The Correlation Between Mother’s Knowledge about Complementary Feeding with The Incidence of Stunting in Toddlers Under Two in Mayang, Jember

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Abstract

Stunting is a condition of toddlers who have a height-for-age less than -2 SD WHO Z-score. The period from a new born until two years is also known as the golden period. Nutrition obtained after birth affects the growth and development of them. Complementary feeding was given when they were 6 months old. The level of mother's knowledge about complementary foods has an impact on complementary feeding. Inappropriate complementary feeding can lead to stunting. The research objective was to determine the correlation between mother’s knowledge about complementary feeding and the incidence of stunting in toddlers under two in Mayang. The research was an analytical observational with a cross sectional study design. The sample was 90 respondents taken using consecutive sampling method. Data collection using a questionnaire on the mother and using height-for-age data from the toddlers. Statistical test using the Spearman test, showed that there was a significant correlation between the level of mother’s knowledge about complementary feeding and the incidence of stunting (p = 0.024; rho = -0.238). Due to this result, we recommend continuous health promotion and education among mothers to decrease the risk of stunting in their children.

Keywords: stunting, complementary feeding, toddlers under two, mother’s knowledge.

Introduction

Stunting is a condition for toddlers who have a length or height that is less than their age (PB/U or TB/U). This condition is measured by a length or height that is less than minus two standard deviations (<-2 SD) the median child growth standard from WHO (Beal et al., 2018). Stunting is caused by malnutrition in nutrient intake in the long term as a result of providing food that is not in accordance with the nutritional needs of toddler (Sethi et al., 2017).

In Indonesia, this public health problem of malnutrition falls into the moderate category (over 30%) (De Onis et al., 2019). The prevalence of stunting toddlers in Indonesia consecutively from the year 2007, 2010, 2013, and 2018 were: 36.8%, 35.6%, 37.2%, and 30.8%. The 2013 prevalence ranked Indonesia as the 5th highest stunting prevalence country in the world (Li et al., 2020). Indonesia has 34 provinces, and East Java province is included in the 5 provinces with the highest stunting prevalence (Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi, 2017).

Jember as one of the cities in the East Java Province has the second highest stunting prevalence. According to the Jember District Health Office, Jember Regency is included in the list of 100 regions that have a high prevalence of stunting under five and require nutrition improvement interventions in 2018. The prevalence of stunting under-fives in Jember in 2018 was 38.99% and 38.31% for toddlers. Mayang District ranks third after Sumberjambe and Sumberbaru with the percentage of stunting in Mayang reaching 37.72% (Hilmi et al., 2020).

According to the Handbook for Villages in Handling Stunting (2017), the factors that cause stunting are multi-dimensional. The nutrition obtained by the baby at birth affects the growth and development of toddlers under 2-years of age, including the risk of stunting. Failure to carry out early initiation of

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breastfeeding, failure to provide exclusive breastfeeding, and early weaning can be one of the factors for stunting. The age of 6 months, the beginning of the period of providing complementary feeding, the quantity, quality, and safety of the food provided needs to be considered (Shrestha et al., 2020).

The intervention treatment carried out in the 1,001 first days of life (HPK) of toddlers can help reduce the prevalence of stunting. The 1000 HPK program intervenes in specific nutrition carried out on three targets, namely pregnant women, breastfeeding mothers and children aged 0-6 months, and children aged 7-24 months. The toddler (0-24 months) is a period of growth and development of children which is included in the 1000 HPK program. This period is called the golden period, because at this time children grow and develop rapidly. If it is not optimized, permanent damage will occur (Widyahening et al., 2021). Nutritional intake is the most important factor to support growth and development during childhood. Good nutritional intake will improve the nutritional status of children under two so that stunting can be avoided.

After exclusive breastfeeding for 6 months, infants should be given complementary foods. The provision of complementary foods is done because after 6 months breast milk can no longer meet the nutritional needs of infants (Mawaddah, 2019). Efforts to improve the health and nutritional status of under-fives through improving knowledge and behavior in the provision of complementary feeding is continuously done in efforts to improve nutrition (Samman et al., 2020).

Mother’s level of knowledge about complementary foods has an impact on the provision of complementary foods. According to previous research, inappropriate complementary feeding can lead to poor nutritional status (Aber et al., 2018). Mother’s knowledge about nutrition is influenced by age, education, knowledge, occupation, and income (Puspasari & Andriani, 2017). Complementary feeding must meet the requirements, namely schedule time, adequacy, safety, and proper way of giving. These requirements must be known by mothers so that complementary feeding can provide adequate nutritional intake for children under two so as to prevent stunting (Fanta & Cherie, 2020).

The high prevalence of stunting in children under two in Mayang District and the rare research examining the relationship between mother’s knowledge of complementary feeding and the incidence of stunting in Mayang District made the researcher conduct a study entitled "The Relationship of Mother’s Knowledge with Complementary Feeding with the Incidence of Stunting in Toddlers-under two in Mayang District, Jember Regency".

Method

This was an observational analytic with cross sectional study design observed in Mayang, being a district in Jember with a percentage of stunting reaching 37%. The population of this study were mothers in Mayang District who had babies under two years old.

The sample size of this study was determined using the Slovin formula and obtained by consecutive sampling method with a total of 90 respondents. The inclusion criteria for this study were being registered as village residents in Mayang, mothers with children aged 0-24 months, and willing to become research respondents. The exclusion criteria in this study included resigning from the study, babies undergoing the research being sick, had a history of chronic infections, congenital abnormalities, and born prematurely/Low birth weight.

The independent variable in this research was the mother’s knowledge of complementary feeding and the dependent variable was the incidence of stunting. The data collected were obtained in the same period of time. Respondents were visited by the surveyor and were given a questionnaire regarding their knowledge about complementary feeding (Widyawati, 2016). At the same moment, the surveyor obtained the measurement of height/length from the KMS book (the measurement was done by trained health professionals and cadre). The questionnaire has been tested for validity (r table = 0,235) and reliability (alpha Cronbach = 0,7).

The questionnaire contained 30 true and false statements about complementary feedings. In addition, an informed consent form was also used as evidence of consent for data collection from respondents. Each correct answer was given 1 point, and zero point for incorrect ones. The knowledge score was counted by dividing the number of correct answers by 30 and multiplying it by 100%. Knowledge score between 76-100% were categorized as good; 56-75% as sufficient, and below 56% as less.

Data processing was carried out with the stages of editing, coding, entry, and cleaning, while data analysis used SPSS For Windows software. Univariate analysis was carried out to see the distribution of the characteristics of each research variable. Bivariate analysis was done to find out the relationship between the variables. The Chi Square and or Fisher's Exact Test was used to analyze the characteristics towards the knowledge and incidence of stunted children. The Spearman statistic was carried out to analyze the correlation between the independent and dependent variable, with an α of 0.05 and a confidence level of 95%.

This research has received approval from the Ethics Commission of the Faculty of Medicine, University of Jember with number 1.422/H25.1.11/KE/2020 and from the National and Political Unity Agency (Bangkesbangpol) of Jember.

Result

The research was conducted covering 3 villages in Mayang District, namely Mayang, Sumber Kejayan, and Tegal Rejo. Based on the inclusion and exclusion criteria as well as the consecutive sampling method, the characteristics of the respondents were obtained in Table 1.

Table 1 showed that in terms of occupation, the majority of respondents were housewives as many as 64 people (71.11%). The last education of the majority of respondents were high school graduates, as many as 34 people (37.78%). Based on the age range, the majority of respondents were aged between 20-25 years, as many as 37 people (41.11%).

Mothers with toddlers under two who experience stunting were highest in respondents who have jobs as house wife (68.63%). Meanwhile, based on the last education of the respondents, the children with the highest stunting rate were those with the mother’s last education at middle school (41.18%). Based on the age range of the respondents, the children who experienced the
highest stunting were respondents with an age range of 20-25 years (43.14%).

The toddlers’ characteristics were divided by age and gender. The characteristics could be seen in Table 2.

Table 2 showed that 49 (54.44%) of the toddlers were in the age range of 13-24 months, whereas 35 of them were stunted. As for the gender, most of them were boys, with 32 among them being stunted. The status of toddlers under two in this study was based on the height-for-age and divided into 2 categories, namely normal and stunted. The number of toddlers under two in the normal category were 39 children, and 51 children were in the stunted category.

The level of knowledge of the respondents were divided into 3 categories, namely good, sufficient, and less. Furthermore, the knowledge level of respondents was cross-tabulated towards some characteristics and the results could be seen in Table 3.

Bivariate analysis between mother’s knowledge about complementary feeding and the incidence of stunting in this study used the Spearman Statistic test. The results of statistical tests in bivariate analysis could be seen in Table 4.

Table 4 showed that most of the respondents (74.51%) with stunted children had less knowledge about complementary feeding. Meanwhile, respondents with good knowledge of complementary feeding had the least number of stunted children, namely 4 out of 51 respondents (7.84%). The p value in this study was 0.024 and the correlation coefficient (rho) was -0.238.
Discussion

Based on occupation, most of the respondents who did not work (housewives), were as many as 64 respondents (71.11%). However, 2 respondents who were private employees, both have stunted children. This is in line with research by Pratasis et al., 2018 which stated that working mothers will lose time to provide nutrition to toddlers so that it will affect their nutritional status. In addition, researchers suspected that working mothers tend to not take care of their own children, and are assisted by parents or caregivers (Indrastuty & Pujiyanto, 2019). The impact that may occur is that the provision of nutritional intake for children is not in accordance with the requirement.

Most of the respondents’ last education was senior high school, as many as 34 people (37.78%). However, the highest percentage of respondents who have stunted children were from middle school (41.18%). According to Rakhma et al., 2017, a mother with low education level had a probability of 6.2 times higher to lack in nutritional knowledge. Education is the main provision for a person to acquire knowledge. The level of education also affects the mindset of each individual. Higher education can affect the parenting style of the mother.

From the results of this study, it was found that respondents with higher education had children with normal conditions. On the other hand, respondents with low education or even not attending school had children with stunted conditions. There was also a significant correlation between maternal educational level and healthy eating behaviour in young children (Scaglioni et al., 2018).

Most respondents were in the range of 20-25 years with a total of 37 people (41.11%). Twenty-two out of those respondents had stunted children. Mothers at a younger age tended to be more concerned with themselves than carrying out their obligations to raise children. In addition, at a younger age, access to information and knowledge is less than at an older age. These two things were in line with the results of this study that respondents with a younger age had more stunted children than respondents who had an older age (Mukharromah et al., 2017).

The youngest child in this study was 1 month old and the eldest was 24 months. The researcher included children aged 0-6 months because the research aimed to study the mother’s knowledge about complementary feeding regardless the age of the child. In the golden period of growth and development (0-24 months) it is important that mothers are adequately educated about this (Hasibuan et al., 2019). In further hope if found there is lack of knowledge, there will be time to educate them and enhance the knowledge throughout the golden period. Even so, data showed that all the children aged over 6 months (82 respondents) were given complementary feedings.

There were 51 children under the age of two that were stunted (56.67%) and 39 children (43.33%) had normal nutritional status. Most of the children with stunted nutritional status were aged between 13-24 months, namely 35 out of 51 (68.63%). There were several possibilities for undernourished children

### Table 3. Knowledge level of respondents correlated with socio-economic factors

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Good (n=18)</th>
<th>Sufficient (n=24)</th>
<th>Less (n=48)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>House Wife</td>
<td>12</td>
<td>14</td>
<td>38</td>
<td>0.018</td>
</tr>
<tr>
<td>Farmer</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Trader</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Elementary</td>
<td>1</td>
<td>3</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Middle school</td>
<td>3</td>
<td>5</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>12</td>
<td>15</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0.063</td>
</tr>
<tr>
<td>20-25</td>
<td>5</td>
<td>13</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>26-30</td>
<td>5</td>
<td>9</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>&gt;30</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*Chi-Square/Fisher’s Exact Test

### Table 4. Bivariate analysis of mother’s knowledge about complementary feeding on the incidence of stunted toddlers under two

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Stunted</th>
<th>Normal</th>
<th>Total</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
<td>7.84</td>
<td>14</td>
<td>35.90</td>
</tr>
<tr>
<td>Sufficient</td>
<td>9</td>
<td>17.65</td>
<td>15</td>
<td>38.46</td>
</tr>
<tr>
<td>Less</td>
<td>38</td>
<td>74.51</td>
<td>10</td>
<td>25.64</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100</td>
<td>39</td>
<td>100</td>
</tr>
</tbody>
</table>
when they enter the age of > 6 months, and become stunted. Some of these possibilities were decreased appetite, low nutritional intake, decreased sleep hours, and susceptibility to infection (Damayanti et al., 2016). The results of this study were also in line with research which stated that children with the age of 12 months are more likely to be stunted due to the increasing number of nutritional needs needed for energy fulfillment (Karydianti et al., 2021).

Based on gender, as many as 32 out of 48 toddlers under two (66.67%) who experienced stunting were male. This result was in line with research which stated that boys are more likely to be stunted (Setyawati & Ramadha, 2020). The reason was that in terms of gross motor development, boys are faster and more diverse than girls, so they need more energy. However, this statement was in contrast to the results of research which stated that the gender between boys and girls does not determine the intake and nutritional needs received (Rukmanata et al., 2016).

Most of the respondents (48 people) in this study lacked knowledge. As many as 38 respondents from 48 were stunted. Meanwhile, respondents who have good knowledge were only 18 people (20%) and only 4 people were stunted. The results of this study were also in line with the results of research conducted by (Pusparasi & Andriani, 2017), which stated that the source of information and knowledge regarding the provision of complementary feeding obtained by the mother will affect the pattern of it. If there is a lack of knowledge and information, it will affect the pattern of giving complementary feeding to children under two, so that it is possible for children with stunted nutritional status to occur.

Spearman statistic test was used for bivariate data analysis in this study. The results of the data analysis showed that the p value in this study was 0.024 with a correlation coefficient (rho) of -0.238.

This result indicated that there is a significant relationship between mother’s knowledge about complementary feeding and the incidence of stunted toddlers under-two. The minus sign (-) in the correlation coefficient (rho) indicated that the two variables had an inverse relationship. The higher the level of knowledge, the lower the incidence of stunted children, and conversely the lower the level of knowledge, the higher the incidence is.

The researcher has excluded children with a history of: low birth weight/premature birth, chronic infection, and congenital anomaly. Unfortunately, the data of gestational age, type of delivery, birth order, mother’s weight and height measurement and whether breastfeeding was adequate among subjects were not obtained in this research. The researcher understands the possible influence of those factors, therefore, suggests in future research it be considered and collected in order to minimize the confounding factors.

Conclusion

Based on the results of the study, it can be concluded that there was a significant relationship between the mother’s level of knowledge about giving complementary feeding and the incidence of stunted children. The lower the mother’s level of knowledge is, the higher the incidence of stunted children can occur. Due to this result, we recommend continuous health promotion and education among mothers to decrease the risk of stunted children.

Conflict of Interest

The authors declare no conflict of interest.

Acknowledgement

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Author Contribution

The first author contributed in preparing the manuscript, revising the final manuscript for publication, and approving the final version to be published. The second author contributed in drafting a concept, compiling a research design, data collection, data analysis, and the person in charge of data collection in the field. The third author contributed in data analysis, data interpretation, and final approval of the version to be published.

References


