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The Analysis of Stunting Risks in Pregnant Women in Maluku

Dian Thiofany Sopacua[1*], Vanny Leutualy[1], Devita Madiuw[1]
[1]Departement of Nursing, Faculty of Health, The Moluccan Christian University Of Indonesia, Ambon, Maluku, Indonesia
***Correspondence Author**: dianthiofanysopacu@gmail.com

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Corresponding author e-mail
dianthiofanysopacu@gmail.com

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email : jkds@uds.ac.id

ABSTRACT

Background : Stunting is still a global and Indonesian problem. Although it has decreased yearly, it is still far from the 2024 National Medium-Term Development Plan (RPJMN), which is 14%. The government has carried out various interventions, but they have not been able to reduce the incidence of stunting. Innovation is needed in handling stunting to detect the risk of stunting early in life before toddlers, namely since pregnancy. **Methods :** The purpose of this study is to analyze the risk factors for stunting since pregnancy. This quantitative study used a cross-sectional approach. The research sample was 100 women of childbearing age in Ambon City, and purposive sampling was used as the sampling technique. A valid and reliable instrument assessed the risk of stunting since pregnancy. This study used a chi-square test to analyze pregnant women's risk factors for stunting. **Results:** The results showed that 65 (65%) respondents had a moderate to high risk of stunting. **Conclusions:** There is a relationship between upper arm circumference, hyperemesis gravidarum, height, weight gain during pregnancy, smoking habits during pregnancy, family income, age at risk, history of exposure to cigarette smoke, and pregnancy spacing have a significant relationship with the risk of stunting since pregnancy. Health workers and cadres should be able to detect stunting risk since pregnancy using the SIDIK SIAMA instrument to prevent stunting.

Keyword: Early detection instrument; Pregnant women; Stunting risk; Stunting prevention; SIDIK SIAMA

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INTRODUCTION:

Many nutritional problems are still a concern in various countries, including Indonesia, one of which is stunting. Stunting is a growth and development disorder experienced by children, which is the result of poor nutrition in the womb and at an early age (The World Bank Group Joint Child Malnutrition Estimates, 2019). Stunting is measured by the height/length index for age (Permenkes RI, 2020).

Global data shows that around 149 million (21.9%) toddlers experienced stunting in 2018 (The World Bank Group Joint Child Malnutrition Estimates, 2019). In 2018, around 55% or half of all children experienced stunting or short toddlers due to chronic malnutrition, decreasing from 37.2% in 2013 to 30.8% in 2018. In 2019, it decreased to 27.67% and decreased again in 2021 to 24.4%, according to the Indonesian Toddler Nutrition Status Survey (Ministry of Health Republic Indonesia, 2021). Although the data shows a national decrease,

this condition is still far below the National Medium-Term Development Plan (RPJMN) 2024 target of 14%.

Based on the results of the Integrated Toddler Nutrition Status Survey, it is known that the proportion of stunting in Maluku in 2019 was 30.38% and decreased in 2021 to 28.7% (Ministry of Health Republic Indonesia, 2021). The number of stunted toddlers in Ambon City, aged 0-59 months in 2021, is still relatively high, namely 692 toddlers (6.2%). Based on the high stunting rate, the Ambon City government has determined 38 loci in five sub-districts, which is an increase from 2021, which was 12 loci. In addition, the 2018 Basic Health Survey data shows that Maluku is ranked sixth for stunting in Indonesia. Thus, handling the problem of stunting needs to be a priority in Maluku Province, including Ambon City. The high incidence of stunting requires serious attention because stunting at an early age, especially in the 1000 first days of birth, will have an impact on the quality of human resources. According to WHO, stunting can have short-term and long-term impacts on children. The short-term impacts that can be caused by stunting are suboptimal cognitive or intelligence, motoric, and verbal development, increased incidence of morbidity and mortality, and increased health costs. The long-term impacts that can be caused by stunting are suboptimal body posture as adults, decreased reproductive health, increased risk of obesity and other degenerative diseases, minimized learning capacity and performance during school, disturbed psychological conditions, and minimized productivity and work capacity (Ministry of Health Republic Indonesia, 2018).

Stunting can occur due to inadequate health and nutritional conditions at various periods of life, one of which is during pregnancy. The results of the study showed that the nutritional status of pregnant women affects the incidence of stunting in toddlers (Arini, Fatmawati, Ernawati, & Berlian, 2020). Lack of nutritional intake during pregnancy, plus several other factors such as pregnancy complications and stress, can affect fetal growth. This condition can result in low birth weight (LBW), which has a high risk of experiencing stunting in the future (Sukmawati, Hendrayati, Chaerunimah, & Nurhumairah, 2018). In addition, the history of maternal upper arm circumference (MUAC) during pregnancy, the history of maternal haemoglobin during pregnancy, and the history of maternal weight during pregnancy also affect the incidence of stunting (Dewi, Evrianasari, & Yuviska, 2020). Lacking of early life nutritional status will have an impact on life in the future, such as fetal growth restriction (FGR), low birth weight (LBW), thin, short, small, and low immunity, as well as the risk of death (Zaif, Wijaya, & Hilmanto, 2017).

Stunting is still a serious problem in the world, including Indonesia. As a serious problem, stunting is a target of the Sustainable Development Goals (SDGs) (Ministry of Health Republic Indonesia, 2018). In the Regulation of the Minister of Health 39/2016 concerning Guidelines for the Implementation of the Healthy Indonesia Program with a Family Approach, stunting is one of the priority programs. Interventions attempted by the government to overcome the problem of stunting namely providing iron tablets for adolescent girls, prospective brides, and pregnant women, promoting exclusive breastfeeding, promoting complementary foods, pregnant women's classes, promoting and campaigning for balanced nutrition and behaviour change, early breastfeeding initiation, complete primary immunization, providing vitamin A, monitoring toddler growth at the nearest integrated health post, and national health insurance (Kementerian Kesehatan RI, 2018). The government has carried out various interventions but has yet to help decrease stunting rates according to the predetermined target. Thus, innovative interventions need to be carried out to minimize the risk of stunting by conducting early detection. Previous research has produced a stunting risk detection instrument since pregnancy, namely SIDIK SIAMA (Madiuw et al., 2023). The study's objective is to analyze the risk of stunting in pregnant women using the SIDIK SIAMA instrument. It is hoped that if a pregnant woman

knows the risk of stunting, so immediate intervention can be carried out to prevent further impacts.

METHODS:

This quantitative study used a cross-sectional approach, with 100 pregnant women from the 8,175 reachable population in the city of Ambon. Sample calculation using Slovin's formula, namely n = , with an error tolerance of 10%, obtained a sample size of 99 pregnant women, rounded up to 100 samples. The sampling technique used was purposive sampling with inclusion criteria being pregnant women residing in Ambon City, while the exclusion criteria were pregnant women who did not complete the questionnaire. The study was conducted in August-September 2024. This study has obtained research ethics permission from the Health Research Ethics Committee of the Fakultas Kesehatan Masyarakat, Universitas Airlangga, with No. 207/EA/KEPK/2024. The SIDIK SIAMA instrument is used in this study to assess the risk of stunting in pregnant women. This instrument consists of 9 statement items. This instrument has been valid and reliable, with a content validity value (CVR and CVI) of 1.00 and construct validity, namely MSA> 0.5 with a loading factor> 0.4 and a reliability value of 0.682. The chi-square test was used for bivariate analysis.

RESULTS:

Risk factors for stunting in pregnancy based on the SIDIK SIAMA instrument are presented in table 1.

Table 1. Identification of risk factors for stunting in pregnancy based on the SIDIK SIAMA instrument (n=100)

Risk Factor	Total	
	n	%
Upper arm circumference <23.5 centimetres	33	33
Have a hyperemesis gravidarum	28	28
Height <150 cm	16	16
Weight gain during pregnancy <1 kilogram per month	34	34
Smoking habits during or before pregnancy	4	4
Family income below the regional minimum wage (Maluku Rp. 2.619.312)	55	55
Age at risk (<20 and >35)	37	37
History of exposure to cigarette smoke	36	36
Pregnancy spacing less than 2 years	24	24

Table 1. showed that among all the risk factors for stunting during pregnancy according to the SIDIK SIAMA instrument, data obtained showed that as many as 55 people (55%) of respondents had a family income below the Provincial Minimum Wage (UMP), as many as 37 people (37%) of respondents were in the risky age range for pregnancy, namely <20 and >35 years. A history of exposure to cigarette smoke during pregnancy at home or at work was experienced by 36 people (36%) of respondents, weight gain of less than 1kg in pregnant women was also experienced by 34 people (34%) of respondents, and as many as 33 people (33%) of respondents had an upper arm circumference (LILA) of less than 23.5cm, and 28 people (28%) of respondents experienced hyperemesis gravidarum.

Table 2. Identification of risk factors for stunting in pregnancy based on the SIDIK SIAMA instrument (n=100)

Risk of Stunting	Total	
	n	%
Low Risk	35	35
Moderate-High Risk	65	65

Table 2 shows that the majority of respondents have a moderate-high risk of stunting during pregnancy, namely 65 people (65%).

Table 3. Results of bivariate tests of risk factors with stunting risk levels in pregnant women

Risk Factors	Risk of Stunting		Total		*Chi Square Test**
	Low Risk	Moderate-	n	%	

	High Risk				
Age					
Risk (<20 and >35)	7	30	37	37	p = 0,022
No Risk (≥20 and ≤ 35)	28	35	63	63	
Upper arm circumference					
Normal ≥23.5	35	32	67	67	p = 0,000
Risk of Chronic Energy Deficiency <23.5	0	33	33	33	
Hyperemesis Gravidarum					
Yes	2	26	28	28	p = 0,001
No	33	39	72	72	
Height					
Risk <150cm	2	14	16	16	p = 0,076
No Risk ≥150cm	33	51	84	84	
Weight gain during pregnancy					
>1 kg	35	31	66	66	p = 0,000
<1 Kg	0	34	34	34	
Smoking habits during or before pregnancy					
Yes	3	1	4	4	p = 0,122
No	32	64	96	96	
Family income					
≥ UMR	25	20	45	45	p = 0,000
< UMR	10	45	55	55	
History of exposure to cigarette smoke					
Yes	9	38	36	36	p = 0,176
No	26	27	64	64	
Pregnancy spacing					
≥2 years	33	43	76	76	p = 0,004
<2 years	2	22	24	24	

*(α < 0,05)

Table 3 showed that maternal age, upper arm circumference, hyperemesis gravidarum, weight gain during pregnancy, family income, and pregnancy spacing have significant relationships with the risk of stunting in pregnant women (p<0.05). Besides that, maternal height, smoking habits before or during pregnancy, and history of exposure to cigarette smoke do not have significant relationships with the risk of stunting in pregnant women (p>0,05).

DISCUSSION:

This study has analyzed the risk factors for stunting in pregnant women in Maluku. All risk factors contained in the SIDIK SIAMA instrument were identified in pregnant women, namely upper arm circumference <23.5 centimetres, hyperemesis gravidarum, height <150 cm, weight gain during pregnancy <1 kilogram per month, smoking habits during or before pregnancy, income below the regional minimum wage, age at risk, history of exposure to cigarette smoke, pregnancy spacing <2 years. The biggest risk factor identified by respondents was income below the regional minimum wage.

Previous studies have shown a relationship between maternal nutritional status during pregnancy and the incidence of stunting in infants aged 0-12 months (Arini et al., 2020). Upper arm circumference is one indicator of the nutritional status of pregnant women. Chronic energy deficiency can be identified by an upper arm circumference <23.5. These results are following previous research which stated that the history of maternal nutritional status is related to the incidence of stunting in toddlers (Alfarisi, Nurmalasari, & Nabilla, 2019; Sukmawati et al.,

2018). Likewise, the results of other studies state that pregnant women with a history of chronic energy deficiency are a significant risk factor for stunting (Agustina & Fathurrahman, 2022). Pregnant women who experience chronic energy deficiency experience macronutrient deficiencies, namely a lack of energy and protein for a long time or years. This condition hurts the health of the mother and also the fetus she is carrying (Ismawati et al., 2021).

The occurrence of hyperemesis gravidarum or excessive nausea and vomiting in pregnant women is one of the risk factors for stunting (Praniska et al., 2023; Siswati & Isfaizah, 2023). Hyperemesis gravidarum is related to poor nutrition in pregnant women because the lack of nutritional status of pregnant women can cause severe nausea and vomiting and weak conditions to the point of central nervous system disorders or death. Increased levels of progesterone, estrogen, and chorionic-gonadotropin hormone can be triggers for nausea and vomiting, which can cause nutritional deficiencies to abortion (Praniska et al., 2023).

Other indicators of nutritional status related to the risk of stunting are weight gain during pregnancy and the height of pregnant women. The results of previous studies have shown a relationship between weight gain during pregnancy and the incidence of stunting (Apriningtyas & Kristini, 2019). The results of a study by Dewi et al. showed that mothers who did not gain weight during pregnancy had a seven times greater risk of having stunted children (Dewi, Evrianasari, & Yuviska, 2020). Weight during pregnancy needs to be controlled because if it is excessive it can cause obesity in babies. If the weight during pregnancy is lacking it can cause premature babies or low birth weight babies. Both are risk factors for stunting in toddlers (Dewi et al., 2020).

Maternal height less than150 cm is also a risk factor for stunting in children aged 0-23 months (Nadiyah, Briawan, & Martianto, 2014). Height is influenced by various factors such as genetic factors, nutritional intake, and diseases suffered. If the mother and father are short due to illness or lack of nutritional intake since childhood, then stunting in their offspring can still be overcome. However, if the height of the mother and father of the baby is short due to the presence of genes in the chromosomes that carry stunting traits, then their offspring are more likely to inherit the gene. This makes stunting in their offspring difficult to overcome (Praniska et al., 2023).

The results of this study analyzed maternal smoking habits during pregnancy and a history of exposure to smoke as risk factors for stunting since pregnancy. Previous studies also revealed a positive and strong relationship between maternal smoking behaviour and severe stunting (OR = 1.49; 95% CI: 1.29-1.71), as well as a significant relationship between stunting and paternal smoking habits at home (Nadiyah et al., 2014). Smoking is an immunosuppressant both in vivo and in vitro. Abnormal immune function in umbilical cord blood has been identified in children of mothers who smoke during pregnancy. Smoking during pregnancy is associated with lower birth weight and length (Kyu, Georgiades, & Boyle, 2009; Nadiyah et al., 2014). Women who smoke three months before pregnancy and continue until the first trimester increase the risk of premature babies, as do women who are exposed to cigarette smoke or passive smoking (Ashford et al., 2010; Stock & Bauld, 2020).

Family income below the regional minimum wage has also been identified as a risk factor for stunting since pregnancy. Research by Marbun et al (2019) shows a significant relationship between the mother's socioeconomic level and the incidence of stunting (Marbun, Pakpahan, & Tarigan, 2019). These results align with research in Bangladesh that low socioeconomic status is a risk factor for stunting in toddlers (Jesmin *et al,.* 2011). Family income is related to the household's ability to meet primary, secondary, and tertiary living needs. If the family income is higher, it will make it easier to meet the needs of life, including the family's nutritional needs; conversely, low-income families have more difficulty meeting their living needs (Marbun et al., 2019). Low incomes usually consume cheaper food and less varied menus; conversely, high incomes generally consume higher-priced food, but high incomes do not

guarantee good nutrition (Ibrahim & Faramita, 2015).

In addition to nutritional status, the age of pregnant women is also related to the risk of stunting. Pregnant women who are still teenagers (<20 years) have a higher risk of having stunted offspring than mothers of reproductive age (20-34 years) (Wanimbo & Wartiningsih, 2020). Another study in line with this was conducted in Ghana, where maternal age had a significant relationship with the incidence of stunting and toddlers from teenage mothers had an 8 times greater risk of experiencing stunting than mothers who were of reproductive age (Wemakor et al., 2018).

This study also identified birth spacing as a risk factor for stunting since pregnancy. This is also evidenced by research that mothers of toddlers with a birth spacing of ≤2 years have a higher risk of having stunted children (Anasari, 2022; Karundeng, 2015; Pongrekun 2020). This is related to the lack of time for mothers to prepare good nutrition for subsequent pregnancies. In addition, this birth spacing has an impact on the condition of the mother who has not fully recovered after giving birth, so good parenting patterns in raising children, including good nutritional intake for children, have not been formed properly either.

Several innovations in preventive interventions have been carried out so that early detection can still be carried out so that stunting cases can be identified and handled immediately, such as online stunting detection cards (Siswina & Akbarini, 2021), wall-mounted healthy cards (Hadi, Alfridsyah, & Affan, 2019), and growth mats (Azizah & Achyar, 2020). These innovations in early stunting detection have been proven to help detect stunting in toddlers. However, there is no instrument to detect the risk of stunting in the period of life before toddlers, one of which is pregnancy. The novelty of this study is analyzing the risk of stunting in pregnant women using the SIDIK SIAMA instrument so that the study results are expected to be a reference for immediate intervention for groups of pregnant women at risk of stunting.

This research has limitations. The research sample is limited only to the Maluku region, so it cannot be generalized to the whole of Indonesia. Further research can analyze the risk of stunting since pregnancy using the SIDIK SIAMA instrument for a larger research area.

CONCLUSIONS:

This study has proven that all items in the SIDIK SIAMA instrument were identified in pregnant women in Ambon City. Statistically, maternal age, upper arm circumference, hyperemesis gravidarum, weight gain during pregnancy, family income, and pregnancy spacing have significant relationships with the risk of stunting in pregnant women. Therefore, health workers need to increase pregnant women's awareness of preventing the risk of stunting during pregnancy. Health workers and health cadres can use SIDIK SIAMA as an instrument for detecting the risk of stunting in pregnant women.

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REFERENCES:

Agustina, W., & Fathurrahman. (2022). Ibu Hamil Kek, Berat Bayi Lahir Rendah dan Tidak Asi Ekslusif Sebagai Faktor Risiko Terjadinya Stunting. *Jurnal Kesehatan Tambusai*, *3*(1), 263–270. Retrieved from https://journal.universitaspahlawan.ac.id/index.php/jkt/article/view/4015%0Ahttps://journal.universitaspahlawan.ac.id/index.php/jkt/article/view/4015/2641

Alfarisi, R., Nurmalasari, Y., & Nabilla, S. (2019). Status Gizi Ibu Hamil Dapat Menyebabkan Kejadian Stunting Pada Balita. *Jurnal Kebidanan*, *5*(3), 271–278.

Apriningtyas, V. N., & Kristini, T. D. (2019). Faktor Prenatal yang Berhubungan dengan Kejadian Stunting Anak Usia 6-24 Bulan. *Jurnal Kesehatan Masyarakat Indonesia*, *14*(2), 13. https://doi.org/10.26714/jkmi.14.2.2019.13-

17

Arini, D., Fatmawati, I., Ernawati, D., & Berlian, A. (2020). Hubungan Status Gizi Ibu Selama Hamil Dengan Kejadian Stunting Pada Bayi Usia 0-12 Bulan di Wilayah Kerja Puskesmas Kenjeran Surabaya. *Jurnal EDUNursing*, *4*(1), 1–16.

Ashford, K. B., Hahn, E., Hall, L., Rayens, M. K., Noland, M., & Ferguson, J. E. (2010). The effects of prenatal secondhand smoke exposure on preterm birth and neonatal outcomes. *Journal of Obstetric Gynecologic and Neonatal Nursing*, *39*(5), 525–535. https://doi.org/10.1111/j.1552-6909.2010.01169.x.The

Azizah, A. N., & Achyar, K. (2020). Pelatihan Pemantauan Pertumbuhan Balita sebagai Upaya Deteksi Dini Stunting. *Jurnal Pengabdian Masyarakat Al-Irsyad (JPMA)*, *2*(1), 43–49. https://doi.org/10.36760/jpma.v2i1.71

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

Hadi, A., Alfridsyah, & Affan, I. (2019). Efektifitas deteksi stunting menggunakan KMS dinding indeks TB/U pada anak usia 4 – 5 tahun di Sekolah PAUD. *AcTion: Aceh Nutrition Journal*, *4*(1), 70–74. https://doi.org/10.30867/action.v4i1.160

Ibrahim, I. A., & Faramita, R. (2015). Hubungan faktor sosial ekonomi keluarga dengan kejadian stunting anak usia 24-59 bulan di wilayah kerja puskesmas Barombong kota Makassar tahun 2014. *Al-Sihah : Public Health Science Journal*, *7*(1), 63–75. Retrieved from http://103.55.216.55/index.php/Al-Sihah/article/view/1978

Komalasari, Supriati, E., Sanjaya, R., & Ifayanti, H. (2020). Faktor-Faktor Penyebab Kejadian Stunting Pada Balita. *Majalah Kesehatan Indonesia*, *1*(2), 51–56. https://doi.org/10.47679/makein.202010

Kyu, H. H., Georgiades, K., & Boyle, M. (2009). Maternal smoking, biofuel smoke exposure and child height-for-age in seven developing countries. *International Journal of Epidemiology*, *38*(5), 1342–1350. https://doi.org/10.1093/ije/dyp253

Madiuw, D., Manuhutu, F., Sainafat, A., Rehena, Z., Leutualy, V., Tasijawa, F. A., … Huwae, A. (2023). SIDIK SIAMA : An instrument for Risk Detection of Stunting Since Pregnancy. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, *8*(1), 383–390. https://doi.org/10.30604/jika.v8i1.1618

Marbun, M., Pakpahan, R., & Tarigan, A. K. (2019). Hubungan pengetahuan ibu hamil dan tingkat ekonomi tentang kejadian stunting di puskesmas Parapat Kecamatan Parapat Kabupaten Simalungun tahun 2019. *Jurkessutra (Jurnal Kesehatan Surya Nusantara)*, 42–47.

Ministry of Health Republic Indonesia. (2018). *Situasi Balita Pendek (Stunting) di IndonesiaPusat Data dan Informasi Kementerian Kesehatan RI* (pp. 1–56). pp. 1–56. Pusat Data dan Informasi Kementerian Kesehatan RI. Retrieved from https://www.kemkes.go.id/download.php?file=download/pusdatin/buletin/Buletin-Stunting-2018.pdf

Ministry of Health Republic Indonesia. (2021). *Buku Saku: Hasil Studi Status Gizi Indonesia (SSGI) Tingkat Nasional, Provinsi, dan Kabupaten/Kota Tahun 2021*. https://doi.org/10.36805/bi.v2i1.301

Nadiyah, Briawan, D., & Martianto, D. (2014). Faktor Risiko Stunting Pada Anak Usia 0 — 23 Bulan Di Provinsi Bali, Jawa Barat, Dan Nusa Tenggara Timur. *Jurnal Gizi Dan Pangan*, *9*(2), 125–132.

Permenkes RI. *Minister of Health Regulation Number 2 of 2020 concerning Child Anthropometric Standards*. , (2020).

Sagita, Y. D., & Wardani, P. K. (2022). Status gizi dan usia ibu saat hamil dengan kejadian stunting pada balita usia 1-5 tahun. *Jurnal Maternitas Aisyah (JAMAN AISYAH)*.

Scheffler, C., Hermanussen, M., Soegianto, S. D. P., Homalessy, A. V., Touw, S. Y., Angi, S. I., … Pulungan, A. B. (2021). Stunting as a synonym of social disadvantage and porr parental education. *International Journal of*

Environmental Research and Public Health, *18*(1350), 1–13.

Siswina, T., & Akbarini, O. F. (2021). Pengaruh Program Kartu Deteksi Stunting Online Terhadap Kemampuan Deteksi Stunting Di Kota Pontianak. *Jurnal Vokasi Kesehatan*, *7*(1), 13. https://doi.org/10.30602/jvk.v7i1.713

Stock, S. J., & Bauld, L. (2020). Maternal smoking and preterm birth: An unresolved health challenge. *PLoS Medicine*, Vol. 17. https://doi.org/10.1371/journal.pmed.1003386

Sukmawati, Hendrayati, Chaerunimah, & Nurhumairah. (2018). Status Gizi Ibu Saat Hamil, Berat Badan Lahir Bayi Dengan Stunting Pada Balita. *Media Gizi Pangan*, *25*(1), 19.

The World Bank Group Joint Child Malnutrition Estimates. (2019). *Levels and trends in child malnutrition: key findings of the 2019 Edition of the Joint Child Malnutrition Estimates*. Geneva: World Health Organization. Retrieved from https://www.who.int/nutgrowthdb/jme-2019-key-findings.pdf

Wanimbo, E., & Wartiningsih, M. (2020). Hubungan karakteristik ibu dengan kejadian stunting baduta (7-24 bulan). *Jurnal Manajemen Kesehatan Yayasan RS Dr. Soetomo*, *6*(1), 89–93.

Wemakor, A., Garti, H., Azongo, T., Garti, H., & Atosona, A. (2018). Young maternal age is a risk factor for child undernutrition in Tamale Metropolis, Ghana. *BMC Research Notes*, *11*(1), 1–5. https://doi.org/10.1186/s13104-018-3980-7

Zaif, R. M., Wijaya, M., & Hilmanto, D. (2017). Hubungan antara Riwayat Status Gizi Ibu Masa Keha milan dengan Pertumbuhan Anak Balita di Kecamatan Soreang Kabupaten Bandung. *Jurnal Sistem Kesehatan*, *2*(3), 156–163. https://doi.org/10.24198/jsk.v2i3.11964