



Risk Factors of Stunting in Posyandu Serasih Puskesmas Ciptodadi Musi Rawas

¹Okti Susilawati, ²Nurcholid Umam K, ³Dewi Yuniasih*

Email (Corresponding Author): *dewi.yuniasih@med.uad.ac.id

¹Student of Medical Study Program, Faculty of Medicine, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

²Department of Pediatrics, Faculty of Medicine, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

²Director of Medical Services at PKU Muhammadiyah Hospital, Yogyakarta, Indonesia

³Department of Public Health, Faculty of Medicine, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

ARTICLE INFO

ABSTRACT

Article history

Received 16 Sept 23

Revised 17 Oct 23

Accepted 18 Oct 23

Keywords

Posyandu
risk factors
stunting
toddlers

(consist of 3 to 5 keywords)

Stunting is a growth failure in children caused by chronic malnutrition for a long time. The average prevalence of stunting in Indonesia from 2005 to 2017 was 36.4% and ranked third in Southeast Asia. The stunting prevalence in South Sumatra province reached 28.98% in 2019. The study was carried out to determine the factors influencing stunting in Serasih integrated healthcare center Ciptodadi Public Health Center Musi Rawas district. The study used a descriptive observational method with data collection through primary and secondary data. It was conducted from October to November 2021 at Serasih Integrated Healthcare Center Ciptodadi Public Health Center Musi Rawas district. The populations were toddlers in Serasih integrated healthcare center with samples of 37 stunting toddlers meeting the inclusion criteria. The analysis used was univariate and presented a frequency distribution table. From the entire population, 40.2% of toddlers suffered from stunting with males (75,7%) and females (24,3%). In addition, stunting toddlers owned a normal birth weight (91.9%) and the highest education level of mothers was senior high school (64.9%). Furthermore, stunting toddlers did not get exclusive breastfeeding (56.8%) as well the average of feeding pattern for stunting toddlers (91.9%). The conclusion is that the biggest factors influencing stunting were male toddlers, mothers with the highest education level of senior high school, and toddlers who did not get exclusive breastfeeding.

This is an open access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



INTRODUCTION

Stunting is a growth and development disorder in children caused by chronic malnutrition for a long time so that children have a height that is less than their age ¹. The problem of stunting

is still a common problem in children in developing countries such as Indonesia². Globally, the prevalence of stunting is 22.9%². According to the World Health Organization (WHO), in 2005-2017 Indonesia was ranked third in Southeast Asia with a stunting prevalence of 36.4%³. Meanwhile, 2018 and 2019 suffered a decline of 30.8% and 27.67%. However, this figure has not reached the WHO standard, namely a 20% reduction in stunting. South Sumatra is one of the provinces with a high incidence of stunting in Indonesia, with a prevalence of 28.98%⁴.

Stunting is caused many factors, including direct factors and indirect factors. Direct factors such as infectious disease and indirect factors such as environmental, educational, economic, socio-cultural, occupational and health service facilities⁵. Parents have an important role in completely nutritional intake⁶. Usually, parents who have higher education will better understand good nutritional intake during pregnancy or after childbirth³. Other risk factors that can cause stunting are gender and children who are not exclusively breastfed. Children who are not exclusively breastfed by their mothers will have a low immune system, with this the child can be more susceptible to various diseases, including infectious diseases, so the child will be more at risk of stunting⁷. The coverage of babies who get breast milk in Indonesia is still at 61.33%, which indicates that education still has to be improved³.

Based on research in Nigeria, it was found that 63% of stunted children live in rural areas and 37% live in urban areas⁸. This is due to inadequate access to health care in rural areas⁹. Based on a preliminary study conducted by researchers at the Ciptodadi health center on May 29, 2021, it was found that the incidence of stunting at the Ciptodadi health center per year suffered an increase in cases, in 2018 there were 92 cases, in 2019 it decreased, namely 59 cases, and in 2020 there were 172 cases. The high incidence of stunting in Indonesia, especially in rural areas and also the many factors that can increase the incidence of stunting, made researchers interested in conducting research on the description of the factors that influence the incidence of stunting in the Serasih posyandu in the Ciptodadi health center area, Musi Rawas regency.

METHODS

Research Design

This research is quantitative research with a descriptive observational approach. Data collection in this study used secondary data and primary data. Secondary data is in the form of data on stunting toddlers in the registration list of the Ciptodadi Health Center, Musi Rawas. Meanwhile, the primary data is the data obtained through filling out questionnaires related to exclusive breastfeeding and feeding patterns. The research protocol was reviewed by the Health

Research Ethics Committee, Ahmad Dahlan University. The research protocol has been declared ethically appropriate with an ethical certificate no. 012109063 by the ethics committee.

Population and Sample

The population in this study was all stunting toddlers in the Serasih Posyandu area of the Ciptodadi Health Center, Musi Rawas regency in 2021. There were 38 toddlers who were stunted in Serasih. After that, the sample was selected using the purposive sampling method with inclusion and exclusion criteria. The inclusion criteria used are toddlers who are stunted at serasih posyandu with the age of 12-59 months. Exclusion criteria are Parents or families of toddlers who are not willing to fill out the questionnaire and do not sign the consent sheet. From these criteria, 37 samples were obtained.

Research Instrument

This study used a questionnaire containing respondents' characteristics such as gender, age, occupation and birth weight. In addition, there is a questionnaire containing several written questions related to exclusive breastfeeding and feeding patterns. The exclusive breastfeeding questionnaire has 8 question items. The feeding pattern has 15 question items in the form of a likert scale and each question has an answer choice with a score of 1 to 4. For answers never have a score of 1, answers are rarely 2, answers are often 3 and very often 4. The 15 questions on the questionnaire contained questions about the type of food (questions 1 to 5), the number of servings given (questions 6-10), and the feeding schedule (11 to 15).

Data Analysis

The data analysis used is univariate analysis. Analysis of this type is used to identify characteristics of the variable sex, birth weight, maternal education, exclusive breastfeeding and feeding pattern.

RESULTS

Stunting

This study used 37 respondents who suffered stunting with an age range of 12-59 months at the Serasih Posyandu in the Ciptodadi Health Center area in 2021. The following is an overview of stunting toddlers in the Serasih posyandu in the Ciptodadi Health Center area based on gender, maternal education, birth weight, exclusive breastfeeding, and feeding patterns.

Table1 The Description of Toddlers who Suffered Stunting in Posyandu Serasih Ciptodadi Health Center Area, Musi Rawas Regency

	Frequency (n)	Percentage (%)
Stunting	37	40,2
No stunting	55	59,8
Total	92	100

Based on table 1, 40.2% of toddlers were stunted.

Table2 Gender Description in Stunting Toddlers in Posyandu Serasih, Ciptodadi Health Center Area, Musi Rawas Regency

Gender	Frequency	Percentage (%)
Man	28	75.7%
Woman	9	24.3%
Total	37	100%

Based on table 2, it shows that 75.7% of male toddlers are stunted and 24.3% of female toddlers are stunted.

Table3 The Description of Birth Weight in Stunting Toddlers in Posyandu Serasih, Ciptodadi Health Center Area, Musi Rawas Regency

Birth Weight	Frequency (n)	Percentage (%)
Normal birth weight	34	89,2%
Low birth weight	3	8,1
Total	37	100

Based on table 3, stunting mostly occurs in children with normal birth weight (89.2%).

Table4 The Description of Maternal Education from Stunting Toddlers in Posyandu Serasih, Ciptodadi Health Center Area, Musi Rawas Regency

Maternal Education	Frequency (n)	Percentage (%)
Elementary (Elementary-Junior High School)	9	24,3
Intermediate (High School)	24	64,9
High (University)	4	10,8
Total	37	100

Based on table 4, it shows that 64.9% of stunted toddlers have mothers with secondary or high school education.

Table5 The Description of Exclusive Breastfeeding for Stunting Toddlers in Posyandu Serasih, Ciptodadi Health Center Area, Musi Rawas Regency

Exclusive breastfeeding	Frequency (n)	Percentage (%)
Exclusive breastfeeding	16	43,2
Not exclusive breastfeeding	21	56,8
Total	37	100

Based on table 5, 56.8% of stunted toddlers did not get exclusive breastfeeding.

Table 6 The Description of Feeding Patterns for Stunting Toddlers in Posyandu Serasih, Ciptodadi Health Center Area, Musi Rawas Regency

Feeding Pattern	Frequency (n)	Percentage (%)
True	34	91,9
Imprecise	3	8,1
Total	37	100

Based on table 6, it shows that 91.9% of stunted toddlers have the right feeding pattern.

DISCUSSION

Stunting

Based on the results of the study, it was found that 40.2% of toddlers suffered stunting in the Serasih posyandu in the Ciptodadi health center area, Musi Rawas regency. This figure is still quite high when compared to the score by WHO, namely reducing stunting by 20%¹⁰. Previous research at the Padang Gelurur health center stated that stunting events were related to economic status and a history of exclusive breastfeeding¹¹. Based on data, the percentage of poor people in Musi Rawas in 2020 reached 13.50%, which is still above the provincial value of 12.66%¹². Families with low economic status will have difficulty in obtaining nutritious foodstuffs, so that children's nutritional intake is not met. This is associated with the family's lack of purchasing power for varied foods¹³. In this study, it was found that the majority of mothers did not give exclusive breastfeeding to their babies. With this, researchers suspect that the possibility of high stunting rates in Musi Rawas is related to the end of economic status, as well as children who are not given exclusive breastfeeding by their mothers. Because exclusive breastfeeding is a direct cause factor for stunting. With this, to overcome this, the role of the government and various parties is needed to reduce the incidence of stunting. This is because reducing the stunting rate is one of the manifestations of goal 2 of the 17 Sustainable Development Goals (SDGs), namely eliminating hunger, improving nutrition, achieving food security and improving sustainable agriculture¹⁴.

Gender

The results showed that 75.7% of stunting events occurred in men. While 24.3% occurs in women. This can occur due to differences in nutritional needs between boys and girls¹³. Based on previous research, it is stated that men have a higher risk of malnutrition when compared to girls¹⁵. This is due to the larger muscle size of men, so the necessary energy intake will be more¹⁶. In addition, the physical activity of boys is more than girls, so in this case the energy that comes out will be more, while men generally have a lot of muscle tissue compared to women

who have a lot of fat tissue. When viewed from the metabolism, muscle tissue is more active than fat tissue, and the required energy intake will be more ¹⁷. If this energy intake is not fulfilled in the long term it can cause growth disorders of the child¹⁸.

A similar study at PKU Muhammadiyah Surakarta found that stunting was more suffered by boys than girls. However, after analysis, it turned out that the sexes with stunting events did not have a relationship, this was because the nutritional problems that occurred could be due to several other factors that were not studied ¹⁹. Another study stated that women are more at risk for stunting than men, this is due to the habit of girls who consume less food ²⁰.

Stunting in this study was greater in men than in woman, this can be due to less parenting from parents, because based on the results of the questionnaire obtained, the majority of male stunting toddlers were not given exclusive breastfeeding with this researcher assumed to be the cause of the incident.

Birth Weight

The results showed that 91.9% of stunted toddlers had a history of normal birth weight, and only 8.1% had a low birth weight. Similar studies state that 76.5% children who have a history of normal birth weight can become stunted, this is because children who have a normal birth weight, if during the growth process lacks balanced nutritional intake, it can cause a toddler who was originally normal to become a stunted toddler ²¹. In contrast to the research of Rendraduhita (2017)²², which states that (55.6%) stunting events occur most in children who have a history of low birth weight.

Low birth weight (LBW) in infants can continue to be toddlers with poor nutrition, if the nutritional intake is not sufficient or there is no improvement in nutrition. This condition can also affect the immune system that is not optimal, so that children easily suffered health problems such as susceptible to disease, which can later affect growth and development in children¹⁷. However, in LBW babies if the first 6 months of life are able to catch up with their growth, then it will have a great chance of achieving a normal height. With this child who has a history of BBLR, if the food intake is sufficient and the environmental conditions are favorable for the growth and development of children, then BBLR does not affect the growth of the child ²³.

Based on this study, it is possible that the cause of toddlers suffered stunting in babies who have a normal birth weight, due to insufficient parenting. Insufficient parenting includes an exclusive breastfeeding and feeding pattern. From the information and data obtained through filling out the feeding pattern questionnaire, it was found that 39.5% of mothers rarely fed with a frequency of 3 times a day, even though the frequency of eating is one of the factors that play a role in determining the amount of nutritional intake consumed²⁴.

Maternal Education

The results showed that the education level of mothers who have stunted toddlers is mostly the level of secondary or high school education (64.9%). The level of maternal education affects the growth and development of children. Mothers with a high level of education will be able to make better food choices in terms of quality and quantity⁵.

A similar study at the Kramatwatu Serang health center stated that most mothers of stunting toddlers have a high school education level (39%)²¹. The level of education corresponds to the level of knowledge. So that mothers who have a high level of education will have a better level of knowledge and understand more about the intake of food that must be consumed by children during their growth and development period²⁵. Based on the information obtained by researchers when filling out the questionnaire, 11 respondents were found who gave complementary food before their age, and 56.8% did not give exclusive breastfeeding to their children and the average of these respondents had a high school education. So, in this case it is necessary to increase parental knowledge, especially regarding how to give the right complementary food and exclusive breastfeeding to babies up to 6 months of age.

Exclusive Breastfeeding

The results showed that the majority of stunting toddlers at serasih posyandu did not get exclusive breastfeeding (56.8%). Meanwhile, stunting toddlers who get exclusive breastfeeding are (43.2%). Exclusively mother's milk is considered a good food for babies in the first 6 months for proper growth and development. Breast milk contains several important elements such as immunoglobulin, T lymphocytes, enzymes such as lysozyme and phagocyte cells whose content is not found in substitutes for breast milk and can provide a protective effect²⁶. In babies who are not exclusively breastfed will have weak immunity, so the child will be susceptible to disease.

Based on data obtained by researchers, the average respondent did not give exclusive breastfeeding to their babies because the milk did not come out after giving birth, so the mother gave formula milk to her baby. Meanwhile, research in Ngawi, shows that formula milk has a 5.45 times risk of suffering poor growth in children²⁶. Another factor according to researchers why mothers do not give exclusive breastfeeding is the mother's work. Based on the information obtained by mothers who have stunting toddlers at the Serasih posyandu, some of them work as farmers so that they entrust their babies to other families, where this situation can cause mothers to be unable to be side by side with children. The mother's work has a connection with parenting. Mothers who work outside the home will pay less attention to their children, but on

the other hand, mother's work can contribute to family income, because work is an important factor in meeting food needs in terms of food quality and quantity ²⁷.

Feeding Pattern

The results showed that the majority of stunting toddlers in serasih posyandu had the right feeding pattern (91.9%). Meanwhile, for improper feeding patterns, amount (8.1%). The results of this study are similar to research at the Tambak Wedi Health Center in Surabaya, where 70.6% of toddlers who have the right feeding pattern remain stunted toddlers ²⁸.

The proper feeding pattern is feeding according to the type of food, the amount of food and the feeding schedule given²⁸. There were 3 respondents who did not have the right feeding pattern, as well as 6 respondents who did not have a meal schedule and 14 respondents who rarely gave food 3 times per day. Research at the Klecorejo Madiun Health Center showed that toddlers who ate less than 3 times a day had a 1.52 times greater risk of stunting than in toddlers who were fed ≥ 3 times a day²⁹. Malnutrition in children occurs due to an imbalance between the intake or nutrients obtained from food and the nutritional needs obtained from the feeding pattern given to the mother. And if this imbalance occurs, it will affect the child's growth and development ³⁰. According to researchers, there were respondents who did not make food schedules in this study related to the work of parents. Based on the information obtained by the majority of parents working as farmers so that they will have less attention to their children, mothers who work outside the home will pay less attention to their children, which will affect their eating schedule and food intake. Feeding patterns this study could not describe the nutritional status of children. Therefore, the feeding pattern in this study only describes the current state of toddlers. Meanwhile, the nutritional status of stunting toddlers is an accumulation of previous eating habits, and eating habits on certain days ²⁸.

CONCLUSION

Based on this study, it was found that 40.2% of toddlers were stunted in Posyandu Serasih, where the majority occurred in men (75.7%). Meanwhile, based on birth weight, the majority of stunted toddlers have a normal birth weight (91.9%). Maternal education in stunting toddlers is mostly secondary education (64.9%). 56.8% of stunted toddlers in Serasih posyandu are not given exclusive breastfeeding, and 91.9% have the right feeding pattern. Our suggestion It is necessary to conduct further research on the relationship related to factors that can influence the incidence of stunting. Further research can be considered to conduct interviews directly with respondents.

REFERENCES

1. Rakotomanana H, Gates GE, Hildebrand D, Stoecker BJ. Determinants of stunting in children under 5 years in Madagascar. *Matern Child Nutr.* 2017;13(4). doi:10.1111/mcn.12409
2. Indah Budiastutik, Muhammad Zen Rahfiludin. Faktor Risiko Stunting pada anak di Negara Berkembang. *Amerta Nutr.* 2019;3(3):122-129. doi:10.2473/amnt.v3i3.2019.122-129
3. Kemenkes RI. Buletin Stunting. *Kementerian Kesehat RI.* 2018;301(5):1163-1178.
4. Kemenkes RI. *Profil Kesehatan Indonesia Tahun 2019.* Vol 42.; 2019.
5. Atikah R, Yulidasari F, Octaviani putri A, Anggraini L. *Study Guide-Stunting Dan Upaya Pencegahannya.*; 2018.
6. Abeway S, Gebremichael B, Murugan R, Assefa M, Adinew YM. Stunting and Its Determinants among Children Aged 6-59 Months in Northern Ethiopia: A Cross-Sectional Study. Published online 2018. doi:10.1155/2018/1078480
7. Rosha BC, Hardinsyah, Baliwati YF. Analisis Determinan Stunting Anak 0-23 Bulan pada Daerah Miskin di Jawa Tengah dan Jawa Timur. *J gizi dan makanan.* 2012;35(1):34-41.
8. Akombi BJ, Agho KE, Hall JJ, Merom D, Astell-Burt T, Renzaho AMN. Stunting and severe stunting among children under-5 years in Nigeria: A multilevel analysis. Published online 2017. doi:10.1186/s12887-016-0770-z
9. Beal T, Tumilowicz A, Sutrisna A, Izwardy D, Neufeld LM. A review of child stunting determinants in Indonesia. *Matern Child Nutr.* 2018;14(4). doi:10.1111/mcn.12617
10. KKBPMDK. *Strategi Nasional Percepatan Pencegahan Anak Kerdil.*; 2018.
11. Sulung N, Maiyanti H, Nurhayati. Kajian Penyebab Stunting Anak Usia 24 - 59 Bulan Diwilayah Kerja Puskesmas Padang Gelugur Kabupaten Pasaman. *J Pembang Nagari.* 2020;5(1):1. doi:10.30559/jpn.v5i1.165
12. BPS S. Perkembangan Beberapa Indikator Strategis Sosial Ekonomi Sumatera Selatan 2021. *Badan Pus Stat Provinsi Sumatera Selatan.* Published online 2021:31.
13. Dalimunthe SM. Gambaran Faktor-Faktor Kejadian Stunting Pada Balita Usia 24-59 Bulan Di Provinsi Nusa Tenggara Barat Tahun 2010. *J Kesehat Masy Univ Islam Negeri Syarif Hidayatullah.* Published online 2015:1-155.
14. Haskas Y. Gambaran Stunting di Indonesia. *J Ilm Kesehat Lit Rev.* 2020;15(2):154-157.
15. Rahayu PP, Kesehatan FI, Yogyakarta UR, Kesehatan FI, Yogyakarta UR, Korespondensi P. Perbedaan Risiko Stunting Berdasarkan Jenis Kelamin. *J Kesehat Respati Yogyakarta.* Published online 2020:135-139.
16. Pardede R. Faktor-Faktor Yang Mempengaruhi Kejadian Stunting Pada Balita Usia 24-59 Bulan Di Kecamatan Muara Kabupaten Tapanuli Utara Provinsi Sumatra Utara Tahun 2017. *J Thesis.* Published online 2017.
17. Nasution D, Nurdiati DS, Huriyati E. Berat badan lahir rendah (BBLR) dengan kejadian stunting pada anak. *J Gizi Klin Indones.* 2014;11(1):31-37.
18. F Angelina C, Aji Perdana A, Humairoh. Faktor Kejadian Stunting Balita Berusia 6-23 Bulan Di Provinsi Lampung. *J Dunia Kesmas.* 2018;7(2):1-2.
19. Setyawati VAV. Kajian Stunting Berdasarkan Umur dan Jenis Kelamin Di Kota Semarang. *7th Univ Res Colloquium 2018.* Published online 2018:834-838.
20. Muh Turmuzi Marta Cahya. Gambaran Kejadian Stunting Pada Balita Di Paud Wilayah Uptd Puskesmas Ungaran Kecamatan Ungaran Barat Kabupaten Semarang 2019. *J Kesehat Ngudi Waluyo.* Published online 2019:1-26.
21. Hidayat, Nurhayati A, Ismawati. Faktor-faktor kejadian stunting pada balita di wilayah kerja UPT Puskesmas kramatwatu kabupaten serang. *J Bimtas.* 2019;3(1):28-35.
22. Rendraduhita SA. Gambaran Balita Stunting Di Wilayah Kerja Puskesmas Wonosari Ii Gunungkidul Yogyakarta. *J Stikes.* 2017;87(1,2):149-200.
23. Dasantos PT, Dimiatri H, Husnah H. Hubungan Berat Badan Lahir dan Panjang Badan Lahir dengan Stunting pada Balita di Kabupaten Pidie. *AVERROUS J Kedokt dan Kesehat Malikussaleh.* 2020;6(2):29. doi:10.29103/averrous.v6i2.2649

24. Diana. Gambaran Riwayat Berat Badan Lahir Rendah (Bblr), Pola Makan, Tinggi Badan Ibu Dan Tinggi Badan Anak Kota Kendari. *J Kesehat Kendari*. 2018;53(9):1689-1699.
25. Ludong R, Putri D, Lubis U. The Correlation Between The Feeding Patterns And The Stunting Prevalence In Toddlers Aged 24-59 Months In The Working Area Of Lumbi-Lumbia Health Center'. *J Keperawatan Respati Yogyakarta*. Published online 2021:167-172.
26. Locitasari Y. Perbedaan Pertumbuhan Bayi Usia 0-6 Bulan Yang Diberi Asi Eksklusif Dengan Yang Diberi Susu Formula Di Kecamatan Ngawi. Published online 2016:1-23.
27. Asri Dewi NLM. Kejadian Stunting Pada Balita Usia 12-36 Bulan. *J Keperawatan Jiwa*. 2021;9(1):55-60.
28. Prakhasita RC. Hubungan Pola Pemberian Makan Dengan Kejadian Stunting pada Balita Usia 12-59 Bulan di Wilayah Kerja Puskesmas Tambak Wedi Surabaya. *J Keperawatan Airlangga*. Published online 2018:1-119.
29. Nurjanah LO. Faktor-faktor yang Berhubungan dengan Kejadian Stunting di Wilayah Kerja UPT Puskesmas Klecorejo Kabupaten Madiun Tahun 2018. *J Kesehat STIKES Bhakti Husada*. 2018;151(2):10-17.
30. Pujiati W, Nirnasari M, Rozalita. Pola Pemberian Makan Dengan Kejadian Stunting Pada Anak Umur 1-36 Bulan. *Menara Med*. 2021;4(1):28-35.