

## Association Between Parenting Styles, Children's Nutritional Status, and Quality of Life among Children Ages 8–12 Years

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### Abstract

Nutritional status and parenting styles are two factors that are thought to affect children's quality of life. This study aimed to assess the relationship between parenting styles, nutritional status, and quality of life of children aged 8–12 years. This cross-sectional observational analytic study used data collected from November 2020 to January 2021 using the Parenting Styles and Dimensions Questionnaire (PSDQ) and Pediatric Quality of Life Inventory (PedsQL) that were distributed in the form of e-questionnaire via WhatsApp and other social platforms. The analysis tests used were the Spearman and logistic regression tests with a level of significance of 0.05. The results of the Spearman test showed that there was no correlation between parenting style and quality of life ( $p=0.882$ ) and between the nutritional status and quality of life ( $p=0.568$ ). The results of the logistic regression analysis showed that the variables of parenting ( $p=0.437$ ; 95% CI=0.607–3.174; OR=1.388) and nutritional status ( $p=0.432$ ; 95% CI=0.504–1.341; OR=0.822) were not associated with quality of life. Thus, there is no significant relationship between parenting patterns and children's nutritional status on the quality of life of children aged 8–12 years.

**Keywords:** Children, nutritional status, parenting styles, parenting styles and dimensions questionnaire, pediatric quality of life inventory, quality of life

### Introduction

The quality of life of Indonesian children living in Indonesia is very diverse and quite challenging to assess. Each individual's health aspects influence the quality of life in a holistic, multi-dimensional manner called health-related quality of life (HRQoL).<sup>1</sup> Several values that can describe the low quality of life of Indonesian children related to health are the percentage of difficulty accessing health services, namely 36.9% difficult and 26% very difficult, and the high nutritional status of children suffering from malnutrition.<sup>2,3</sup> Childhood is a specific developmental period that differs from other periods in life. UNCRC stated, "children's current well-being is important in and of itself." It is important to pay attention to the factors that affect the quality of life in childhood. Children are vulnerable, they depend on adults.<sup>4</sup>

Research by Baumrind states that children who grow up with authoritarian parenting will have low self-esteem, lack of socialization skills, and fear of parents. This condition certainly must be adjusted so that children do not vent their feelings and take wrong choices, such as smoking and using narcotics.<sup>5</sup> To improve their quality of life also means to work with parents and adults around them. Therefore, this research assesses the association between parenting style and children's quality of life.

Nutritional status affects the quality of life in the long term, where it is measured according to physical, emotional, social, and school conditions. If the child's nutrition is not fulfilled and malnutrition occurs, it is concerned that the quality of life of the child will be affected. With the number of related diseases with malnutrition that can affect the quality of life, more research related to nutrition and quality of life is needed to reinforce the statement that balanced nutrition can improve quality of life. The results of this study are expected to emphasize the need to improve health services

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in terms of preventive procedures, control, and treatment for malnutrition.<sup>6,7</sup>

Nutritional problems are one of the inhibiting factors for children's growth and development, so they require special attention.<sup>8</sup> Based on the records of Riskesdas data in 2018, the prevalence of children aged 5–12 in Indonesia who were very thin and underweight was 2.4% and 6.8%, respectively. This figure has decreased since 2013, but this nutritional problem has become more widespread due to an increase in the percentage of children with nutritional status who are overweight and obese (10.8% and 9.2%).<sup>2</sup> However, only a few studies discuss nutritional problems in school-age children, even though school age (7–12 years) is a dynamic period for physical growth and mental development. This study takes the subject of children aged 8–12 years because nutritional problems that occur at a young age can be a risk factor for certain chronic diseases such as cardiovascular disease and type 2 diabetes.

Various factors influence the nutritional status of children, some of which are internal, physical, psychosocial, and emotional and external factors of parenting patterns. Parents are responsible for raising children, so parenting plays a vital role in meeting children's nutritional needs.<sup>9,10</sup> Not only toddlers, the eating behavior of school-age children is still influenced by the role of parents, but unfortunately, parents tend to ignore changes in their child's weight so that many children with malnourished status are missed.<sup>11,12</sup> Parents and caregivers are responsible for providing a variety of nutritious foods. Limit the availability of high-calorie, health-prone foods. Structure the timing and frequency of meal opportunities (including meals and light meals). It provides a suitable serving size that does not grow excessively.<sup>13</sup>

Therefore, this cross-sectional study aimed to assess the relationship between parental parenting and nutritional status on the quality of life of children aged 8–12 years.

## Methods

This descriptive, analytical observational study uses primary data from parents of children aged 8–12 and anthropometric results as the source. The data were taken in a cross-sectional manner, and it was conducted from November 2020–January 2021. This research was conducted in Indonesia using e-questionnaires via WhatsApp and other social platforms filled out by parents.

This study uses the rule of thumb formula

to calculate the required sample size and uses a non-probability consecutive sampling technique to collect samples according to the criteria. The following is calculation with the rule of thumb with two independent variables; To anticipate respondents who drop out when as the research progresses, the number of samples is added so that the minimum sample is still met.

The inclusion criteria were parents that had children aged 8–12 years who were willing to be contacted to fill out questionnaires and participate in this study. Exclusion criteria were parents who have children aged 8–12 years but have a history of chronic diseases, congenital metabolic disorder, genetic disorder, mental disorder, neurodevelopmental disorder, are undergoing long-term treatment, and/or have physical limitations.

The type of parenting applied by parents was assessed using the Parenting Styles and Dimensional Questionnaire (PSDQ) instrument which has been validated in Indonesian. This questionnaire consisted of 24 questions that will divide parenting styles into 3 categories. Cronbach's Alpha ( $\alpha$ ) values of 0.85, 0.81, and 0.70 for the Democratic, Authoritarian, and Permissive.<sup>14</sup>

Children's Quality of Life were evaluated using the translated Pediatric Quality of Life Inventory (PedsQL) instrument by Varni that has gone through linguistic validation process. PedsQL 4.0 Generic Core Scales measurement tools that have demonstrated reliability and validity in various paediatrics and disease populations. The clinically significant minimal difference calculated in the previous investigation was 4.50 to 6.92 points and the reliability Alpha ( $\alpha$ ) was 0.92 based on parental reports.<sup>15</sup> The PedsQL 4.0 instrument consists of the following 4 functional assessments: (1) physical function, (2) emotional function, (3) social function, and (4) school function.

Data are collected on an ordinal scale. PedsQL questionnaire gives five choices 0, 1, 2, 3, and 4 for each statement. (0=never, 1=almost never, 2=sometimes, 3=often, 4=almost always). The scores are then transformed, into a scale of 0–100 (0=100, 1=75, 2=50, 3=25, and 4=0). The value above 70 indicates the quality of life of the child is good while below 70 indicates poor quality or children with certain chronic diseases.<sup>16, 17</sup> PSDQ are filled out by parents which assess the parenting style of the child daily. There are five options answers on a scale of 1 for never to 5 for always. Answers are calculated and the highest value indicates the type of parenting style for

children.<sup>14</sup>

The general information obtained using an online questionnaire includes the gender of the parents, the age of the parents, the relationship between the parents and the child, the level of education of the parents, the type of occupation of the parents, the cumulative income of the parents, the sex of the child, the age of the child, siblings of the child, and the anthropometric results including, weight and height, both when filling out the questionnaire and at birth.

To determine the nutritional status, this study uses the measurement of BMI according to age because it has a subject aged 8–12. The weight and height data obtained from parental reports are based on the last measurement taken by them using a weight scale and a stature meter. Questionnaires were given to parents with detailed instructions and pictures on how to use

standardized tools. Referring to the Regulation of the Minister of Health Number 2 of 2020 on Child Anthropometry Standards, the children's BMI measurement is categorized with a z-score into 5 categories, which are: severely thinness, thinness, normal, overweight, and obese.<sup>2</sup>

Data is collected and processed using SPSS software program. The data were analyzed using Spearman to determine the relationship between parenting styles on children's quality of life, nutritional status on children's quality of life, and parenting styles on nutritional status. A logistic regression test is used to determine the relationships between parenting styles and nutritional status on the quality of life. The level of significance in this study was stated if the p-value <0.05

This study was approved by the Medical and Health Research Ethics Committee (MHREC)

**Table 1 Demographic Characteristic of Parents**

Characteristic	n=104	%
Gender		
Female	90	86.5
Male	14	13.5
Age (years)		
20–29	1	1
30–39	47	45.2
40–49	52	50.0
50–59	4	3.8
Relationship with the childQ		
Father	11	10.6
Mother	89	85.6
Uncle/Aunt	4	3.8
Level of education		
Graduate from primary school	1	1.0
Graduate from senior high school	16	15.4
Diploma degree	6	5.8
Bachelor's degree	73	70.2
Master's degree	7	6.7
Doctorate degree	1	1.0
Type of occupation		
Medical and health sciences related	4	3.8
Psychology related	1	1.0
Homemaker	56	53.8
Other	43	41.3
Cumulative income per month		
<Rp500,000	2	1.9
Rp500,000–Rp1,200,000	1	1.0
Rp1,200,000–Rp4,200,000	14	13.5
Rp4,200,000–Rp20,800,000	37	35.6
Rp20,800,000–Rp41,700,000	26	25
>Rp41,700,000	24	23.1

**Table 2 Demographic Characteristic of Children**

Characteristic	n=104	%
Gender		
Female	56	53.8
Male	48	46.2
Age (years)		
8	29	27.9
9	14	13.5
10	26	25.0
11	9	8.7
12	26	25.0
Premature birth		
Yes	5	4.8
No	99	95.2

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## Results

In this study, 151 people became research respondents. Nevertheless, a total of 25

respondents did not meet the inclusion and/or exclusion criteria, and 22 respondents had to be dropped out due to the results of filling out the PSDQ questionnaire being invalid. The demographic characteristics of 104 parents and children from this study are consecutively listed in Table 1 and Table 2.

The results in Table 3 show the value of  $p=0.882$ . The  $p$ -value in this study did not have a value of  $<0.05$ , so it can be concluded that there is no significant relationship between parent/guardian's parenting styles on children's quality of life.

Table 4 shows the value of  $p=0.568$ . The  $p$ -value in this study did not have a value of  $<0.05$ , so it can be concluded that there is no significant relationship between nutritional status on children's quality of life.

Table 5 shows the value of  $p=0.418$ . The  $p$ -value in this study did not have a value of  $<0.05$ , so it can be concluded that there is no significant relationship between parent/guardian's parenting styles children's nutritional status.

The results of the logistic regression test also showed that the variables of parenting ( $p=0.437$ ) and nutritional status ( $p=0.432$ ) did not have significant relationship with children's quality of life.

**Table 3 Association of Parenting Styles and Children Quality of Life**

Parenting Style	Quality of life			p	Rs
	Poor	Good	Total		
Authoritative	12	22	34	.882	.015
Authoritarian	0	2	2		
Permissive	23	45	68		
Total	35	69	104		

p=Significance; Rs=Spearman Rank Correlation

**Table 4 Association of Nutritional Status and Children Quality of Life**

Nutritional Status	Quality of life			p	Rs
	Poor	Good	Total		
Severe underweight	1	0	1	.568	.057
Normal	14	35	49		
Overweight	10	17	27		
Obesity	10	17	27		
Total	35	69	104		

p=Significance; Rs=Spearman Rank Correlation

**Table 5 Association of Parenting Styles and Children Nutritional Status**

Nutritional Status	Parenting Style				p	Rs
	Permissive	Authoritative	Authoritarian	Total		
	N	N	N	N		
Severe underweight	0	1	0	1		
Normal	34	13	2	49		
Overweight	20	7	0	27	.418	.080
Obesity	14	13	0	27		
Total	68	34	2	104		

p=Significance; Rs=Spearman Rank Correlation

### Discussion

Based on the results of logistic regression analysis, both variables are not associated with children's quality of life. Nevertheless, parenting style is more dominant (1.38x) than children's nutritional status (0.82x). There is also no significant relationship between parenting patterns and the nutritional status of children aged 8–12 years.

This study took two demographic characteristics data, parents and children. Respondents who took part in this study and met the inclusion and exclusion criteria were 104 parents with a male and female sex ratio of 14:90. The parents' age who participated in this study varied from 20 to 60 years, with the highest number in the age range of 40–49 years. The relationship between mother and child was found the most in the study, while the parents' occupation in this study was mostly housewives. This is assumed because the distribution of questionnaires using e-forms through several social media applications and the ratio of housewives' active social media users is higher than in other occupations. Based on Trisnani's analysis<sup>18</sup> the most users of Information and Communication Technology (ICT) devices currently are housewives, and the second is private employees. This number explains why in this study, the education level of bachelor degrees and other occupations (private employees, entrepreneurs, etc.) is in the first place. The cumulative income of parents per month is mainly above IDR 4,200,000, and this value indicates the economic level of the respondents is medium-high

Data on the demographic characteristics of child respondents taken in this study were

gender, age, and history of premature birth. A total of 56 children were girls, and 48 were boys. This number is not in line with the 2019 National Socio-Economic Survey (Susesnas), which states that the ratio of the number of boys to girls aged 0–17 years is 105.06. This ratio means that there are 105 boys per year and 100 girls. The age of the children most involved in this study was 8 years.

The results of the analysis test showed that there was no relationship between parenting patterns and children's quality of life. Research conducted by Heng et al.<sup>19</sup> on urban adolescents showed different results, namely the relationship between authoritarian, authoritative, and neglectful parenting with the quality of life of adolescents, but permissive parenting did not show a significant relationship. The democratic parenting pattern in this study is considered to provide a wider space but also limits so that children can develop to be more mature and independent so that it is assumed to be a good parenting pattern to be applied compared to others. Authoritarian parenting is considered to make children not independent and not creative while permissive parenting is considered to form children to have a free attitude, but in this study, 45 respondents from permissive parenting and 2 authoritarian respondents showed a good quality of life. One of the factors that influence children's quality of life is personal factors, namely mental health another study was conducted by Rezvan on adolescents to determine the relationship between parenting and mental health. In line with this study, the results of the analysis of the study also stated that there was no relationship between the two variables.<sup>20</sup>

Analysis of nutritional status with quality of life in this study did not show a significant



relationship. However, the number of child respondents with poor and poor nutritional status obtained from random sampling in this study was very small so it could be less representative of the sample as a whole. Research by Nugrahaeni et al.<sup>21</sup> and Capanzana et al.<sup>22</sup> on a population of younger and school-age children revealed differences in test results, namely that there was a close relationship between malnutrition and quality of life. Malnutrition in both studies was associated with low family income which resulted in the inability of parents to fulfill their children's basic needs such as nutritious food. Low and poor nutrition in children will cause stunted growth and development, this has an impact on the ability to learn and socialize at school and increase the risk of getting a disease due to a weak immune system. Two other studies with respondents who had obese nutritional status also showed a negative relationship between nutritional status (obesity) and children's quality of life.<sup>23,24</sup> The study stated that in children with permissive parenting, a higher incidence of obesity was found. Permissive parenting patterns and nutritional status of obesity in children are associated with lower quality of life values when compared to children with good nutritional status.<sup>24</sup> Excessive nutritional status and obesity also affect children's quality of life, especially in the physical and social domains of children.

In this study, an analysis of the relationship between parenting style and nutritional status was also conducted, but the results showed that there was no significant relationship between the two variables. This result contradicts the systematic review conducted by Sokol et al.<sup>25</sup> which states that there is a relationship between parenting styles and children's BMI. Based on this study, it was found that children with democratic parenting (authoritative) had a smaller increase in BMI when compared with authoritarian parenting. Another study by Pratiwi et al.<sup>26</sup> showed that there were differences in results between eating parenting, health parenting, and psychosocial parenting. The analysis test of Pratiwi's research showed a significant relationship between feeding parenting and health care patterns such as immunization schedules and children's nutritional status, but there was no relationship between psychosocial parenting and nutritional status. Certainly, nutritional status of a child aged 8–12 years is not only influenced by parenting patterns, nutritional status can also be influenced by various other things such as biological factors,

gender, genetics, children's health history, and others.

This study has several limitations related to the data collection process and the characteristics of respondents. Due to the Covid-19 pandemic, anthropometric data can only be obtained by educating parents on how to use standard instruments. There are no respondents with malnourished children because the e-questionnaire did not reach a wider range of family backgrounds. Last, filled out questionnaires by parents allows for subject bias since they might miss on detailed information such as previous health conditions.

The researcher suggests that further studies with similar topics should conduct anthropometry directly to obtain more accurate data. Ensure that the questionnaires are distributed equally among all socio-economic status groups of the community so that the following research related to the case can minimize the possibility of not getting children with specific nutritional status/parenting patterns. Further research is expected to use other parenting style questionnaires to reduce subject bias.

## References

1. Yin S, Njai R, Barker L, Siegel PZ, Liao Y. Summarizing health-related quality of life (HRQOL): development and testing of a one-factor model. *Popul Health Metr.* 2016;14:22.
2. Kemenkes RI. Badan Penelitian dan Pengembangan Kementerian Kesehatan RI. Riset kesehatan dasar (Riskesdas 2018). Jakarta: Kementerian Kesehatan RI; 2018.
3. Jacob DE, Sandjaya S. Faktor-faktor yang mempengaruhi kualitas hidup masyarakat Karubaga District Sub District Tolikara Propinsi Papua. *J Nasional Ilmu Kesehatan.* 2018;5;1(1):1-2.
4. Wallander JL, Koot HM. Quality of life in children: a critical examination of concepts, approaches, issues, and future directions. *Clin Psychol Rev.* 2016;45:131-43.
5. Agustina A, Appulembang YA. Pengaruh pola asuh terhadap kualitas hidup siswa pelaku tawuran. *JMuara Ilmu Sosial Humaniora Seni.* 2017;10;1(1):210-5.
6. Keshavarzi S, Ahmadi SM, Lankarani KB. The impact of depression and malnutrition on health-related quality of life among the elderly Iranians. *Glob J Health Sci.* 2014;7(3):161-70.
7. Hidayathillah AP, Mulyana E. Hubungan

- pola asuh orang tua dengan status gizi pada balita usia 1-5 tahun di Desa Selokgondang Kecamatan Sukodono Kabupaten Lumajang. *Infokes*. 2018;9;8(1):19–27.
8. Lassi Z, Moin A, Bhutta Z. Nutrition in middle childhood and adolescence. In: Bundy DAP, Silva Nd, Horton S, et al., editors. *Child and adolescent health and development*. 3rd edition. Washington (DC): The International Bank for Reconstruction and Development/The World Bank; 2017.
  9. Shloim N, Edelson LR, Martin N, Hetherington MM. Parenting styles, feeding styles, feeding practices, and weight status in 4–12 year-old children: a systematic review of the literature. *Front Psychol*. 2015;6:1849.
  10. Wood AC, Blissett JM, Brunstrom JM, Carnell S, Faith MS, Fisher JO, et al. Caregiver influences on eating behaviors in young children: A scientific statement from the American Heart Association. *J Am Heart Assoc*. 2020;9(10):e014520.
  11. Quah PL, Chun J, Fries LR, Chan MJ, Aris IM, Lee YS, et al. Longitudinal analysis between maternal feeding practices and body mass index (BMI): a study in Asian Singaporean preschoolers. *Front Nutr*. 2019;6:32.
  12. Koletzko B, Bhatia J, Bhutta ZA, Cooper P, Makrides M, Uauy R, Wang W, editors. *Pediatric nutrition in practice*. 2<sup>nd</sup> ed. Germany: Karger Medical and Scientific Publishers; 2015.
  13. American Academy of Pediatrics. Committee on Nutrition. *Pediatric nutrition*. In: Kleinman RE, Greer FR, editors. 7th ed. lK Grove Village, IL: American Academy of Pediatrics; 2013.
  14. Riany YE, Cuskelly M, Meredith P. Psychometric properties of parenting measures in Indonesia. *Makara Hubs Asia*. 2018;22(2):75–90.
  15. Varni JW, Burwinkle TM, Seid M, Skarr D. The PedsQL 4.0 as a pediatric population health measure: feasibility, reliability, and validity. *Ambul Pediatr*. 2003;3(6):329–41.
  16. Puti KS. Hubungan kejadian obesitas dengan kualitas hidup anak usia sekolah di sdn 30 Kubu dalam Kota Padang tahun 2017 [dissertation]. Padang: Universitas Andalas; 2017.
  17. Kusmiyati Y, Purnamaningrum YE, Nugrahaeni IK, Waryana W, Ronoadmojo S. The effect of malnutrition on the quality of life of children aged 2-4 in Indonesia. *Int J Sci Res Educat*. 2017;5(5):6425–30.
  18. Trisnani. Analysis of access and the use of social media by household and individual in Batu City, East Java. *J Komunikasi Media Informatika*. 2018;7(2):72–86.
  19. Heng PH, Soetikno N, Fahditia A. Peranan pola asuh orang tua terhadap kualitas hidup remaja perkotaan. *J Muara Ilmu Sosial Humaniora Seni*. 2020;4(2):550–61.
  20. Rezvan A, D'Souza L. Influence of parenting styles on mental health of adolescents. *European Online J Nat Social Sci*. 2017;6(4):667.
  21. Kusmiyati Y, Purnamaningrum YE, Nugrahaeni IK, Waryana W, Ronoadmojo S. The effect of malnutrition on the quality of life of children aged 2-4 in Indonesia. *Int J Sci Res Educat*. 2017;5(5):6425–30.
  22. Capanzana MV, Aguila DV, Gironella GM, Montecillo KV. Nutritional status of children ages 0–5 and 5–10 years old in households headed by fisherfolks in the Philippines. *Arch Public Health*. 2018;76:24.
  23. Khairy SA, Eid SR, El Hadidy LM, Gebril OH, Megawer AS. The health-related quality of life in normal and obese children. *Egyptian Pediatric Association Gazette*. 2016;64(2):53–60.
  24. Frontini R, Moreira H, Simões A, Gouveia MJ, Canavarro MC. Quality of life, parenting stress and parenting styles in pediatric obesity: A study with children/adolescents and their mothers [thesis]. Portugal: University of Coimbra; 2014.
  25. Sokol RL, Qin B, Poti JM. Parenting styles and body mass index: a systematic review of prospective studies among children. *Obesity Rev*. 2017;18(3):281–92.
  26. Pratiwi TD, Masrul M, Yerizel E. Hubungan pola asuh ibu dengan status gizi balita di wilayah kerja Puskesmas Belimbing Kota Padang. *J Kesehatan Andalas*. 2016; 1;5(3):661–5.