Relationship Between Educational Level and Maternal Age on The Nutritional Status Stunted Children

Essa Andaru Anugraheni[1], Siti Arifah[2]

[1]Dinas Kesehatan Kabupaten Boyolali, Provinsi Jawa Tengah
[2] Fakutas Ilmu Kesehatan Universitas Muhammadiyah Surakarta

Email corespondensi : siti arifah@ums.ac.id

Track Record Article

Accepted: 29 September 2024
Revised: 17 October 2024
Published: 30 November 2024

How to cite :
Anugraheni, E. A., & Arifah, S. (2024). Relationship Between Educational Level and Maternal Age on The Nutritional Status Stunted Children. *Contagion : Scientific Periodical of Public Health and Coastal Health*, 6(2), 1233–1242.

Abstract

The nutritional status of children, especially in infancy, is an important aspect in health development and growth. Factors such as education level and maternal age are thought to have an influence on children's nutritional status. This study aims to analyze the relationship between education level and maternal age with infant nutritional status at the Sawit 1 Health Center, Boyolali Regency. This study used a correlational method with a cross-sectional approach. The study was conducted at the Sawit 1 Health Center, Boyolali Regency, which was implemented in September 2024. The population in the study were all mothers who had children aged 6 months to 1 year at the Sawit 1 Health Center, Boyolali Regency. The study sample consisted of 25 mothers who had babies aged 6-12 months. Measurement of nutritional status was carried out by measuring the length and weight of the baby, while maternal demographic data were obtained through a questionnaire. Data analysis used the Pearson correlation test to see the relationship between variables. The results of the study showed that there was no significant relationship between the level of maternal education and the nutritional status of infants (r = 0.051; p-value = 0.807), and there was no significant relationship between the age of the mother and the nutritional status of infants (r = -0.082; p-value = 0.696). Thus, this study concluded that the level of education and age of the mother did not have a significant relationship with the nutritional status of infants in the study area. It is necessary to improve nutritional education programs for mothers, strengthen the role of health cadres, and community-based counseling to increase awareness of the importance of nutrition for infants.

Keywords: Education, Age, Nutritional Status, Children, Stunting

INTRODUCTION

Infant nutritional status is an important aspect that should be considered by all parents. Good nutritional status is achieved when the body receives adequate nutrition. Conversely, a lack of nutrition can lead to nutritional problems, while an excess of nutrition can also pose health risks. The period from 6 months to 1 year is a critical phase that requires special attention to nutritional status. Nutritional deficiencies during the first year of life can result in delays in physical and mental development (Okarniatif et al., 2021)

Malnutrition can lead to growth and developmental disorders in infants, a decline in immune function, health problems, as well as an increased risk of disability and infant mortality. Poor nutrition also negatively impacts children's physical growth and cognitive abilities. To date, efforts to prevent nutritional problems in infants have been primarily focused on medical solutions without taking into account the social and cultural influences within the community (Minkhatulmaula et al., 2020).

According to the World Health Organization (WHO), around 161 million children under five experience nutritional problems, with 51 million of them experiencing malnutrition, which causes 2.8 million deaths and micronutrient deficiencies in 2 billion people (WHO, 2014). The Global Nutrition report noted that the prevalence of wasting (8%) reached 52 million toddlers, stunting (23%) 115 million toddlers, and overweight (6%) 4 million toddlers. The prevalence of underweight in 2016 showed the highest number in Southeast Asia (26.9%), followed by Africa (17.3%) and the Eastern Mediterranean (13%). Globally, the prevalence of children under five who are underweight reached 14% (94.5 million) (WHO, 2018).

According to the 2022 Indonesia Nutritional Status Survey (SSGI) by the Ministry of Health, the prevalence of stunting in Indonesia is 21.6%, wasting 7.7%, underweight 17.1%, and overweight 3.5%. In Central Java Province, the stunting rate is 20.8%, wasting 7.9%, underweight 17.6%, and overweight 3.2%. In Boyolali Regency, stunting is recorded at 20.0%, wasting 7.4%, underweight 17.5%, and overweight 3.3%. This data shows a 2.8% decrease in malnutrition cases across Indonesia (Kemenkes, 2022)

Good and optimal nutritional status is achieved when the body receives adequate nutrients and is able to utilize them effectively. This positively influences physical growth, cognitive development, work capacity, and overall health. A deficiency of essential nutrients in the body can lead to poor nutritional status. To prevent nutritional imbalances, it is important to meet nutritional needs based on the principles of balanced nutrition, as regulated in the Indonesian Health Law number 36 of 2009, known as the "balanced nutrition pyramid" (Yohana et al., 2021).

According to the Ministry of Health, malnutrition occurs when the body does not receive sufficient nutrients to meet the basic needs for growth, development, and bodily functions. In infants, this condition is highly dangerous as this period is a critical phase for brain development, organ formation, and the development of the immune system (Kemenkes, 2022)

A higher level of maternal education facilitates access to information or messages related to nutritional status. Educated mothers tend to have a broader understanding, especially regarding infant nutritional status. Besides education, maternal age also plays a role in influencing a child’s nutritional status. As age increases, a mother's insight and mindset develop, including her understanding of infant nutrition. Age also affects a person's ability to comprehend and think (Prasetyo et al., 2023).

Based on research Shaputri et al., (2023), it states that there is a positive relationship between the level of maternal education and the nutritional status of children aged 1 year 6

months to 2 years. Education has a close relationship with the nutritional status of children because with a high level of education, mothers have good knowledge, understanding and sources of information in terms of nutritional fulfillment so that they can support mothers in providing good nutrition to children.

Research Hidayati (2018), shows that there is a relationship between age and nutritional status of toddlers. This is because mothers in the young age group have less experience in terms of paying attention to children's nutrition compared to middle-aged adults. The higher the age of the mother, the nutritional status of toddlers will also increase, and vice versa.

According to data from Health Center Sawit 1 Boyolali for the year 2024, there are 218 infants in the Sawit District. The 2022 Performance Report of the Boyolali Health Office indicated that there were 16 cases of malnutrition among toddlers (Dinkes Boyolali, 2022). This indicator achieved a 100% success rate as all affected infants received appropriate care and monitoring, both during and after treatment, either as outpatients or inpatients. Additional actions included providing counseling and conducting hemoglobin examinations to prevent stunting during pregnancy.

Based on a preliminary survey at the Sawit 1 Health Center, Boyolali Regency, it was found that the nutritional status of children, especially infants, is still a significant problem. Many mothers have limited knowledge about the importance of balanced nutrition for child growth and development. Although some mothers have realized the importance of nutrition, they still have difficulty in applying this knowledge in daily practice, which is influenced by their level of education. In addition, variations in maternal age also contribute to differences in how they provide proper nutritional intake for children. Lack of knowledge and the influence of maternal age have the potential to cause nutritional problems such as stunting and underweight in children, which have an impact on their long-term health and development. Therefore, this study aims to explore the relationship between maternal education level and age with infant nutritional status, in order to provide deeper insight into the factors that influence children's nutritional conditions.

METHODS

This study used a correlational design with a cross-sectional approach. This design was chosen to analyze the relationship between the variables of education level and mother's age with the nutritional status of toddlers at a certain point in time. This study was conducted at the Sawit 1 Health Center, Boyolali Regency, which was carried out in September 2024.

The population in this study were all mothers who had babies aged 6-12 months who visited the Sawit 1 Health Center. The sample was taken by total sampling. The Research Instrument was a Demographic Questionnaire to collect information about the level of education, age, and demographic background of the mother.

Nutritional Status Measurement was carried out by recording the baby's length and weight using the right measuring instrument. The weight index according to age (Weight/Age) and length according to age (Length/Age) will be used to determine the child's nutritional status (normal, underweight, stunting, or overweight) based on WHO standards.

Data collection was carried out by filling out a questionnaire by the mother concerned, followed by physical measurements of the baby at the Health Center. Researchers will ensure that all instruments are standardized and trained to carry out measurements. Data analysis in this study used the Pearson correlation test to determine the relationship between maternal education level and age with infant nutritional status. The significance level was set at $p < 0.05$. The results of the analysis will be presented in the form of tables and graphs to facilitate interpretation. This study has obtained ethical approval for health research, Faculty of Medicine, Muhammadiyah University of Surakarta with number 5328 / B.1 / KEPK-FKUMS / IX / 2024.

RESULTS

Table 1. Frequency Distribution of Characteristics of Mothers and Toddlers at the Sawit 1 Health Center, Boyolali Regency

Variable	Frequency	%
Mother's education level		
Elementary school	2	8.0
Junior high school	6	24.0
Senior high school	8	32.0
Higher Education	9	36.0
Mother's Age		
< 25 Years	2	8.0
26-30 Years	10	40.0
31-35 Years	5	20.0
>35 Years	8	32.0
Occupation		
Housewife	16	64.0
Employee	6	24.0
Entrepreneur	2	8.0
Teacher	1	4.0
Children's Age		

Variable	Frequency	%
6 Monts	3	12.0
7 Monts	1	4.0
8 Monts	2	8.0
9 Monts	4	16.0
10 Monts	1	4.0
11 Monts	2	8.0
12 Monts	12	4.0
Gender Children's		
Male	13	52 %
Female	12	48 %
Nutritional Status		
Malnutrition	4	16.0
Undernutrition	1	4.0
Good Nutrition	18	72.0
Overnutrition	2	8.0
Total	**25**	**100**

Based on Table 1. The results of the study on the characteristics of mothers as respondents show that most mothers (36%) are highly educated. Data on the mother's age shows that the largest age group is 26-30 years, with 10 respondents (40%) included in this category. The characteristics of respondents based on the mother's occupation show that the majority age group consists of 16 respondents (64%) who are housewives. The results of the study on the characteristics of the respondents' children show that most children are 12 months old (48%), and data based on gender shows that most are male, with 13 respondents (52%). Of the 25 respondents, 4 respondents (16%) are classified as malnourished, 1 respondent (4%) is classified as malnourished, 18 respondents (72%) are classified as well nourished, and 2 respondents (8%) are classified as overnourished.

Table 2. Relationship between Education Level and Mother's Age with Infant Nutritional Status at Sawit 1 Health Center, Boyolali Regency

Variable	Nutrition Status										p-value	r
	Malnutrition		Under nutrition		Good Nutrition		Over nutrition		Total			
	n	%	n	%	n	%	n	%	n	%		
Education												
Elementary school	0	0.0	0	0.0	2	8.0	0	0.0	2	8.0		
Junior high school	1	4.0	1	4.0	4	16.0	0	0.0	6	24.0		
Senior high school	1	4.0	0	0.0	6	24.0	1	4.0	8	32.0	0,051	0,807
Higher Education	2	8.0	0	0.0	6	24.0	1	4.0	9	36.0		
Total	**4**	**16.0**	**1**	**4.0**	**18**	**72.0**	**2**	**8.0**	**25**	**100**		
Age												
< 25 years	0	0.0	0	0.0	2	8.0	0	0.0	2	8.0		
26-30 years	1	4.0	1	4.0	7	28.0	1	4.0	10	40.0		
31-35 years	1	4.0	0	0.0	4	16.0	0	0.0	5	20.0	-0.082	0,696
>35 years	2	8.0	0	0.0	5	20.0	1	4.0	8	32.0		
Total	**4**	**16.0**	**1**	**4.0**	**18**	**72.0**	**2**	**8.0**	**25**	**100**		

Based on Table 2. Correlation analysis revealed the relationship between Maternal Education Level and Maternal Age on infant Nutritional Status. The correlation between

Maternal Education Level and Maternal Age was 0.027, indicating a very weak and insignificant relationship (p-value 0.899). The correlation between Maternal Education Level and Nutritional Status was 0.051, indicating a weak positive relationship that was also insignificant (p-value 0.807). In addition, the correlation between Maternal Age and Nutritional Status was -0.082, reflecting a weak negative relationship that was also insignificant (p-value 0.696). The analysis involved a sample size of 25, indicating no statistically significant relationship between the variables tested. Therefore, this study did not identify a relationship between education level or age and nutritional status, although there was a weak trend observed between certain pairs of variables.

DISCUSSION

The nutritional status of toddlers is an important thing that every parent should know. The need for more attention to the growth and development of children under five years of age is based on the fact that malnutrition during this golden period is irreversible or cannot be recovered, while malnutrition can affect children's brain development (Sholikah et al., 2017). The lack of nutrients absorbed by the body results in susceptibility to disease because nutrition has a major influence on the body's immunity. Nutrition not only affects the health of the body, but can also affect intelligence, if the nutrients needed by the brain are not fulfilled, the brain will experience an influence so that it cannot develop (Sibagariang, 2019).

Based on the analysis results, it is known that the respondent characteristics based on education level in this study indicate that the most common category is higher education, with 9 respondents (36%). It can be concluded that the majority of mothers in this area have a higher education level, while the least common category is elementary school, with 2 respondents (8%). The level of education is a factor that affects a child's nutritional status; mothers with higher education tend to have a better understanding of their child's nutritional needs. This aligns with previous research, which showed that mothers of toddlers at Posyandu Abung Timur, within the service area of Puskesmas Bumi Agung in North Lampung Regency, generally have a high level of education (Sutrisno et al., 2023).

The age characteristics of the respondents reveal that the predominant age group in this study is 26-30 years, comprising 10 respondents (40%). This indicates that the majority of respondents (mothers) in this area are aged 26-30 years, while the lowest age group is under 25 years, with 2 respondents (8%). This finding is not consistent with previous research that suggests maternal age influences toddler nutritional status, indicating that pregnant women aged 35 years are at risk of having infants with poor nutrition. The age at marriage also affects

the mother's psychology regarding her readiness to care for the pregnancy and child (Rahma et al., 2020).

Based on the analysis results, the majority of respondents based on occupation are housewives, totaling 16 people (64%). This finding contrasts with a prior study that identified a link between the mother's occupation and the nutritional status of children aged 6-24 months at the Banda Sakti Health Center in Lhokseumawe City, where the majority of mothers, totaling 76 respondents (84.4%), were not employed. A mother's occupation also influences the pattern of complementary feeding. The employment status affects the mother's social interactions outside the home, which potentially exposes her to both positive and negative information from her surroundings (Zaidah et al., 2020).

The analysis results show that the characteristics of the respondents based on the age of the toddlers indicate that the highest age group is 12 months, with a total of 12 respondents (48%). This suggests that the majority of toddlers in the area are 12 months old, while the least number of respondents are toddlers aged 6 to 11 months, with only 1 respondent (4%). Previous research indicates that from the first day of pregnancy until the age of 2, infants are particularly sensitive to their environment, requiring additional attention, especially concerning their nutritional needs. Failure to meet these nutritional requirements during this critical period can impede the child's growth and development (Fadillah et al., 2022). Based on the statistical analysis results, it is known that the gender characteristics of the respondents show that the majority are male, with 13 respondents (52%).

This study aligns with previous research that found that some children with stunting are male (Sudariyekti & Arifah, 2024). Although the majority are male, according to Amelia, the gender of toddlers does not influence the occurrence of stunting, as male toddlers have a 1.0 times higher tendency to experience stunting compared to female toddlers (Savita et al., 2020).

The correlation between Education Level and Nutritional Status is 0.051, indicating a moderate positive relationship. however, it is not significant (p-value 0.807). Based on these research results, there is no relationship between maternal education level and the nutritional status of stunted children. This contradicts the findings of a study by Tamim, which showed that education level has a significant relationship with nutritional status, as a mother's education level greatly influences her attitudes and ability to address various issues (Sutrisno & Tamim, 2023).

Data from the Central Statistics Agency in 2022 indicates a positive relationship between educational attainment and awareness of the importance of balanced nutrition for children. Mothers who have completed high school or higher education are more inclined to offer

nutritious foods, such as vegetables, fruits, and animal protein, compared to those with only a primary school education (BPS, 2022). A study by Purwaningsih & Rofiqoch in Central Java found that mothers with higher education are more active in participating in nutritional counseling activities organized by health centers. These activities not only provide knowledge but also enhance mothers' skills in planning healthy meal menus for their children (Purwaningsih et al., 2024)

The correlation between Maternal Age and Nutritional Status is -0.082, indicating a moderate negative relationship that is also not significant (p-value 0.696). The research results indicate no connection between maternal age and the nutritional status of stunted children. This is consistent with a study showing that mothers under 20 years or over 35 years (considered at-risk ages) are 3.927 times more likely to have toddlers with poor or inadequate nutritional status compared to those aged 20-35 years (low-risk age group). Maternal age remains an important factor affecting a child's nutritional status (Rahma et al., 2020).

According to the WHO in 2022, mothers who give birth at a very young age below 20 years or at an older age over 35 years are at a greater risk of complications during pregnancy and childbirth, which can subsequently impact their children's nutritional status. Data from the Health Office of Boyolali indicates that children born to mothers under 20 years of age have a higher prevalence of malnutrition compared to children born to mothers aged 20-35 years (Dinas Kesehatan Boyolali, 2023). This may be due to a lack of experience and knowledge in child care. Research by Sarwuna & Khoeriyah shows that mothers over 35 years tend to have more health issues, such as hypertension and diabetes, which can affect the health of their babies. Thus, it is crucial to focus specifically on this age group in maternal and child health initiatives (Sarwuna et al., 2024).

In this study, there are several limitations that may affect the research results. One of them is the number of respondents, as this study only includes 25 respondents, which influences the outcomes and leads to a lack of significant relationships among the studied variables. Future research could consider increasing the number of respondents to achieve more significant results.

CONCLUSIONS

No correlation exists between maternal education and age with the nutritional status of stunted children aged 6-12 months in the Puskesmas Sawit 1 area, Boyolali Regency. Out of

the 25 respondents, 36% of mothers have a higher education, and 40% are in the 26-30 age range. The results show that 72% of the infants have a good nutritional status.

This indicates that many other factors can contribute to children experiencing stunting. Therefore, it can be concluded that the factors contributing to stunting in the Puskesmas Sawit 1 area of Boyolali Regency do not stem from maternal education and age. This study included only 25 respondents, which affects the results and leads to a lack of significant relationships among the studied variables. Future research could consider increasing the number of respondents to obtain more significant results.

REFERENCE

BPS. (2022). Profil Kesehatan Ibu dan Anak. Jakarta : BPS.

Dinas Kesehatan Boyolali. (2023). *Profil Kesehatan Kesehatan Kabupaten Boyolali*. *Dinas Kesehatan Boyolali.*

Dinkes.Boyolali. (2022). *LKJIP Dinas Kesehatan Kabupaten Boyolali*. Dinas Kesehatan Boyolali.

Fadillah, N. A., Delima, A. A. A., Rahmadhani, R., Haruna, N., & Manda, I. (2022). Analisis Faktor Risiko Kejadian Stunting Pada Balita Usia 6 Bulan – 23 Bulan Di Puskesmas Pekkae Kecamatan Tanete Rilau Kabupaten Barru Tahun 2020. *Al-Iqra Medical Journal : Jurnal Berkala Ilmiah Kedokteran*, *5*(2), 88–100. https://doi.org/10.26618/aimj.v5i2.7937

Hidayati, R. (2018). *Status Gizi Anak Balita Di Desa Pleret Panjatan Kulon Progo* [Skipsi. Univeristas 'Aisyiyah Yogyakarta. Fakultas Ilmu Kesehatan]. http://digilib.unisayogya.ac.id/4417/1/Naskah Publikasi Rizkiana Hidayati %28201410201109%29-min.pdf

Kemenkes. (2022). Hasil Survei Status Gizi Indonesia (SSGI) 2022. Jakarta : Kementerian Kesehatan RI.

Minkhatulmaula, Pibriyanti, K., & Fathimah. (2020). *Faktor Risiko Kejadian Gizi Kurang Pada Balita di Etnis Sunda*. *2*(2), 41–48.

Okarniatif, & Mappedeceng, A. (2021). Konsep Dasar Ilmu Gizi. *Universitas Islam Negeri Alauddin*.

Prasetyo, Y. B., Permatasari, P., & Susanti, H. D. (2023). The effect of mothers' nutritional education and knowledge on children's nutritional status: a systematic review. *International Journal of Child Care and Education Policy*, *17*(1), 2–16. https://doi.org/10.1186/s40723-023-00114-7

Purwaningsih, R. T., & Rofiqoch, I. (2024). Tingkat Pengetahuan Ibu Pemberian Makan Bayi Dan Anak (PMBA) Dengan Status Gizi Baduta Usia 12-24 Bulan Di Desa Ajibarang Wetan Tahun 2024. *Jurnal Keperawatan Dan Kebidanan*, *7*(2), 135–148. https://doi.org/10.55173/nersmid.v7i2.180

Rahma, R. Y. D., Sholichah, F., & Hayati, N. (2020). Karakteristik Ibu Dan Status Gizi Balita Menurut Bb/U Di Desa Tambakan Kecamatan Gubug Kabupaten Grobogan Tahun 2019. *Journal of Nutrition College*, *9*(1), 12–19. https://doi.org/10.14710/jnc.v9i1.24914

Sarwuna, O., & Khoeriyah, S. M. (2024). Hubungan Pola Asuh dan Sanitasi Lingkungan dengan Kejadian Stunting Pada Balita di Kelurahan Sawahan. *Jurnal Kesehatan Samodra Ilmu (JKSI)*, *15*(01), 37–41. https://doi.org/10.55426/jksi.v15i01.300

Savita, R., & Amelia, F. (2020). Hubungan Pekerjaan Ibu, Jenis Kelamin, dan Pemberian Asi

Eklusif Terhadap Kejadian Stunting Pada Balita 6-59 Bulan di Bangka Selatan. *Jurnal Kesehatan Poltekkes Kemenkes Ri Pangkalpinang*, *8*(1), 1. https://doi.org/10.32922/jkp.v8i1.92

Shaputri, W. E., & Dewanto, N. E. (2023). Hubungan Antara Pendidikan Ibu Dengan Status Gizi Anak Usia 1 Tahun 6 Bulan Sampai 2 Tahun Di Rs Sumber Waras. *Hijp : Health Information Jurnal Penelitian*, *27*(2), 58–66. https://myjurnal.poltekkes-kdi.ac.id/index.php/hijp%0AHIJP

Sholikah, A., Rustiana, E. R., & Yuniastuti, A. (2017). Faktor - Faktor yang Berhubungan dengan Status Gizi Balita di Pedesaan dan Perkotaan. *Public Health Perspective Journal*, *2*(1), 9–18. https://journal.unnes.ac.id/nju/index.php/phpj/article/view/10993/6672

Sibagariang, E. E. (2019). *Kesehatan Reproduksi Wanita*. Jakarta: Trans Info Media.

Sudariyekti, A. W., & Arifah, S. (2024). Hubungan Pemberian Asi Ekslusif Dengan Tingkat Stunting Pada Balita Usia 1-3 Tahun. *Journal of Telenursing (JOTING)*, *6*(1), 113–120. https://doi.org/10.31539/joting.v6i1.8575

Sutrisno, S., & Tamim, H. (2023). Hubungan Tingkat Pendidikan dan Pengetahuan Ibu Tentang Gizi dengan Status Gizi pada Balita di Posyandu Abung Timur Wilayah Kerja Puskesmas Bumi Agung Kabupaten Lampung Utara Tahun 2020. *Jurnal Ilmu Medis Indonesia*, *2*(2), 77–83. https://doi.org/10.35912/jimi.v2i2.1513

WHO. (2014). *Countries vow to combat malnutrition through firm policies and actions*. WHO Communications Officer.

WHO. (2018). *Global nutrition policy review : 2016-2017 Country progress in creating enabling policy environments for promoting healthy diets and nutrition (DRAFT)*.

Yohana, R. T., Lina, D. A., & Sada, R. (2021). Analisis Asupan Zat Gizi Terhadap Status Gizi Balita. *Faletehan Health Journal*, *8*(2), 92–101. https://doi.org/10.33746/fhj.v8i02.191

Zaidah, N., A, M. G. F., & W, I. H. (2020). Hubungan Karakteristik Ibu Terhadap Status Gizi Balita di Wilayah Puskemas Imbanagara Kabupaten Ciamis. *Journal GEEJ*, *7*(2), 355–366. https://doi.org/10.33024/mnj.v6i1.12849