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Exploring the relationship between maternal parenting styles and stunting prevention behaviors in children aged 3-5 years

Arum Dwi Ningsih,¹ Endang Yuswatiningsih,² Dwi Prasetyaningati²

¹Faculty of Health Sciences, Universitas Bina Sehat PPNI Mojokerto, Mojokerto; ²Faculty of Health Sciences, Institut Teknologi Sains dan Kesehatan Insan Cendekia Medika Jombang, Jombang, Indonesia

Correspondence: Arum Dwi Ningsih, Faculty of Health Sciences, Universitas Bina Sehat PPNI Mojokerto, Mojokerto, Indonesia.
E-mail: arumdn87@gmail.com

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Abstract

Indonesia, as a developing country, continues to grapple with various nutritional challenges, with stunting among toddlers being a significant concern. According to Nutritional Status Monitoring data from the past three years, stunting has the highest prevalence compared to
other issues such as undernutrition, underweight, and obesity. Stunting reflects inhibited growth owing to insufficient nutrient intake. This study aimed to analyze the relationship between parenting styles and behaviors aimed at preventing stunting in children aged 3-5 years. Employing a correlational analysis with a cross-sectional research design, the study surveyed 128 respondents. Maternal parenting styles were assessed using questionnaires with parameters for authoritarian, democratic, and permissive approaches, while stunting prevention behaviors were evaluated using questionnaires covering cognitive, affective, and conative aspects. Analysis revealed that most respondents exhibited a democratic parenting style (52 respondents, 41%), and most demonstrated good stunting prevention behaviors (58 respondents, 45%). The Spearman test yielded a p-value of 0.000, indicating a significant relationship. Therefore, enhancing parents' understanding of proper parenting practices is crucial for preventing stunting in children aged 3-5 years.

**Introduction**

Indonesia, as a developing country, continues to face various nutritional challenges. Among these, stunting in toddlers is a major issue. Stunting often goes unrecognized in communities where short stature is normalized and height checks are infrequent, making it difficult to identify. Growth failure typically begins in utero and can persist until at least the age of two. If stunting is not balanced with catch-up growth, it leads to decreased growth, increased risk of illness and death, and impediments to both motor and mental development. Several factors contribute to the incidence of stunting in children, including maternal factors such as poor nutritional status during pregnancy, short stature, and inadequate parenting, especially regarding feeding practices. The role of parents, particularly mothers, in caring for toddlers significantly impacts the nutritional intake received by the child. Therefore, mothers need to
understand how to provide balanced nutrition to ensure their toddlers grow healthily and develop appropriately for their age.\(^8\) Maternal behavior in preventing stunting is crucial.\(^9\) Research by Fildzah \textit{et al}. in 2020 showed that 46.3\% of mothers had poor behavior in preventing stunting.\(^10\) This indicates that the eight pillars of stunting prevention behavior—ending open defecation, handwashing with soap, managing drinking water and household food, securing household waste, managing household liquid waste, monitoring pregnant women's nutrition, feeding infants and children, and monitoring growth—are not being optimally implemented.\(^6,11,12\)

According to Nutritional Status Monitoring data from the last three years, stunting has the highest prevalence among nutritional problems such as undernutrition, underweight, and obesity. Stunting is characterized by impaired growth due to prolonged inadequate nutritional intake. According to Kepmenkes 1995/MENKES/SK/XII/2010, stunting is defined as a z-score of less than -2 SD (stunted) and less than -3 SD (severely stunted).\(^13,14\) The World Health Organization (WHO) data indicates that Indonesia has the third highest prevalence of stunting in the South-East Asia Region (SEAR). From 2005-2017, the average prevalence of stunting in Indonesian toddlers was 36.4\%, with an increase from 27.5\% in 2016 to 30.8\% in 2018.\(^13\)

Stunting affects children's intelligence and health into adulthood. Children suffering from stunting can experience physical and cognitive impairments, leading to reduced growth.\(^15\) If not addressed properly, stunting can lead to weak cognitive abilities, delayed psychomotor development, increased susceptibility to degenerative diseases in adulthood, and a long-term decline in human resource quality.\(^16\) Stunted children are strongly associated with poor educational achievement, shorter schooling duration, and lower income as adults. They are more likely to grow into adults who are less educated, poorer, less healthy, and more vulnerable to non-communicable diseases. Consequently, stunted children are predictors of a nation's future human resource quality and productive capacity.\(^17\)
Family factors are significant contributors to stunting in children. These include low parental education and income levels, poor parenting, inadequate diet, lack of exclusive breastfeeding, infections, and parents with short stature. Since late 2017, the Ministry of National Planning and Development/National Planning and Development Agency has implemented the "Integrated Intervention in Districts/Cities" to prevent stunting. This initiative includes broad multi-sector interventions covering food access, basic health services, clean water and sanitation access, and parenting patterns. The family's role, especially that of the mother in implementing parenting and childcare practices, impacts children's growth and development. Mother's parenting involves behaviors such as providing breast milk or complementary foods, teaching proper eating habits, providing nutritious foods, controlling food portions, preparing hygienic meals, and ensuring an appropriate diet. These behaviors ensure adequate nutritional intake for children's growth and development.

Parenting involves actions by caregivers (mother, father, grandmother, or others) to provide food, maintain health, offer emotional support, and fulfill other needs for children's growth and development, including parental love and responsibility. The mother's role is dominant in nurturing and educating children to grow and develop into quality individuals. Proper maternal behavior in breastfeeding, feeding, healthy eating, providing nutritious food, and controlling food portions enhances a child's nutritional status.

Parenting affects nutritional status because proper growth and nutrition enable children to develop better. Food plays a critical role in children's development, with their nutritional needs differing from adults. Proper feeding during the golden age periods is crucial for development. A mother's parenting significantly influences stunting incidence in toddlers since mothers regulate food intake. Mothers with good parenting practices tend to have toddlers with better nutritional status than those with less effective parenting. Research in Makassar shows a significant relationship between parenting and stunting in children aged 24-59 months.
Effective parenting includes maternal attention/support in feeding practices, psychosocial stimulation, hygiene, environmental sanitation, and health service utilization. Similarly, research in North Central Timor found a significant relationship between parenting history and stunting, with a 14.5 times higher risk of stunting in children with inadequate parenting compared to those with good parenting. Based on this context, this study aimed to determine the relationship between maternal parenting practices and stunting prevention behaviors in children aged 3-5 years at the Kediri Regency Health Center.

**Materials and Methods**

This study employed a correlational analysis with a cross-sectional research design. The population comprised all mothers with children aged 3-5 in the working area of the Kediri Regency Health Center. The sample consisted of 128 respondents, selected using a simple random sampling method. Researchers utilized a list of mothers with children aged 3-5. They selected 128 respondents randomly from a pool of 189 potential participants using a method similar to a lottery system.

Data collection for parenting variables was conducted using questionnaires assessing authoritarian, democratic, and permissive parameters. This questionnaire was validated (p-value <0.05) and demonstrated high reliability with a Cronbach's Alpha value of 0.968. For stunting prevention behavior, the questionnaire assessed cognitive, affective, and conative parameters with similar validation (p-value<0.05) and reliability (Cronbach's Alpha =0.962). The researcher developed the questionnaire based on established indicators/parameters. The parenting indicators corresponded to the permissive, democratic, and authoritarian categories, and the questionnaire items were derived from these parenting styles.

The study examined two variables: the independent variable, maternal parenting (categorized as permissive, democratic, and authoritarian), and the dependent variable, stunting prevention
behavior (categorized as good, sufficient, and lacking). Stunting prevention behavior was evaluated using a Likert scale across 15 statements, with responses ranging from Always to Never. Scores were allocated from 1 to 4, and the total scores were converted into percentages, categorized as follows: high if the score fell between 76-100%, moderate if the score ranged from 56-75%, and low if the score was <56%.

Data processing involved editing, coding, scoring, tabulating, and statistical analysis using Spearman's correlation with an alpha level of 0.05. The Spearman Rank test was chosen due to the ordinal nature of the variables. Data analysis was performed using SPSS version 25. This research was approved by the Nursing Research Ethics Commission of the Institute of Science and Health Technology Insan Cendekia Medika Jombang, with ethical clearance number 028/KEPK/ICME/II/2023.

Results

Table 1 shows the frequency distribution of respondents based on the mother's age. Most respondents are aged 26-30 years, with 43 people (34%). Most mothers have a high school education, accounting for 48 people (37%). Most mothers are housewives, with 58 people (45%). Regarding the sex of the respondents' children, most respondents have sons, totaling 76 (59%). Most respondents have children aged 4 years, with 53 people (41%). Additionally, most mothers practiced a democratic parenting style, with 52 people (41%), and stunting prevention behavior was categorized as good for 58 people (45%).

Based on the statistical analysis results in Table 2, stunting prevention behavior is categorized as good among those with a democratic parenting style, with 33 people (63%). The analysis using the Spearman Correlation test yielded a p-value of 0.000, indicating a significant relationship between stunting prevention behavior and maternal parenting style at the Health Center in Kediri Regency.
Discussion

The study results showed that most mothers (63%) practiced a democratic parenting style, with 33 respondents. This finding aligns with the research conducted by Nuraeni et al. (2022), which also found that most respondents (94.6%) used a democratic parenting style. Democratic parenting positively impacts normal nutritional status. This is because parents in democratic households set expectations and guidelines, particularly regarding food. They tend to explain the reasons behind these rules, ensuring that children understand and follow them during meals.

Good parenting is democratic parenting. Parents who practice democratic parenting positively influence their children's eating behavior. Eating behavior is a person's response to food as a vital necessity of life. When a child's eating behavior is good, their nutritional needs are met, leading to ideal growth and reducing the risk of stunting or other nutritional problems. Parents who use democratic parenting tend to encourage their children to be independent while providing boundaries and control. Democratic parenting has a positive impact because parents recognize and nurture their child's abilities. Children are given opportunities to be independent and not overly reliant on their parents. Parents are always open to their children's opinions and desires, prioritizing rational thoughts and interests. In terms of providing nutrition, democratic parents offer a food menu that meets children's nutritional needs while allowing them the freedom to choose their food. These parents encourage their children to eat without issuing commands and provide ongoing support. Democratic parenting is considered the best and healthiest because parents control the types of food their children eat, manage their children's weight, regulate their emotions during meals, and encourage children to regulate their own intake under parental supervision. Good communication is key in implementing
democratic parenting. Parents typically praise their children for positive actions, teach them to be independent and responsible, and show love.28

The results revealed that most respondents exhibited good stunting prevention behavior, totaling 58 people (45%). Education is among the factors influencing parental behavior in stunting prevention, with 48 respondents (37%) having a high school education. Maternal education serves as a significant predictor of child stunting. Mothers with higher education levels possess enhanced cognitive abilities, are more receptive to information from various sources, and demonstrate greater adaptability in applying health knowledge to parenting. Improved literacy and numeracy skills acquired through education empower women to recognize diseases, seek appropriate treatment for their children, comprehend medical instructions, and administer treatment effectively. Moreover, increased years of schooling enhance women's receptivity to modern medicine.29 Higher education is associated with greater knowledge, which translates to improved childcare practices. A mother's educational attainment correlates with her understanding of healthcare, pregnancy, postpartum care, and child health and nutrition awareness.30

Another influential factor in the incidence of stunting is the mother's age. Most respondents were within the 26-30 age range, comprising 43 individuals (34%). Mothers in the young adult category typically possess the physical and psychological maturity necessary for childcare. Children born to mothers in adulthood face a lower risk of stunting compared to those born to teenage or older mothers. Adult mothers are better equipped to absorb knowledge, exhibit greater maturity in their thought processes, and consequently, are more adept at implementing effective parenting practices. As a result, children of adult mothers are less susceptible to stunting than their counterparts born to teenage or older mothers.26

The employment status of mothers significantly influences the incidence of stunting. In this study, most mothers were housewives, totaling 58 individuals (45%). Being a housewife
provides mothers with more time to dedicate to their children's growth and development around the clock. Consequently, mothers who do not work outside the home tend to be more attentive to their child's development. This finding is consistent with prior research indicating that working mothers may exhibit poorer parenting practices due to limited time spent with their children.\textsuperscript{31} In some low-income households, mothers may juggle earning a livelihood with household responsibilities. This dual role reduces the time and attention available for childcare. As a result, the mother's employment status directly impacts the parenting style employed with the child.\textsuperscript{32}

Parenting encompasses methods of interaction, communication, ethical application within the family, and the cultivation of discipline in children.\textsuperscript{33} Within the framework of democratic parenting, parents afford children the autonomy to select foods they prefer, while still offering guidance and choices aligned with balanced nutrition. A mother's adoption of a democratic parenting style with her young child often signifies nurturing and support, thereby positively influencing the child's nutritional status. Maternal behaviors such as breastfeeding, providing healthy meals, offering nutritious foods, and controlling portions play pivotal roles in enhancing children's nutritional status.\textsuperscript{34} Indeed, a mother's parenting style significantly influences various aspects of children's growth and development, encompassing interactions, growth, and the inculcation of values and morals.

Mother's parenting practices significantly influence the incidence of stunting by encompassing how mothers utilize their knowledge and skills to ensure food processing meets nutritional requirements, implement a clean and healthy lifestyle, and monitor child health.\textsuperscript{36} The correlation between democratic parenting and stunting prevention behavior categorized as good underscores the emphasis of democratic parenting on granting children opportunities for exploration within the framework of parental supervision and guidance. Parents continue to
educate and guide children on the importance of balanced nutrition for optimal growth and development and adopting a clean and healthy lifestyle.

Research indicates a correlation between democratic parenting and stunting prevention behavior categorized as good. This finding can inform government programs aimed at preventing or reducing stunting in Indonesia. One such program is the "Integrated Intervention in Districts/Cities" initiative by the Ministry of National Planning and Development, which includes the enhancement of specific program services related to the health sector, such as providing high-calorie, protein-rich, and micronutrient-dense supplementary feeding, and improving children's health services. In this context, mothers play a crucial role in ensuring proper care for their children. They are responsible for ensuring adequate nutritional intake and regulating their children's lifestyle within their environment. By adopting democratic parenting practices, mothers are expected to exhibit optimal stunting prevention behavior, thereby facilitating optimal growth and development in children according to their age.

Conclusions

The research findings reveal a significant relationship between maternal parenting and stunting prevention behavior among children aged 3-5 in the Kediri Regency, Indonesia. These results are poised to enhance respondents' comprehension regarding the criticality of adopting appropriate parenting practices and implementing stunting prevention behaviors to mitigate stunting in children. Moreover, the study outcomes are anticipated to serve as fundamental data for informing governmental policy deliberations aimed at reducing stunting rates in Indonesia. Future research endeavors should delve deeper into exploring additional factors influencing maternal behavior in stunting prevention.
References


9. Has EMM, Krisnana I, Efendi F. Enhancing maternal caregiving capabilities model to


12. Yunita FC, Yusuf A, Nihayati HE, Hilfida NH. Coping strategies used by families in Indonesia when caring for patients with mental disorders post-pasung, based on a case study approach. Gen Psychiatry 2020;33:e100035


Table 1. Frequency distribution of respondents.

<table>
<thead>
<tr>
<th>Characteristics of respondents</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother's Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-25 years</td>
<td>28</td>
<td>22</td>
</tr>
<tr>
<td>26-30 years</td>
<td>43</td>
<td>34</td>
</tr>
<tr>
<td>31-35 years</td>
<td>36</td>
<td>28</td>
</tr>
<tr>
<td>36-40 years</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td><strong>Mother's education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary School</td>
<td>34</td>
<td>27</td>
</tr>
<tr>
<td>Junior High School</td>
<td>28</td>
<td>22</td>
</tr>
<tr>
<td>Senior High School</td>
<td>48</td>
<td>37</td>
</tr>
<tr>
<td>College</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td><strong>Mother's job</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>58</td>
<td>45</td>
</tr>
<tr>
<td>Private Staff</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>Farmer</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td><strong>Child's gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>52</td>
<td>41</td>
</tr>
<tr>
<td>Female</td>
<td>76</td>
<td>59</td>
</tr>
<tr>
<td><strong>Child's age</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Analysis of stunting prevention behavior and mother's parenting style.

<table>
<thead>
<tr>
<th>Parenting Style</th>
<th>Stunting Preventive Behavior</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Democratic</td>
<td>33</td>
<td>63</td>
</tr>
<tr>
<td>Permissive</td>
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<td>58</td>
</tr>
<tr>
<td>Authoritarian</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>

Spearman’s rho of p-value=0.000