, which means that there is a correlation between the nutritional patterns in children with the prevalence of stunting in this village. The analysis results also obtained an OR (odds ratio) of 0.284, which means that respondents with good nutrition have a 0.284 times protective chance of stunting in children compared to respondents with poor nutrition patterns.

DISCUSSION

The rapid growth of childhood requires adequate nutrition. Poor nutrition during pregnancy, growth and early childhood can cause children to be stunted. The results of this study follow research conducted by Aridiyah which states that the level of mothers' nutritional knowledge can influence the prevalence of stunting in children under five, either in rural or urban areas.[7] Another study according to Nasikhah, another study conducted in Semarang said that the mother's nutritional knowledge was a risk factor for stunting.[8]

Parents' nutritional knowledge helps improve nutritional status in children to reach maturity. Stunted children may experience health problems easily, both physically and psychologically. Therefore, not all children can grow and develop according to their age because other children may experience obstacles and disabilities.[9] Previous study reports a correlation of parental knowledge about nutrition with stunting in children aged 4-5 years shows that the prevalence of stunting children is influenced by parents' nutritional knowledge on children under five.[10]

The mother's knowledge of nutrition influences the pattern of nutrition in children. Respondents in this study have good knowledge in providing nutrition to children. This is relevant to the finding that some patterns of nutrition in children have good categories. Notoatmodjo said that after someone knows the stimulus or object of the next process, he will assess or act on the stimulus.[11] The rapid growth of childhood makes adequate nutrition very important. In the first 1000 days of children's lives, malnutrition has permanent consequences.[1]

The first 1000 days of life is when a child is in the womb until a child is two years old. This phase is called the golden period because during this period, there is very rapid brain growth. During this period, lack of nutrition or lack of proper nutrition pattern will result in irreparable damage or stunted growth in the next life.[6] Childhood is a period that is very sensitive to the environment. They need more attention, especially nutritional adequacy so that the correct pattern of nutrition for children is important in this period to meet the nutritional intake of children.[12] Healthy children will grow up to be active school-age children, healthy, smart, and cheerful. Thus, healthy school-age children will grow up to be young teenagers full of hope, ready to gain knowledge for the future.[6]

Good maternal knowledge is expected to change providing nutritional food following important elements in optimizing child development, especially zinc adequacy to optimize bone growth.[7] The coverage of zinc in a study conducted by Anindita said that the level of zinc adequacy was related to the prevalence of stunting in children under five, both in rural and urban areas. The results were the same as the results of research conducted in Semarang, which showed that the low Adequacy of zinc could provide a risk of short stature in children under five.[13]

The previous study reports that 66% of the characteristics of stunted children under five are due to a history of breastfeeding and poor complementary foods.[14] The other research states that the first time giving nutrition is related to the prevalence of stunting.[15] Mufida also states that nutrition for babies over six months must be gradual according to their age stages. Nutrition must be varying, nutritious, clean, and hygienic so that food is not infected. The worst impact is the prevalence of Stunting.[16] Henny said that improper feeding practices could lead to malnutrition. Most types of malnutrition in children under five in Indonesia are stunted and severely stunted.[17]

The recommendation in this study is that mothers who have babies less than 2 years old should learn more and get more information related to providing nutrition to children. The importance of knowledge to mothers about providing nutrition for children can prevent stunting in children. Therefore, it is necessary for health workers to provide education to mothers who have babies in choosing a balanced diet for children so that children grow up healthy and avoid stunting.

CONCLUSION

There was a correlation between the mothers' nutritional knowledge level and the nutrition pattern in children with the prevalence of stunting in the village of Banteran of Sumbang Sub-District of Banyumas Regency.

CONFLICT OF INTEREST

This article in the process of collecting data and writing free of Conflict of Interest.

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ETHICS APPROVAL

This research has been registered with the Health Research Ethics Commission of the Universitas Muhammadiyah Purwokerto with the number: KEPK/UMP/35/XI/2019 on 27 November 2019

AUTHOR CONTRIBUTION

Happy Dwi Aprilina conceptualizes the research flow and prepares research materials, compiling research results, discussion, scientific articles, and presenting to the international conference. Siti Nurkhasanah conceptualizes the research flow, prepares research materials, carries out the data collection process, and compiles research results and discussion. Latif Hizbulloh carries out the data collection process, compiles data, and analyzes data.

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