JoHMIS: Journal of Health and Midwifery Innovation Soepraoen
Journal homepage: johmis.itsk-soepraoen.ac.id
ISSN:
Vol. 1, No. 1, September 2025, Pp. 24-29

Original Research

Relationship Between Compliance With Fe Tablet Consumption and The Incidence Of Stunting

Anneke Budiman*[1], Rifzul Maulina*[2]
1. Chairperson of the Indonesian Midwives Association of North Minahasa Regency. Indonesia
2. Midwife Professional Education, Institute of Science and Health Technology, Dr. Soepraoen Hospital

* Corresponding author.
Rifzul Maulina
E-mail address:
rifzulmaulina@itsk-soepraoen.ac.id

Article Info
Keywords:
Compliance, Iron Tablets, Stunting

Abstract
Stunting is a serious nutritional problem in Indonesia, which can have long-term impacts on children's physical and cognitive development. Iron tablets are given to prevent anemia that can contribute to stunting. This study aims to explore the relationship between compliance with iron tablet consumption and stunting in children under five years of age. This type of study is an observational analytic with a case-control design. This study was conducted from February to October 2024. This study design used a case-control to study the causes of stunting during pregnancy. The number of samples used was 30 cases, while 30 control cases were selected by simple random sampling, the analysis used was the chi-square test. 22% of respondents who were not compliant with consuming Fe tablets experienced stunting. After the chi-square test was carried out in the Halsil test, the significant relationship between compliance with Fe tablet consumption and stunting was p (Sig) 0.004 (<0.05). Efforts to improve compliance with Fe tablet consumption must involve various parties, including the government, health workers, and the community, to create an environment that supports optimal child growth starting from pregnancy

1. Introduction

Stunting is a condition in which a child's physical growth is hampered due to chronic malnutrition, especially in the first thousand days of life, namely from the womb to the age of two years. According to data from WHO, stunting can be identified through measuring height for age, where children whose height is below a certain standard deviation are considered stunted. (WHO, 2018). In Indonesia, the prevalence of stunting reached 27.67% in 2021, indicating that one in four children experience this serious growth problem. (Kemenkes, 2022)

Compliance with iron tablet consumption in pregnant women is very important to prevent anemia and support optimal fetal growth. Anemia in pregnant women can cause serious complications, including stunting in children. According to research conducted by Titaley et al. (2019), Only about 40% of pregnant women comply with the recommendation to consume iron tablets regularly. This low compliance is often caused by a lack of knowledge about the importance of iron, the side effects of tablets, and accessibility to the supplement. (J et al., 2018; Nur Apriningtyas et al., 2019; Titaley et al., 2019)

Based on data from the 2022 Indonesian Nutritional Status Study, the stunting rate in Indonesia among toddlers reached 21.6%. The prevalence of stunting in North Sulawesi reached 20.5% while in North Minahasa Regency the prevalence of stunting reached 20.5%.(Kemenkes, 2022). Stunting is not only an individual health problem, but also a serious public health issue. Stunting is closely related to quality of life and productivity in the future. According UNICEF (2021), Children who

experience stunting have a higher risk of experiencing learning difficulties, reduced productivity, and poor health in adulthood. Therefore, the justification for addressing the problem of stunting is very important. (Kemenkes RI, 2020)

Data from WHO shows that children who experience stunting have a higher risk of death from infectious diseases and other complications. (World Health Organization, 2021). Therefore, stunting prevention should be a priority in public health programs, especially in developing countries like Indonesia. (Maulina et al., 2022; Rahmawati et al., 2018)

The cause of stunting is a combination of various interacting factors. The first and most common factor is malnutrition, both during pregnancy and during the child's growth period. According to WHO, malnutrition can be caused by an unbalanced diet, lack of access to nutritious food, and low parental knowledge about nutrition (World Health Organization, 2021). In Indonesia, many families still rely on low-nutrient staple foods, such as rice, without paying attention to adequate protein, vitamin and mineral intake. (Abdillah, 2022; Gupta & Santhya, 2020; Trihono, 2015)

In addition to malnutrition, repeated infections are also a major cause of stunting. Children who frequently experience infections, such as diarrhea and respiratory infections, will experience poor nutrient absorption, so that their growth is hampered. Data from the Ministry of Health shows that around 20% of children in Indonesia experience diarrhea at least once a year, which can contribute to stunting. (Udoh & Amodu, 2016)

The effects of stunting are very diverse and can affect individuals and society as a whole. Stunting directly affects a child's physical growth, where children who experience stunting will have a shorter height compared to their peers. According to research by Christian (2013), Stunting can result in a 20% decrease in a child's height by the age of five. This can continue into adulthood, where stunted individuals tend to have less than optimal height (Christian et al., 2013).

The long-term impact of stunting is also seen in children's cognitive development. Children who experience stunting are at higher risk of experiencing developmental delays and learning difficulties in school. Several studies have shown that stunted children have lower academic performance compared to children who grow well. This can result in lower levels of education and skills in adulthood, which in turn affects employment opportunities and income. (Bharti et al., 2019; O et al., 2019)

Stunting is also associated with poor health in adulthood. Individuals who experience stunting have a higher risk of experiencing various health problems, such as diabetes, hypertension, and heart disease. This shows that stunting is not only a child health problem, but can also have an impact on public health as a whole. (Maulina et al., 2024; Nita retnasari, 2011)

Consuming iron tablets during pregnancy has significant benefits for the health of the mother and fetus. First, iron is essential for the formation of hemoglobin, which functions to transport oxygen throughout the body. Anemia caused by iron deficiency can cause fatigue, weakness, and serious complications during pregnancy, including the risk of premature labor (Charla et al., 2019)

By consuming iron tablets regularly, pregnant women can prevent anemia and maintain their health during pregnancy. Adequate iron intake during pregnancy contributes to optimal fetal growth and development. Research shows that babies born to mothers with anemia have a higher risk of stunting and other developmental problems. (Beal et al., 2018; Zhang et al., 2013). By ensuring adequate iron intake, pregnant women can provide the nutrients needed for fetal growth, thereby reducing the risk of stunting in children.

2. Research Method

This type of research is observational analytic with a case-control design. This study was conducted from February to October 2024. This study design used a case-control to study the causes of anemia during pregnancy. The number of samples used was 30 cases, while 30 control cases were selected by simple random sampling to control confounding variables, with inclusion and exclusion criteria. The inclusion criteria in this study were pregnant women with TB> 145cm, pregnant women's age 20-35 years, normal BMI. The sampling technique in this study was simple random sampling for both case and control groups. The dependent variable is the incidence of stunting. The independent variable is compliance with Fe tablet consumption. The research instrument in this study used secondary data by looking at medical records, namely the mother's KIA book and cohort records at the health center. The analysis method used was univariate, bivariate with Chi-square.

3. Results and Discussion

3.1. Results

Table 1. Frequency Distribution of Respondents of Stunting Incidents

Dependent variabel	Frequensi (f)	Persen (%)
Stunting	30	50
Normal	30	50
Amount	**60**	**100%**

Table 1. Shows that half of the respondents had stunted babies and had normal babies (50%).

Table 2. Frequency Distribution of Respondents of Chronic Energy Deficiency (CED) Incidents

Independent variabel	Frequensi (f)	Persen (%)
Not obey	13	21,7
Obey	47	78,3
Amount	**60**	**100%**

Table 3. Relationship between compliance with consumption of Fe tablets and the incidence of stunting

Stunting							
Tablet Fe consumption	**Normal**		**Stunting**		**Amount**		***ρ (Sig)***
	f	**%**	**f**	**%**	**f**	**%**	
Obey	27	45	17	28	44	73	
Not obey	3	5	13	22	16	27	0.004
Total	30	50	30	50	60	100 %	

Table 3 shows that 22% of respondents who were not compliant in consuming Fe tablets experienced stunting. After the chi-square test was conducted in the Halsil test, the significant relationship between compliance in consuming Fe tablets and the incidence of stunting was p (Sig) 0.004 (<0.05).

This part provides a thorough discussion while also outlining the research findings. Results can be shown in tables, graphs, figures, and other formats that are simple for the reader to interpret (Boehm, 1984). There are various ways to break up the topic.

3.2. Discussion

Based on the research results, it was found that 22% of respondents who did not comply with consuming Fe tablets experienced stunting. Consuming iron tablets during pregnancy has significant benefits for the health of the mother and fetus. First, iron is essential for the formation of hemoglobin, which functions to transport oxygen throughout the body. Anemia caused by iron deficiency can cause fatigue, weakness, and serious complications during pregnancy, including the risk of premature birth. By consuming iron tablets regularly, pregnant women can prevent anemia and maintain their health during pregnancy (Suchdev et al., 2020).

Adequate iron intake during pregnancy contributes to optimal fetal growth and development. Research shows that babies born to mothers with anemia have a higher risk of stunting and other developmental problems. (McDonald et al., 2015). By ensuring adequate iron intake, pregnant women can provide the nutrients needed for fetal growth, thereby reducing the risk of stunting in children.

Consuming iron tablets can also improve the immune system of pregnant women. During pregnancy, the mother's immune system changes to protect the fetus, and iron plays an important role in maintaining the function of the immune system (Puspitaningrum et al., 2016). By taking iron tablets, pregnant women can increase their body's resistance to infection, which is an important factor in preventing stunting.

Iron tablets can also help reduce the risk of complications during labor. Pregnant women who are not anemic tend to have smoother labor and a lower risk of postpartum hemorrhage. This is important for the health of both mother and baby, and can reduce maternal and infant mortality rates (Maulina et al., 2024). Therefore, consumption of iron tablets should be part of routine antenatal care.

The cause of stunting is a combination of various interacting factors. The first and most common factor is malnutrition, both during pregnancy and during the child's growth period. According to WHO, malnutrition can be caused by an unbalanced diet, lack of access to nutritious food, and low parental knowledge about nutrition (Gupta & Santhya, 2020). In Indonesia, many families still rely on low-nutrient staple foods, such as rice, without paying attention to adequate protein, vitamin and mineral intake. (Trihono, 2015).

In this context, compliance with the consumption of iron tablets by pregnant women is one of the effective strategies to prevent stunting. By increasing iron intake, it is hoped that the health of mothers and children can be maintained, so that the risk of stunting can be minimized. Therefore, it is important to develop policies that support the provision and accessibility of iron tablets for pregnant women, especially in areas prone

Compliance with iron tablet consumption is very important in preventing stunting. Iron plays a role in the formation of hemoglobin and supports the development of body cells, including the brain. Several studies have shown that pregnant women who routinely consume iron tablets have a lower risk of giving birth to stunted babies compared to those who do not routinely consume iron tablets. These data indicate that nutritional interventions such as iron supplementation can contribute significantly to reducing the incidence of stunting. (Charla et al., 2019; Dewi et al., 2020; Mireku et al., 2020)

In addition, socioeconomic factors also play a role in compliance with iron tablet consumption. In areas with low levels of education, understanding of the importance of iron is often lacking, so that compliance with tablet consumption is low (Yunitasari et al., 2020). According to the World Health Organization (WHO), proper nutritional education can increase public awareness of the importance of iron supplementation in preventing stunting. (WHO, 2019).

The case in North Minahasa Regency shows that the iron supplementation program supported by the local government has succeeded in increasing compliance with iron tablet consumption among pregnant women and children. As a result, the stunting rate in the area has decreased from 40% to 25% in the last two years. (Dinas Kesehatan Minut, 2021). This shows that appropriate policies and community support can increase compliance and reduce the incidence of stunting.

4. Conclusion

Thus, the relationship between compliance with iron tablet consumption and stunting incidence is very close. Efforts to improve this compliance must involve various parties, including the government, health workers, and the community, to create an environment that supports optimal child growth.

References

APA (American Psychological Association) Style requirement for references in a paper is 15 minimum references. Reputable international journals or proceedings must be used as the primary references and a doi hyperlink must be included. All citations should point to the most relevant and recent sources. Using reference tools like Mendeley, references and citations are required. Please follow the reference writing instructions in this manual.

References

Abdillah, S. (2022). The Effect of Maternal and Child Factors on Stunting in Children Under Five Years in Rural Indonesia. *KnE Life Sciences*, *2022*, 813–822–813–822. https://doi.org/10.18502/KLS.V7I2.10382

Beal, T., Tumilowicz, A., Sutrisna, A., Izwardy, D., & Neufeld, L. M. (2018). A review of child stunting determinants in <scp>Indonesia</scp>. *Maternal & Child Nutrition*, *14*(4), e12617. https://doi.org/10.1111/mcn.12617

Bharti, R., Dhillon, P., & Narzary, P. K. (2019). A spatial analysis of childhood stunting and its contextual correlates in India. *Clinical Epidemiology and Global Health*, *7*(3), 488–495. https://doi.org/10.1016/j.cegh.2019.04.005

Charla, E., Bingan, S., Kebidanan, J., Kemenkes, P., & Raya, P. (2019). HUBUNGAN KONSUMSI FE DENGAN PANJANG BADAN PADA ANAK USIA 12-24 BULAN. *Media Informasi*, *15*(2), 115–120. https://doi.org/10.37160/bmi.v15i2.415

Christian, P., Lee, S. E., Angel, M. D., Adair, L. S., Arifeen, S. E., Ashorn, P., Barros, F. C., Fall, C. H. D., Fawzi, W. W., Hao, W., Hu, G., Humphrey, J. H., Huybregts, L., Joglekar, C. V., Kariuki, S. K., Kolsteren, P., Krishnaveni, G. V., Liu, E., Martorell, R., … Black, R. E. (2013). Risk of childhood undernutrition related to small-for-gestational age and preterm birth in low- and middle-income countries. *International Journal of Epidemiology*, *42*(5), 1340–1355. https://doi.org/10.1093/IJE/DYT109

Dewi, R., Evrianasari, N., & Yuviska, I. A. (2020). Kadar Hb,Lila Dan Berat Badan Ibu Saat Hamil Berisiko Terhadap Kejadian Stunting Pada Anak Usia 1-3 Tahun. *Jurnal Kebidanan Malahayati*, *6*(1), 57–64. https://doi.org/10.33024/jkm.v6i1.1769

Gupta, A. K., & Santhya, K. G. (2020). Proximal and contextual correlates of childhood stunting in India: A geo-spatial analysis. *PLoS ONE*, *15*(8 August). https://doi.org/10.1371/journal.pone.0237661

J, T., A, S., R, Z., MZ, Z., & F, F. (2018). Factors Associated with Undernutrition in Children under the Age of Two Years: Secondary Data Analysis Based on the Pakistan Demographic and Health Survey 2012¯2013. *Nutrients*, *10*(6). https://doi.org/10.3390/NU10060676

Kemenkes. (2022). *Buku Saku Hasil Studi Status Gizi Indonesia (SSGI) Tahun 2021 | Badan Penelitian dan Pengembangan Kesehatan*. https://www.litbang.kemkes.go.id/buku-saku-hasil-studi-status-gizi-indonesia-ssgi-tahun-2021/

Kemenkes RI. (2020). *INTEGRATED BIOLOGICAL-BEHAVIORAL SURVEILLANCE SURVEY AMONG ADOLESCENT AND YOUNG PEOPLE WHO INJECT DRUGS, FEMALE SEX WORKERS, MALES WHO HAVE SEX WITH MALES AND MALE TO FEMALE TRANSGENDER PERSONS*. UNICEF Indonesia. www.lisagjohnston.com

Maulina, R., Qomaruddin, M. B., Prasetyo, B., & Indawati, R. (2024). Maternal Complications during Pregnancy and Risk Factors for Stunting. *Iranian Journal of Nursing and Midwifery Research*, *29*(3), 309–313. https://doi.org/10.4103/IJNMR.IJNMR_358_22

Maulina, R., Qomaruddin, M. B., Sumarmi, S., Fahrul, A., & Haryuni, S. (2022). Antenatal Depression as a Stunting Risk Factor: A Systematic Review. *Open Access Macedonian Journal of Medical Sciences*, *10*(F), 234–240. https://doi.org/10.3889/oamjms.2022.8501

McDonald, C. M., Manji, K. P., Kisenge, R., Aboud, S., Spiegelman, D., Fawzi, W. W., & Duggan, C. P. (2015). Daily Zinc but Not Multivitamin Supplementation Reduces Diarrhea and Upper Respiratory Infections in Tanzanian Infants: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial. *The Journal of Nutrition*, *145*(9), 2153–2160. https://doi.org/10.3945/JN.115.212308

Mireku, M. O., Cot, M., Massougbodji, A., & Bodeau-Livinec, F. (2020). Relationship between Stunting, Wasting, Underweight and Geophagy and Cognitive Function of Children. *Journal of Tropical Pediatrics*, *66*(5), 517–527. https://doi.org/10.1093/TROPEJ/FMAA009

Nita retnasari. (2011). *Faktor-faktor Yang Mempengaruhi Perilaku Ibu dalam Deteksi Dini Tumbuh Kembang Pada Balita Di Posyandu Pudaksari Poncosari Srandakan Bantul*. STIKES Aisyah Yogyakarta.

Nur Apriningtyas, V., Dewi Kristini, T., Epidemiologi Fakultas Kesehatan Masyarakat Universitas Muhammadiyah Semarang, D., & Kesehatan Provinsi Jawa Tengah, D. (2019). Faktor Prenatal yang Berhubungan dengan Kejadian Stunting Anak Usia 6-24 Bulan. *Jurnal Kesehatan Masyarakat Indonesia*, *14*(2), 13–17. https://doi.org/10.26714/JKMI.14.2.2019.13-17

O, N., B, K., & EJ, W. (2019). Maternal employment and child nutritional status in Uganda. *PloS One*, *14*(12). https://doi.org/10.1371/JOURNAL.PONE.0226720

Puspitaningrum, T. K., Rambert, G. I., & Wowor, M. F. (2016). Gambaran kadar feritin pada pasien penyakit ginjal kronik stadium 5 non dialisis. *Jurnal E-Biomedik (EBm)*, *4*(1).

Rahmawati, V. E., Pamungkasari, E. P., & Murti, B. (2018). Determinants of Stunting and Child Development in Jombang District. *Journal of Maternal and Child Health*, *03*(01), 68–80. https://doi.org/10.26911/thejmch.2018.03.01.07

Suchdev, P. S., Jefferds, M. E. D., Ota, E., da Silva Lopes, K., & De-Regil, L. M. (2020). Home fortification of foods with multiple micronutrient powders for health and nutrition in children under two years of age. *Cochrane Database of Systematic Reviews*, *2020*(2). https://doi.org/10.1002/14651858.CD008959.PUB3/MEDIA/CDSR/CD008959/IMAGE_N/NCD008959-CMP-002-11.PNG

Titaley, C. R., Ariawan, I., Hapsari, D., & Muasyaroh, A. (2019). Determinants of the Stunting of Children in Indonesia : A Multilevel Analysis of the 2013 Indonesia Basic Health Survey. *Nutrients*, *11*, 1160.

Trihono, A. (2015). *Pendek (stunting) di Indonesia, Masalah dan Solusinya*. Balitbangkes.

Udoh, E. E., & Amodu, O. K. (2016). Complementary feeding practices among mothers and nutritional status of infants in Akpabuyo Area, Cross River State Nigeria. *SpringerPlus*, *5*(1). https://doi.org/10.1186/S40064-016-3751-7/TABLES/8

WHO. (2018). *Reducing Stuntin In Children, Equity considerations for achieving the Global Nutrition Targets 2025*.

Yunitasari, E., Winasis, P., & Suarilah, I. (2020). The analysis of stunting event factors in children aged 24-59 months based on transcultural nursing. *EurAsian Journal of BioSciences Eurasia J Biosci*, *14*, 2715–2720.

Zhang, L., Kleiman-Weiner, M., Luo, R., Shi, Y., Martorell, R., Medina, A., & Rozelle, S. (2013). Multiple Micronutrient Supplementation Reduces Anemia and Anxiety in Rural China's Elementary School Children. *The Journal of Nutrition*, *143*(5), 640−647. https://doi.org/10.3945/JN.112.171959