

## Article

# A contributing factor of maternal pregnancy depression in the occurrence of stunting on toddlers

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## Abstract

**Background:** Toddlers are a vulnerable population to nutritional problems including stunting. Stunting can have negative impact on toddlers' health. One of the factors causing stunting in toddlers is maternal pregnancy depression. This study aims to determine the relationship between maternal pregnancy depression and the incidence of stunting in toddlers.

**Design and Methods:** The research design employed a descriptive correlative with quota sampling technique. The research respondents were 140 mothers of toddlers in Indonesia such as West Java, East Java, Jakarta, Yogyakarta, Bali, North Sumatra, Riau, South Kalimantan, West Kalimantan, North Sulawesi, NTT, NTB, Maluku, Papua. The data were collected by using demographic method and the Edinburgh Postpartum Depression Scale (EPDS). The statistical tests employed correlation tests.

**Results:** The analysis reveal that 26.4% toddlers in this study are stunted and 73.6% were not stunted. Maternal pregnancy depression has a significant relationship with the incidence of stunted toddlers ( $p=0.044$ ;  $r=0.170$ ).

**Conclusions:** The results of this study are expected to underlie the development of mental health promotion to prevent stunted toddlers against maternal depression and preventive programs. In addition, the research is expected to underly provision of curative and rehabilitative programs for stunted toddlers.

## Introduction

Stunting is a condition of which a toddler experiences impaired growth due to chronic malnutrition, causing the abnormal height of the common toddler.<sup>1</sup> Stunting is obvious when a toddler is at the age of two or during childhood, but *stunting* has actually occurred since the baby is in the mother's womb.<sup>1</sup> Stunting is regarded as a severe condition if it occurs during a child's golden period, or the first 1000 days of a child's life.<sup>2,3</sup>

Malnutrition occurring during a child's golden age period cannot be repaired in his next life stages.<sup>2</sup> This becomes crucial because stunting is regarded as a nutritional problem impeding toddlers' growth.

The Indonesian Basic Health Survey stated that the prevalence of Indonesian toddlers experiencing stunting in 2013 reached 37.2%; its 2018 updated data showed that stunting prevalence decreased from 6.4% in 2013 to 30.8% in 2018.<sup>4</sup> The prevalence of stunting illustrates the society's health problems if the prevalence reaches 20% or more.<sup>5</sup> This means that the prevalence of stunting in Indonesia still exceeds the world's limit.

One of the risk factors causing stunted toddlers is maternal depression experienced by mothers during pregnancy. A research states that the cause of stunting in toddlers is a mothers' depression during the early period of child's growth and development.<sup>6</sup> A depressed mother during pregnancy will affect the baby's health.

Several studies show that depressed mothers who deliver low weight babies is 2.8 times higher than mothers who deliver babies with normal weight; mothers with high level of anxiety and depression probably deliver a premature baby with low weight, and shorter in length than the average babies.<sup>7-9</sup> The baby's below normal weight and length are highly related to the risk factors of stunting on toddlers.<sup>10,11</sup>

Furthermore, maternal pregnancy depression may contribute to the occurrence of stunting in toddlers. Meanwhile, stunting in toddlers will affect their growth. The process of a child's growth is certainly centered on good brain development. A child's brain cells development will be impeded due to stunting, and the child will face difficulties in reaching a maximum growth aspect.<sup>12,13</sup> No previous study has been done in Indonesian women. This study was conducted to determine the relationship between stunting and depression in pregnant women in Indonesia.

## Design and Methods

The design of the study was descriptive - correlative using a cross-sectional approach. The cross-sectional design is a research

### Significance for public health

*The prevalence of stunting in Indonesia is considered large. In Indonesia, there has never been an assessment related to maternal mental health conditions, including a history of depression in mothers who have children with stunting. Depression experienced by mothers during pregnancy is one of the risk factors for causing stunting in children. The research result shows a correlation between pregnancy depression and the occurrence of stunting in toddlers. The results of this study are expected to be the basis for developing mental health promotion, preventive programs related to pregnancy depression and rehabilitative programs for stunting toddlers.*

design that analyzes the relationship between the independent variable and the dependent variable in one unit of time. A retrospective approach was also used by researcher to measure pregnancy depression. The study used the quota sampling technique because this technique only focuses on fulfilling the desired sample quota, making it easier for the researcher to take samples. The sample size used is determined by the Lameshow formula. This study managed to get 140 respondents' mothers who are willing to take part in the study. The research was carried out in early April - July 2020 online through social media in the territory of Indonesia. Respondents who filled out came from 15 provinces such as West Java, East Java, Jakarta, Yogyakarta, Bali, North Sumatra, Riau, South Kalimantan, West Kalimantan, North Sulawesi, NTT, NTB, Maluku, Papua. The sample used in this study were all mothers with children living in Indonesia who met the inclusion criteria are mothers who had children aged 24-36 years, able to communicate well, caregiver, and willing to be respondents. Meanwhile, exclusion criteria are mothers who had children aged under 24 or upper 36 years. This study has met the ethical considerations and was approved by the Ethics Committee of the Faculty of Nursing, Universitas Indonesia (Permit ID: SK-140/UN2.F12.D1.2.1/ETIK2020).

The data were collected by using the Edinburgh Postpartum Depression Scale (EPDS) questionnaire. This questionnaire was adopted from Ratu Kusuma's dissertation at 2017 with the title "The Effectiveness of the Ratu's Postpartum Depression Prevention Model on Prevention of Postpartum Depression" which has been tested for validity and reliability.<sup>14</sup> This questionnaire is not only used to measure postpartum depression but also pregnancy depression with 10 statements in which each statement has 4 answer choices with a score range of 0-3 then the scores from each statement are added up and categorized <10 = not depressed, and 10 = depression. The fulfilment of the questions follows the instruction that the respondents must reminisce the condition of their pregnancies.

The data were analyzed using statistical software Univariate analysis in the form of proportional distribution was carried out on all variables. Bivariate analysis was performed to determine the association between social support and self-management using the Chi-square test.

## Results

The result of the research showed that the average maternal age is 30 years old. Whereas the average of family income is 5,000,000 rupiah (351-352 USD) (Table 1). The research results showed that the majority of mothers hold college/university education, have occupations, and do not have history of pregnancy with anemia (Table 2). The research result shows that the majority of toddlers have normal birth weight, were exclusively breastfed, were introduced to solid foods as complimentary food to breast milk after the age of 6 months, never have history of infection, and were immunized (Table 3). The research result shows 37 toddlers (26.4%) suffered from stunting and 103 toddlers (73.6%) did not suffer from stunting (Table 4). The research result shows that more than 50% of pregnant mothers suffer from depression (Table 5).

The research result shows that stunted toddlers are found more in mothers with pregnancy depression than without pregnancy depression (33.8%) and unstunted toddlers are found more in mothers without pregnancy depression than with pregnancy depression (81.2%). The significant relationship value between depression pregnant mothers and stunted toddlers (0.044). Such a value indicates the existence of consequential relation between pregnancy depression and stunting in toddlers (Table 6).

**Table 1. Characteristics of mothers.**

Variable	Median	Min-Max
Age	30	22-62
Family income	5,000,000	500,000-40,000,000

**Table 2. Other characteristics of mothers.**

Variables	N.	%
Education		
No education	9	6.4
Elementary	1	0.7
Junior High School/Equal	4	2.9
High School/Equal	54	38.6
College/University	72	51.4
Occupation		
Not working	66	47.1
Working	74	52.9
History of pregnancy anemia		
Without anemia	119	85
With anemia	21	15

**Table 3. Characteristics of toddlers.**

Variables	N.	%
Gender		
Male	86	61.4
Female	54	38.6
Birth weight		
<2500 gram	8	5.7
≥2500 gram	132	94.3
History of exclusive breastfeeding		
Without exclusive breastfeeding	26	18.6
With exclusive breastfeeding	114	81.4
History of solid foods		
Before 6 months	20	14.3
After 6 months	120	85.7
History of Infection		
With any infection	99	70.7
Without infection	41	29.3
Immunizations		
Without immunizations	15	10.7
With immunizations	125	89.3

**Table 4. Illustration of stunting on toddlers.**

Variables	N.	%
Unstunting	103	73.6
Stunting	37	26.4

**Table 5. Pregnancy with depression.**

Pregnancy depression	N.	%
Without depression	69	49.3
With depression	71	50.7

**Table 6. Relation between stunting on toddlers and pregnancy depression.**

Pregnancy depression	Stunting		P value	Correlation coefficient
	No	Yes		
Depression	47 (66.2%)	24 (33.8%)	0.044	0.170
No depression	56 (81.2%)	13 (18.8%)		

## Discussion

This research found that 26.4% of 140 toddlers aged of 2-3 years old suffered from stunting. This result is not much different from the 2018 Indonesian Basic Health Survey data, which states that the prevalence of stunting reaches 30.8%. This percentage is obtained from different samples of the national prevalence calculation. Moreover, this percentage is considered large because it exceeds the limit of the world's percentage, 20%.<sup>15</sup> One of the predominant causes of death on children under 5 years old is nutritional problems; children are vulnerable population, and therefore they are prone to stunting.<sup>16</sup> If toddlers with stunting are left alone, the condition will cause a huge impact on the children's future.

The Government must give serious attention and necessary efforts to deal with stunted children. The curative effort is necessarily performed by providing health education related to stunting, child's nutrition, and child's care. Such education must inform i) diet improvement program, ii) feeding based on the 'what's in my plate' pattern that emphasizes nutrition, such as carbohydrates, protein, vitamin, and fibers, and iii) supplementary foods.<sup>16</sup> Besides, continuous education consists of knowledge aspects informing children's health and nutrition.<sup>17</sup> The Government conducted such measures to prevent detrimental effect of stunting in toddlers.

The percentage of mothers with pregnancy depression is more dominant (50.7%) than without pregnancy depression. A national survey supporting this result states that 23% of 700 new mothers in Indonesia suffer from depression, and 55% of them show depression symptoms and anxiety during medical care before and after delivering.<sup>18</sup> Maternal pregnancy depression more commonly occur during the 3<sup>rd</sup> trimester pregnancy with symptoms, such as anxiety, restlessness, and worry about pregnancy.<sup>9</sup> Maternal depression triggers hormonal changes that can affect mothers' mood, such as anger, boredom, and sadness without reasons; these emotions disturb the mothers' basic needs.<sup>19</sup> Therefore, mothers necessarily prevent pregnancy depression to prevent detrimental effects on mothers and children.

Performable promotional and preventive efforts to avoid pregnancy depression are improving a mother's acceptance on her pregnancy and reestablishing good relation with the environment; Antenatal Care (ANC) service can monitor a mother's emotional health can be through so that mothers can consult their conditions regarding their grievances.<sup>20-22</sup> The surrounding environment also plays a crucial role for the emotional health of pregnant women, like, positive supports from the closest relatives, especially their husbands.<sup>23</sup> Family supports can improve pregnant women's welfare, self-control, and positive feelings, and assist them to adjust with the changes during their pregnancy. If preventive measurements have been conducted adequately, mothers can avoid pregnancy depression.

Curative efforts to handle pregnancy depression are internal and external assistance. Pregnant women greatly need internal assistance from the family to perform their daily tasks to feel safe and comfortable in dealing with their physical and psychological changes. Health care workers in Posyandu (Integrated Healthcare Center), post-natal health center, village midwives, midwives of Health Care Center, and public figures in health care sectors can provide external assistance for pregnant women of-through guidance and counseling by using direct or indirect methods individually or in a group.<sup>24</sup> Individual guidance method includes direct-private conversation through home visit, while group guidance method consists of direct communication with clients through a group discussion and group teaching. Maternal pregnancy depression handling can help mothers reduce their psychological problems.

Pregnancy depression commonly has strong correlation with the occurrence of stunting on toddlers. Such a correlation has a positive direction, which means that the more severe the pregnancy depression is, the higher the occurrence of stunting on toddlers is. This statement agrees with a study in Ghana stating that maternal depression has correlation with stunting on toddlers.<sup>25</sup> Whereas, another study states that the cause of stunting on toddlers is mothers' depression throughout the early period of the child's growth and development.<sup>6</sup> Another study explains that mothers who experience depression during pregnancy are prone to experience a lack of appetite and a decrease of hemoglobin that reduces nutritional intakes of the baby in the womb.<sup>26</sup> This statement is supported by a study proving that pregnancy depression leads to poor nutritional status for the fetus.<sup>27</sup> Lack of nutritional intake for the fetus in depressed mothers during pregnancy causes the occurrence of stunting in toddlers.

Chronic malnutrition since infancy in the womb is the primary cause of stunting in toddlers.<sup>1,28</sup> It occurs because malnutrition of fetus in the womb will inhibit fetal growth. Malnutrition disease is firstly indicated by a slowdown or retardation of fetal growth, also known as Intra Uterine Growth Retardation (IUGR). Retardation of fetal growth is obvious in a baby's birth length. A baby's birth length describes his linear growth in the womb.<sup>29</sup> Furthermore, low measurement of baby's birth length indicates malnutrition due to lack of energy and protein previously suffered.<sup>30</sup> The baby's birth length affects his growth his following ages. Furthermore, his low birth length possibly creates 2.8 times as many risks of suffering from stunting as babies with normal length birth.<sup>31</sup> Nutritional problems result in low measurement of baby's birth length, which generates the risk of stunting in toddlers.

The risk of stunting caused by pregnancy depression is related to not only pregnant women's nutritional problems but also hormones balance. The norepinephrine and cortisol hormones of pregnant women with depression will increase.<sup>32</sup> The increase of norepinephrine hormone causes low birth weight infants, whereas high level of cortisol hormone causes premature born.<sup>32,33</sup> This results are supported by other studies asserting that a mother's high level of anxiety and depression may cause a prematurely birth with low birth weight and low birth length.<sup>7,8</sup> In addition, low birth weight and premature birth are risky factors in stunted toddlers.<sup>1</sup> Hormonal changes caused by maternal pregnancy depression affect stunting in toddlers.

Furthermore, the effects of maternal pregnancy depression can endanger the baby's health in the womb. A study states that depression can affect the bonding between the mother and the fetus.<sup>34</sup> This bonding known as Maternal Fetal Attachment (MFA) or an emotional relation that psychologically helps women adapt with their pregnancy and readiness to become a mother.<sup>35</sup> This readiness is crucial because during pregnancy, women will face all changes that require adjustments, and thus, a positive energy is required to adapt. The emotional bonding between a pregnant mother and her unborn baby is related to her awareness of health pregnancy practices, such as willingness to receive health care during pregnancy, and her awareness of pregnancy care.<sup>35</sup> If pregnant women suffer from depression, they will ignore their own health and the future baby's health.

## Conclusions

The research result shows a correlation between pregnancy depression and the occurrence of stunting in toddlers. The results of this study are expected to be the basis for developing mental health promotion, preventive programs related to pregnancy depression and rehabilitative programs for stunting toddlers.

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**Institutions where the research was carried out:** This study was carried out in several provinces in Indonesia, including: West Java, East Java, Jakarta, Yogyakarta, Bali, North Sumatra, Riau, South Kalimantan, West Kalimantan, North Sulawesi, NTT, NTB, Maluku, Papua.

**Contributions:** TA, concept and design, survey dissemination, data analysis, writing original draft preparation, and editing. BAK, concept and design, supervision, and review. M, concept and design, supervision, and review. YP, concept and design, survey dissemination, and data analysis.

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**Availability of data and materials:** The data used to support the findings of this study are available from the corresponding author upon request.

**Ethical approval:** This study has met the ethical considerations and was approved by the Ethics Committee of the Faculty of Nursing, Universitas Indonesia (Permit ID: SK-140/UN2.F12.D1.2.1/ETIK2020).

**Patient consent for publication:** The authors provide information about the research objectives to fulfill the respondent's right to obtain an explanation of the research. The authors also provide an informed consent form as a form of consent to become a research respondent and as a form of the respondent's freedom to participate in research or not.

**Informed consent:** Informed consent is listed on the front page of the researcher's online questionnaire. Respondents who are willing to fill out the informed consent form that has been listed. The researcher did not force the respondent when carrying out the research. In all the data that has been collected, all respondents have expressed their willingness by choosing the answer to agree to fill out the survey link.

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## References

1. The National Team for The Acceleration of Poverty Reduction. [100 prioritized regions/cities for stunting intervention].[in Indonesian]. Jakarta: The National Team for The Acceleration of Poverty Reduction; 2017.
2. Achadi EL. [Periode kritis 1000 hari pertama kehidupan dan dampak jangka panjang terhadap kesehatan dan fungsinya (The critical period of the first 1000 days of life and its long-term impact on health and function)].[in Indonesian]. Presented at the Kursus Penyegar Ilmu Gizi (Nutrition Science Refresher Course)]. Yogyakarta: PERSAGI; 2014.
3. Millenium Challenge Account Indonesia. Stunting and Indonesia's future [in Indonesian]. Jakarta: Millennium Challenge Account - Indonesia; 2013.
4. Ministry of Health, Republic of Indonesia. [Pedoman pelaksanaan stimulasi, deteksi, dan intervensi tumbuh kembang anak (Guidelines for the implementation of stimulation, detection, and intervention for child development)].[in Indonesian]. Jakarta: Ministry of Health; 2018.
5. World Health Organization. Levels and trends in child malnutrition 2018: UNICEF/WHO/World Bank Group joint child malnutrition estimates, key findings of 2018 edition. Available from: <https://reliefweb.int/report/world/levels-and-trends-child-malnutrition-unicefwhoworld-bank-group-joint-child-malnutrition>
6. Mahshulah ZA. [Depresi pada ibu dapat mengakibatkan anak stunting (Depression in mothers can lead to stunting in children)]. [in Indonesian]. Proceedings of the National Education Seminar FKIP UNTIRTA 2019;2:324–31.
7. O'Dell JR, Curtis JR, Mikuls TR, et al. Validation of methotrexate-first strategy in patients with early, poor-prognosis rheumatoid arthritis: results from a two-year randomized, double-blind trial. *Arthritis Rheum* 2013;65:1985-94.
8. Shahhosseini Z, Pourasghar M, Khalilian A, Salehi F. A Review of the effects of anxiety during pregnancy on children's health. *Mater Sociomed* 2015;27:200–2.
9. Dasuki HD, Suryo Y. [Depressive symptoms pada ibu hamil dan bayi berat lahir rendah (Depressive symptoms in pregnant women and low birth weight babies)].[Article in Indonesian with English abstract]. *Berita Kedokteran Masyarakat* 2010;26;81–9.
10. Kusumawardhani I. [Asi eksklusif, panjang badan lahir, berat badan lahir rendah sebagai faktor risiko terjadinya stunting pada anak usia 6-24 bulan di Puskesmas Lendah II Kulon Progo (Exclusive breastfeeding, birth length, low birth weight as risk factors for stunting in children aged 6-24 months at Lendah II Health Center Kulon Progo)].[Undergraduate Thesis in Indonesian]. Yogyakarta: Health Polytechnic, 2017. Available from: <http://eprints.poltekkesjogja.ac.id/239/1/30INTAN%20KUSU%20MA.pdf>
11. Rahayu A, Yulidasari F, Putri AO, Rahman F. [Riwayat berat badan lahir dengan kejadian stunting pada anak usia bawah dua tahun (History of birth weight with stunting in children under two years old)].[Article in Indonesian]. *Kesmas: National Public Health J* 2015;10:67–73.
12. Budget Director for Human Development and Culture. [Penanganan stunting terpadu tahun 2018 (Integrated stunting management in 2018)].[in Indonesian]. Jakarta: Ministry of Finance of the Republic of Indonesia; 2018.
13. Hanani R, Syaquy A. [Perbedaan perkembangan motorik kasar, motorik halus, bahasa, dan personal sosial pada anak stunting dan non stunting (Differences in gross motor, fine

- motor, language, and personal social development in stunted and non-stunted children)].[Article in Indonesian]. *J Nutr College* 2016;5:412–18.
14. Kusuma R. [The effectiveness of Ratu's postpartum depression prevention model towards the prevention of postpartum depression]. [Dissertation in Indonesian]. Depok: Universitas Indonesia; 2017. Available from: <http://www.lontar.ui.ac.id/detail?id=20454026&lokasi=lokal>
  15. Ministry of Health, Republic of Indonesia. [Laporan nasional riset kesehatan dasar 2018 (2018 national basic health research report)]. [in Indonesian]. Jakarta: Ministry of Health. Available from: <http://labdata.litbang.kemkes.go.id/ccount/click.php?id=19>
  16. Ministry of Health, Republic of Indonesia. [Petunjuk teknis PMT 2017 (PMT 2017 technical guide)]. [in Indonesian]. Jakarta: Ministry of Health; 2017.
  17. Deputy for Health Improvement Coordination. [Penanganan stunting terintegrasi di Indonesia (Integrated stunting management in Indonesia)]. [in Indonesian]. Jakarta: Coordinating Ministry for Human Development and Culture of the Republic of Indonesia; 2018.
  18. Sulaiman MR, Rachmawati D. [Lebih dari 50 persen ibu baru tak dapat dukungan mental pasca persalinan (More than 50 percent of new mothers do not receive postnatal mental support)]. [in Indonesian]. *Suara.com*; 2019 [Internet]. Updated 2019; cited 2019 Jun 6. Available from <https://www.suara.com/health/2019/05/02/191108/lebih-dari-50-persen-ibu-baru-tak-dapat-dukkungan-mental-pasca-persalinan?page=all>
  19. Handayani FP, Fourianalistyawati E. Depresi dan kesejahteraan spiritual pada ibu hamil risiko tinggi (Depression and spiritual well-being in high-risk pregnant women)]. [Article in Indonesian]. *Jurnal Psikologi Teori dan Terapan* 2018;8:145–53.
  20. Leifer G. *Introduction to maternity and pediatric nursing*. Elsevier; 2015.
  21. Nainggolan MF. [Asuhan kebidanan pada Ny K masa hamil trimester III G.I P.O A.O di Puskesmas Helvetia Kecamatan Medan Helvetia tahun 2018 (Midwifery care for Mrs. K during the third trimester of pregnancy G.I P.O A.O at Helvetia Health Center, Medan Helvetia District in 2018)]. [Undergraduate Thesis in Indonesian]. Medan: Poltekkes Medan; 2019. Available from: <http://repo.poltekkes-medan.ac.id/xmlui/handle/123456789/989>.
  22. de Onis M, Dewey KG, Borghi E, et al. The World Health Organization's global target for reducing childhood stunting by 2025: rationale and proposed actions. *Matern Child Nutr* 2013;9:6–26.
  23. Pangesti WD. [Adaptasi psikologis ibu hamil dalam pencapaian peran sebagai ibu di Puskesmas Kembaran II Kabupaten Banyumas (Psychological adaptation of pregnant women in achieving their role as mothers at the Kembaran II Health Center, Banyumas Regency)]. [Article in Indonesian]. *Viva Medika* 2018;10:13–21.
  24. Mintarsih W. [Pendampingan kelas ibu hamil melalui layanan bimbingan dan konseling Islam untuk mengurangi kecemasan proses persalinan (Class assistance for pregnant women through Islamic guidance and counseling services to reduce anxiety during childbirth)]. [Article in Indonesian]. *Sawwa Jurnal Studi Gender* 2017;12:277–96.
  25. Wemakor A, Mensah KA. Association between maternal depression and child stunting in Northern Ghana: a cross-sectional study. *BMC Public Health* 2016;16:869.
  26. Kingston D, Tough S, Whitfield H. Prenatal and postpartum maternal psychological distress and infant development: a systematic review. *Child Psychiatry Hum Dev* 2012;43:683–714.
  27. Madlala SS, Kassier SM. Antenatal and postpartum depression: effects on infant and young child health and feeding practices. *South Afr J Clin Nutr* 2018;31:1–7.
  28. Hartono SH. [Berantas stunting: faktor gizi buruk jadi penyebab utama anak stunting (Eradicating stunting: malnutrition is the main cause of stunting in children)]. [in Indonesian]. *Grid Health* [Internet]. 2020. Updated 2020; cited 2020 Apr 20]. Available from: <https://health.grid.id/read/352011698/berantas-stunting-faktor-gizi-buruk-jadi-penyebab-utama-anak-stunting?page=all>
  29. Sutrio S, Lupiana M. Berat badan dan panjang badan lahir meningkatkan kejadian stunting (Birth weight and length increase the incidence of stunting)]. [Article in Indonesian]. *Jurnal Kesehatan Metro Sai Wawai* 2019;12:21–9.
  30. Supariasa IDN, Fajar I, Bakri I. [Penilaian status gizi (Nutritional status assessment)]. [Article in Indonesian]. Jakarta: EGC; 2012.
  31. Anugraheni HS, Kartasurya MI. [Faktor risiko kejadian stunting pada anak usia 12-36 bulan di Kecamatan Pati, Kabupaten Pati (Risk factors for stunting in children aged 12-36 months in Pati District, Pati Regency)]. [Article in Indonesian]. *J Nutr College* 2012;1:30–7.
  32. Field T. Prenatal depression risk factors, developmental effects and interventions: a review. *J Pregnancy Child Health* 2017;4:1–25.
  33. Jesica F, Friadi A. [Hubungan kadar kortisol dan prostaglandin maternal dengan persalinan preterm dan aterm (Relationship of maternal cortisol and prostaglandin levels with preterm and term labor)]. [Article in Indonesian]. *Journal of Nursing and Midwifery* 2019;10:21–9.
  34. Prihandini S, Primana L. [Faktor-faktor yang memengaruhi hubungan kelekatan ibu terhadap janin dalam kandungan (Factors that affect the mother's attachment to the fetus in the womb)]. [Article in Indonesian]. *Buletin Psikologi* 2019;27:125–35.
  35. Golbasi Z, Ucar T, Tugut N. Validity and reliability of the Turkish version of the Maternal Antenatal Attachment Scale. *Jpn J Nurs Sci* 2015;12:154–61.