Stunting is caused by several multidimensional factors, not only due to malnutrition experienced by pregnant women and children under five, but also due to poor care (Tim Nasional Percepatan Penanggulangan Kemiskinan (TNPPK), 2017). One of the direct causes of stunting is food intake. This intake is largely determined by the dietary pattern. Incorrect feeding patterns can lead to insufficient nutritional intake received by toddlers (Rambu Podu & Nuryanto, 2017).

Abstract: **Background:** Stunting is one of the nutritional problems facing Indonesia. Nutritional problems can be caused by poor parenting. Incorrect feeding patterns can lead to insufficient nutritional intake received by toddlers. **Objective:** This study aimed to determine the relationship between parental feeding style and the incidence of stunting in toddlers. **Methods:** This research quantitative study used a cross-sectional study design. The population of this study were mothers and toddlers in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia. The sampling technique used a random sampling technique with a total of 152 respondents. The data collection tool for parental feeding style used a parental feeding style questionnaire, while the determination of stunting status was based on measurements of height or body length per age adjusted to the WHO table of Height/age or Length/age. 

**Results:** The results showed that 22 toddlers (14.5%) experienced stunting and 130 (85.5%) normal children. The parental feeding style among respondents was found that 13 respondents (8.6%) were uninvolved, 44 respondents (28.9%) were permissive, 51 respondents (33.6%) were authoritarian, and 44 respondents (28.9%) were authoritative. The statistical test showed the p value was 0.01 less than alpha (0.05). In conclusion, there is a relationship between parental feeding style and stunting among toddler. Suggestions for parents are expected to apply appropriate parental feeding styles for toddler, which adapt to situations and conditions in order to prevent stunting in children.

**Keywords:** Toddlers, Parental Feeding Style, Stunting.

**INTRODUCTION**

Stunting is a condition of children who are too short compared to their age due to the failure to thrive because of chronic malnutrition (Tim Nasional Percepatan Penanggulangan Kemiskinan (TNPPK), 2017). Stunting is enforced based on body length or height compared to age with a limit (z-score) of less than −2 SD (WHO, 2010 in (Yudianti & Rahmat 2011)).

The prevalence of stunting in 2017 reached 22.2% or around 150.8 million children under five in the world (Kementrian Kesehatan Republik Indonesia (KEMENKES RI), 2018). Meanwhile in Indonesia, it is ranked as the fifth largest in the world (Tim Nasional Percepatan Penanggulangan Kemiskinan (TNPPK), 2017). (Risksdes, 2018) states that the prevalence of stunting in Indonesia was 30.8%. This showed a fairly high number. Meanwhile in Central Java, the prevalence of stunting in 2014 was 22.57%.

In 2017, the highest prevalence of stunting under five in Pekalongan district was in Wiradesa sub-district (Dinas Kesehatan Kabupaten Pekalongan, 2018). The data from the Wiradesa Community Health Center states that the highest number of children under five with stunting in their area was in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia.

Stunting is a serious problem that needs attention from various parties. Stunting can cause complex problems in the short and long term. In the short term, stunting can cause increasing morbidity and mortality, less optimal growth and development of children, and increasing health costs. Meanwhile in the long term, stunting lead to problems with increasing the risk of obesity and other diseases as well as decreasing productivity and work capacity which can have an impact on poverty (Tim Nasional Percepatan Penanggulangan Kemiskinan (TNPPK), 2017).

Stunting is caused by several multi-dimensional factors, not only due to malnutrition experienced by pregnant women and children under five, but also due to poor care (Tim Nasional Percepatan Penanggulangan Kemiskinan (TNPPK), 2017). One of the direct causes of stunting is food intake. This intake is largely determined by the dietary pattern. Incorrect feeding patterns can lead to a lack of nutritional intake received by toddlers (Rambu Podu & Nuryanto, 2017).
Children need to get attention from their parents to get the correct quality and quantity of nutritional intake of food. Nutritional intake is needed for children's growth. Good nutritional intake for children requires the mother's ability to provide good parenting for children in terms of feeding (Yudianti & Rahmat Haji Saeni, 2016).

Johnson, Welk, Saint-Maurice, & Ihmels (2012) states that the parenting style of feeding by mothers is a combination of demand and care (demandingness and responsiveness) which are classified into four types, namely authoritative, authoritarian, permissive and uninvolved. The different types are based on the demands which means encouragement of parents on children to eat, assistance which means support regarding children's food intake, and the choice of children's food menus (Hughes, Shewchuk, Baskin, Nicklas, & Qu, 2008).

The several types of feeding patterns are at risk for children experiencing nutritional problems (Baron & Kenny, 1986). Meanwhile, interventions need to be enforced to prevent stunting in children. Therefore, researchers are interested in conducting research on the relationship of parental feeding style with the incidence of stunting in children under five in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia.

**Research Methods**

**Study Design**

This research was a quantitative study that used a descriptive analytic study with a cross-sectional study design.

**Sample and Setting**

The population of this study were parents and toddlers in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia. The number of samples were 152 people, which obtained from the results of calculations using the Slovin formula taken randomly as samples in the study. Inclusion criteria were mothers who care for toddlers aged 1-5 years and live in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia.

**Instruments**

The research instrument for obtaining stunting status used the measurement of height or body length of under five adjusted to the table for height / age or body length / age according to WHO which was categorized as normal if height / age or body length / age ≥ -2 SD, stunting if height / age or body length / age < -2 SD. Meanwhile, to obtain data on parenting styles in feeding for toddlers used the Parental Feeding Style questionnaire in the Indonesian version adopted from Astuti (2014) in (Yumni, 2016). This questionnaire consists of 24 questions divided into 17 questions of demandingness (D) and 7 questions of responsiveness (R). The answers to the questionnaire used a Likert scale consisting of 5 alternative answers, namely, never (0), rarely (1), sometimes (2), often (3), always (4). This questionnaire has been tested for validity and reliability by Yumni (2016) with Pearson's correlation. The results of the point demandingness value by Cronbach alpha 0.85 and responsiveness by Cronbach alpha 0.82. Thus, this questionnaire is declared reliable. The category of parenting styles is based on the abnormal distribution of the data, so it can be divided into authoritative if D and R ≥ median, Authoritarian if D ≥ median and R < median, Permissive if D < median and R ≥ median and Uninvolved, if D and R < median. Data were analyzed by chi square test. This research has been through the permission of BapedaPekalongan Regency.

**Data Collection**

Data collection was carried out in September 2019 by visiting potential respondents from house to house.

**Data Analysis**

Univariate analysis was used to determine the frequency of each variable. For the bivariate test analysis, we used Chi Square test with 95% confidence interval. The data analysis used SPSS Statistics 20.

**Ethical Consideration**

The study was ethically approved by the permission of BapedaPekalongan Regency with approval no: 070/821. All of the respondents in this study were given formally informed consent. The respondents had the right to refuse to participate without penalty if they want to doso.

**Research Result**

The results of the study include the characteristics of the respondent, the stunting status, the parental feeding style, and the relationship between the parental feeding style and the incidence of stunting which are described in the following table.
### Table 1. Distribution of the characteristics of respondent based on maternal education, toddler age, and gender of toddler (n = 152)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother’s Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>115</td>
<td>75.7</td>
</tr>
<tr>
<td>Intermediate</td>
<td>36</td>
<td>23.7</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Toddler’s Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - &lt;2 years</td>
<td>46</td>
<td>30.3</td>
</tr>
<tr>
<td>2 - &lt;3 years</td>
<td>30</td>
<td>19.7</td>
</tr>
<tr>
<td>3 - &lt;4 years</td>
<td>42</td>
<td>27.6</td>
</tr>
<tr>
<td>4 - &lt;5 years</td>
<td>34</td>
<td>22.4</td>
</tr>
<tr>
<td><strong>Gender of Toddler</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>63</td>
<td>41.4</td>
</tr>
<tr>
<td>Female</td>
<td>89</td>
<td>58.6</td>
</tr>
</tbody>
</table>

### Table 2. Distribution of the characteristics of respondent based on height and weight of toddler (n = 152)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Min-Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>89.35</td>
<td>70-112</td>
</tr>
<tr>
<td>Weight</td>
<td>11.58</td>
<td>7.5-19.5</td>
</tr>
</tbody>
</table>

### Table 3. Frequency distribution of parental feeding style and stunting status among toddler (n = 152)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parental Feeding Style</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uninvolved</td>
<td>13</td>
<td>8.6</td>
</tr>
<tr>
<td>Permissive</td>
<td>44</td>
<td>28.9</td>
</tr>
<tr>
<td>Authoritarian</td>
<td>51</td>
<td>33.6</td>
</tr>
<tr>
<td>Authoritative</td>
<td>44</td>
<td>28.9</td>
</tr>
<tr>
<td><strong>Stunting Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stunting</td>
<td>22</td>
<td>14.5</td>
</tr>
<tr>
<td>Normal</td>
<td>130</td>
<td>85.5</td>
</tr>
</tbody>
</table>

### Table 4. The relationship between parental feeding style and the incidence of stunting among toddler (n = 152).

<table>
<thead>
<tr>
<th>Variable</th>
<th>StuntingStatus</th>
<th>Total</th>
<th>P</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stunting</td>
<td>Normal</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Parental Feeding Style</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Authoritative</td>
<td>2</td>
<td>4.5</td>
<td>42</td>
<td>95.5</td>
</tr>
<tr>
<td>b. Authoritarian</td>
<td>6</td>
<td>11.8</td>
<td>45</td>
<td>88.2</td>
</tr>
<tr>
<td>c. Permissive</td>
<td>9</td>
<td>20.5</td>
<td>35</td>
<td>79.5</td>
</tr>
<tr>
<td>d. Uninvolved</td>
<td>5</td>
<td>38.5</td>
<td>8</td>
<td>61.5</td>
</tr>
</tbody>
</table>

*p value 0.01 < 0.05

### DISCUSSION

An overview of parental feeding styles in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia

Parenting is a general behavior construction in the context of emotional interactions between parents and children, which is characterized in 2 dimensions, namely the existence of demands that show parental control and responsiveness that shows acceptance of the child's needs and the form of warmth that is provided (Belay Emagnaw & Hong, 2018; Ortega, Ruiz, & Sjostrom, 2007). Based on this definition, parenting is divided into 4 types, namely authoritative, which means that parents / caregivers allow children to take food according to reasons and make clear expectations and guidelines that children realize; authoritarian style which shows by parents / caregivers punishing children, forcing children to follow strict dietary rules and not making any adjustments, or exceptions based on the child's perspective; permissive when the parent / caregiver accepts and is warm but lacks in providing food-related requirements; and uninvolved when the parent / caregiver makes a little demand for children to eat but not supportive (Hughes et al., 2008).

The parental feeding style is a sub-category of parenting, which is specific to feeding, therefore the same dimensions of demand and responsiveness are also applied in the context of feeding (Hughes et al., 2008; Johnson et al., 2012; Ortega et al., 2007).
The results of this study indicated that the parenting style in giving food to toddlers in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia has the most authoritarian type, by 51 respondents (33.6%). The results are in line with the descriptive research of 77 toddlers in North Palu District by Faisal, Kusumawati and Desriani in 2018, which shows the number of parents who apply authoritarian parenting systems is 76.6%.

Parents with authoritarian parenting types provide strict eating rules / demands, but are not responsive to children's needs. This type of care, parents regulate everything including the portion and timing of meals, the types of food that the child may or may not eat, monitor the child's eating behavior, and limit the child's weight (Yumni, 2016). This type of parenting assumes that all power is in the hands of the parents because the parents know better what is good for the child.

The results also showed that some of the parents adopted authoritative and permissive type of parenting style with the same percentage of 28.9% each. The results of descriptive research in Taipa Village, North Palu District by (Faisal, Kusumawati, & Desriani, 2020), also showed that there were 2 types of parenting that are common in families, namely permissive parenting and authoritative.

Authoritative type is a parenting style where there is a balance between demandingness and responsiveness, which are high in both. The type of parenting style for authoritative feeding tends to make children feel comfortable because the high demands for eating from parents are also balanced with high responsiveness, so that the atmosphere of eating can be felt pleasant for the child. In addition, this type shows the high demands for food from parents, while children are also given the opportunity to choose the food they like, but parents still monitor the child's food intake. The existence of effective communication through discussions between children and parents about food intake makes children's nutritional intake controlled according to children's needs. Children can grow and develop ideally.

The application of authoritative parenting style can encourage children to be independent, but parents can still provide limits and control. Therefore, authoritative parenting style is familiar to be the most ideal parenting style, especially for toddlers who are experiencing a period of growth and development (Diana, 2016).

Permissive parenting style is generally characterized by a lack of adequate parental supervision. Parents give a little warning and guidance to children. Parents tend to follow the wishes of their children and seem not willing to disappoint their children. This type describes the parents do not have clear rules about children's eating activities. The holder of control over eating is the child. Children who decide about the schedule and menu choices to eat (Septiari, 2012 in (Yumni, 2016)). In (Widyaninghsi, Kusmandar, & Anantanyu, 2018), stunting toddlers get more of less parenting, particularly permissive parenting forms and neglect by 51.2%.

The type of parenting in the uninvolved type of feeding was also found in this study, namely 13 respondents (8.6%). This percentage is very small compared to research from (Baskoro, 2019) where the acquisition of uninvolved parenting style was the most dominant parenting style with a result of 39.3%.

The uninvolved type of parenting style is the opposite of the authoritative type. This type of parenting is a combination of demandingness and responsiveness, which are low for both. The demands and responsiveness of parents to their children's needs for food are low. Parents tend to be more concerned with themselves than children. Children's food needs seem neglected, so that children's food intake tends to lack nutrition of children's needs.

The parenting style applied by parents in everyday life can actually be multidimensional. This means, even though parents apply authoritative, in certain situations parents may use authoritarian or permissive type. The application of this type of parenting style can be influenced by various social and environmental factors, including the eating behavior of toddlers (Yumni, 2016). In general, mothers show responsiveness by giving praise when the child eats, helping the child eat, and allowing the child to take and choose their own food.

Description of the incidence of stunting in toddler in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia

The results showed that most of 130 (85.5%) toddler in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia were categorized as normal (non-stunting), and 22 (14.5%) were stunted. These results indicate the incidence of stunting is below the national figure. However, serious attention must be paid to reduce the impact caused by stunting, because the main period of growth deficit lasts in the age range 0-3 years and cannot be reversed according to age proportional growth (Manary & Solomon, 2009 in (Rohmawati & Antika, 2017).

Stunting occurs through a long process. The incidence of malnutrition and anemia in the pre-conception phase, unhealthy sanitation of the living environment and insufficient nutritional intake during pregnancy can trigger stunting. The results of the national survey on individual food consumption (SKMI) in 2014 showed that most pregnant women had problems with food intake and 33, 3% condition of
short pregnant women with height less than 150 cm. These conditions can cause babies to be born malnourished. The incident is exacerbated if the baby’s food intake after 6 months of age is not balanced and insufficient, which will have an impact on increasing the risk of stunting (Kementrian Kesehatan Republik Indonesia (KEMENKES RI), 2018).

The incidence of stunting that occurs may be the result of inadequate food frequency and portions to meet all the nutritional needs of toddler. Poor nutritional intake due to the low of quantity and quality of food composition. The nutritional intake received by babies is very dependent on parental feeding (Pradnyawati, Kartinawati, & Ratna Juwati, 2019).

There are several factors from parents related to the incidence of stunting in toddler. The results of research on 120 toddlers in Jember in 2017 showed that the majority of stunting was experienced by toddlers with parents who have low levels of education. Highly educated mothers will have a positive impact on practicing feeding to their toddlers. The increase in the level of mother's education significantly affects the reduction in the incidence of stunting in infants (Pradnyawati et al., 2019). Parents with an average family income in the low category are also able to influence the incidence of stunting, because the income is only used to meet the needs of daily life. Rohmawati & Antika (2017) also defined that the prevalence of stunting is greater in girls than boys (60.3% and 39.7%).

UNICEF's mindset states that the main causes of stunting problems are parenting, coverage and quality of health services, the environment and food security. Parenting patterns including early initiation of breastfeeding (IMD), exclusive breastfeeding for up to 6 months followed by breastfeeding and complementary feeding for up to 2 years will help the child's growth and development. Food security, including the quality of food consumed at the family level, is an important aspect for preventing stunting (Kementrian Kesehatan Republik Indonesia (KEMENKES RI), 2018). It is hoped that the implementation of this program will fulfill the nutritional needs of children and can overcome the problem of stunting in toddler.

**The relationship between parental feeding style and the incidence of stunting in toddler in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia**

Parenting style with the incidence of stunting in toddler has a significant relationship. Incorrect feeding pattern by parents has the potential cause of stunting (Pradnyawati et al., 2019; Rohmawati & Antika, 2017). This is because of the practice of feeding in parenting styles can affect the quality and quantity of nutrition provided to children, by increasing its effectiveness, it can improve children's nutritional status, and have an impact on lower stunting (Prendergast & Humphrey, 2014). Based on this, it shows that toddlers who have poor parenting are at greater risk of stunting than children with good parenting (Rohmawati & Antika, 2017).

Based on the results of statistical analysis using the chi square test in this study, the value of \( p \) was 0.01 (<0.05) so that \( H_0 \) was rejected. It can be concluded that there is a significant relationship between parental feeding styles with the incidence of stunting in toddlers in Pekuncen, Wiradesa-Pekalongan, Central Java, Indonesia. This relationship is in accordance with the results of previous research from Rohmawati & Antika (2017) in Jember among 120 toddlers, which showed a \( p \) value of 0.002. Lasari & Gustina (2013) in Kulon Progo also showed that there was a significant relationship between Parental Feeding Style and stunting in toddlers.

Based on table 4, it is known that the incidence of stunting experienced by toddlers with the uninvolved type was 38.5%. The result of the study is in accordance with research from Pribadi R.P, Gunawan H, & Rahmat (2019) among 51 mothers who have children with stunting in Mekarjaya Village, Bandung Regency, which showed that less parenting, namely 39.3% uninvolved and 23% Permissiveness, with the results of the Spearman rank test showed that mothers with negative eating patterns, 76.5% of them were stunted, with a value of \( p = 0.000 \) (\( p < 0.05 \)).

This type of uninvolved style tend to be less concerned and do not give food demands on children. Besides that, the parents’ warmth is also low. Children are given their own freedom about eating activities. This condition makes children's food intake uncontrolled as needed or not. This type can be demonstrated by the results of qualitative research by Pradnyawati et al., (2019) in Negallalang, Bali, which showed that parents with stunted children tended not to prioritize the nutritional needs of their children. The principle of feeding children is also adapted to what adults can eat, and most parents do not provide a varied diet.

The uninvolved type of parenting style is confirmed to be the unhealthy type. In this type, parents give freedom to their children about eating. This condition lead to malnutrition, including in short treatment (stunting) (Yumni, 2016). Based on a study conducted by Abebe, Haki, & Baye (2017), it is known that the feeding delivered by mothers who have higher levels of ignorance, were higher among children with stunting than those who were not stunted.

Table 4 also showed that the type of permissive feeding pattern of care was also found in toddler with stunting by 20.5%. Parents with this type of parenting style tend to obey the wishes of their children. Parents often let their children snack on snacks until they are
full. This is also shown from a previous study in Tegallalang, Bali, which found that parents inclined to provide children with food to be full and not fussy even though they did not meet the children's nutritional needs. In the habit of eating snacks, the foods that were often consumed by the majority of children under five in this qualitative study were snacks that found in stalls and most of them were not controlled by their parents. Most of the respondents gave snacks to their toddlers from the shop to keep them calm (Pradnyawati et al., 2019). This habit makes children's food intake not according to children's nutritional needs. This condition can impact the growth and development of children, including the problem of stunting (Yumni, 2016).

The type of parenting style of authoritarian feeding in the results of this study was also found to be 11.8% in stunting children. High demands for food, but not balanced with the responsiveness of parents to children’s needs in this type of authoritarian parenting can result in children becoming passive and lacking courage. Apart from that, parents’ meal schedules can also have the effect of hindering the child’s ability to recognize signals of hunger and fullness; an unpleasant atmosphere when eating will make children uncomfortable, fussy, not interested in eating and tend to be underweight. Conditions like this can cause restricted growth in children, including stunting.

Mothers who practice authoritarian parenting also tend to restrict food to their children due to the mother's concern that the child will eat excess amounts or other concerns, even the mother will regulate the type of food and time of eating, so that the child has no choice but to follow a forced diet, by their mother. This limitation is one of the factors related to stunting according to Dranesia, Wanda, & Hayati (2019). Restricted food intake affects the amount of nutrition children can receive and is related to children's nutritional status (Nkurunziza, Meessen, Van geetruyden, & Korachais, 2017) likewise, the type of authoritative. Toddlers from parents who provide authoritative parenting shows an attitude related to healthier body weight and this pattern is the recommended feeding pattern (Pradnyawati et al., 2019).

Even though this type is the ideal type of parenting, but, if the parents have poor knowledge about good nutrition, it also can lead to the risk of developing nutritional problems in children, including stunting. In this study showed that A total of 4.5% stunting children were cared by mothers who applied the authoritative type. The demands and responses of parents regarding eating activities in children must be based on knowledge of good nutritional needs. Good knowledge of parents about nutrition in children underlies correct behavior for parents in implementing parenting patterns of feeding to children, because knowledge is closely related to a person's behavior (Notoatmodjo, 2012).

Low knowledge means the ability of mothers to choose the right food for their children is low. The lack of the ability of mothers to pay attention to signs of hungry in children, provide food that is suitable for children's appetites, less ability to encourage their children to eat a lot or limit their eating, and the lack of the ability to choose the right food for their children was also found in a previous study by Setyaningsih & Agustini (2014) on 112 mothers who had children under five in Depok.

Actually, the parental feeding style can change according to the child's condition. However, if the parenting style of feeding parents is wrong, it will result in food intake that does not meet the nutritional needs of toddler. This impact on the failure of child growth, such as stunting.

**CONCLUSION**

Parental feeding style is an important thing that every mother needs to pay attention to prevent stunting. Parents are required to be more varied and creative by paying attention to the balancing between demanding and responsiveness during the implementation of feeding arrangements for toddlers, so that the nutritional needs of toddlers are met. Health workers are expected to apply the right intervention in increasing the knowledge of mothers about appropriate parental feeding style to prevent stunting.

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