Prevalence and Determinants of Postpartum Depression Among Adolescent Mothers: A Cross-Sectional Study

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Abstract

This study aims to determine the factor affecting the incidence of postpartum depression in adolescent mothers. The incidence of postpartum depression is quite high in Asia. The highest percentage occurred when having a first child and family history of mood disorders. The cause of this issue is varied. This study used a cross-sectional approach. The study was conducted from May 2021 to March 2022. It involved a total of 886 adolescent mothers as respondents. The instrument used the Edinburg Postnatal Depression Scale (EDPS) questionnaire. Multiple logistic regression was used to estimate the factors associated with postpartum depression. The prevalence of Postpartum depression is 50.68%. Family monthly income (95%CI: 4.09-6.75, p-value: 0.001), planned pregnancy (95%CI: 1.26-4.9, p-value: 0.000), wanted pregnancy (95%CI: 2.37-5.67, p-value: 0.001), type of delivery (95%CI: 4.39 – 5.21, p-value: 0.002), satisfied with baby's sex (95%CI: 4.39 – 5.21, p-value: <0.000), husband support (95% CI: 2.89-5.88, p-value: 0.000) were statistically significant with postpartum depression. Mothers with postpartum depression have a negative impact on themselves, their babies, and their families.

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1 Introduction

The priority of health development in Indonesia is the improvement of maternal and child health (Rahmadhani, 2021b). One of the factors of maternal and child health can be seen in reproductive health (World Health Organization, 2019). The government had made various efforts to achieve optimum maternal and child health (Kemenkes, 2018). Most women think that pregnancy is a natural event that must be passed but some consider it a special event that will determine their next life (WHO, 2019). Childbirth is the greatest gift for women and a very happy moment, but in some cases, it can be a scary moment because it can give feelings of sadness and fear that affect the mother's emotions and sensitivity (Rahmadhani, 2020). In general, childbirth is experienced by individuals who are over 20 years old as the age limit in marriage (Rahmadhani et al., 2021). The age limit in marriage is important because it is related to emotional, physical, and psychological maturity so preparations about how to raise a family and aspects of marriage are important (Kemetrian Kesehatan Republik Indonesia, 2018). Lack of preparation will cause problems with postpartum depression (PPD) for adolescent mothers (Rahmadhani & Laohasiriwong, 2020a).

Adolescence comes from the Latin word *"adolescere"* which means to grow towards maturity. Maturity does not only mean physical maturity, but also social and psychological maturity (Rahmadhani & Laohasiriwong, 2020a). The age limit for adolescents according to the World Health Organization (WHO) is between 10 and 24 years (Johnson et al., 2009; Spear, 2013). According to the Ministry of Health, adolescents are individuals aged 10 to 19 years and are not yet married (Kemenkes RI, 2020). The National Family Planning Coordinating Board (BKKBN) defines adolescents as individuals aged 10 to 19 years (Kementerian Kesehatan RI, 2020). If teenagers get married at this age range, then the period of preparation for marriage which is the most important developmental task in the teenage years is skipped (BPS et al., 2018). The results of the United Nations International Children's Emergency Fund (UNICEF) research in Indonesia showed that the incidence of child marriages aged 15 years was around 11%, while those who married at the exact age of 18 were around 35% (UNICEF, 2012). Early marriage is most common in Africa and Southeast Asia (Rahmadhani & Laohasiriwong, 2020a). In Southeast Asia, data show that around 10 million children under 18 years are married (Organization, 2016), while in Africa an estimated 42% of the child population, is married before they were 18 years old (Diniz et al., 2017). In general, early marriage is more common in girls than boys with about 5% of boys being married before the age of 19 years (Govender et al., 2020). Indonesia is one of the countries with the highest percentage of early marriages in the world and the second-highest in ASEAN after Cambodia (Kemenkes RI, 2017).

The incidence of postpartum depression is quite high (Rahmadhani & Laohasiriwong, 2020b). The largest percentage occurred for delivering the first child and had a family history of mood disorders (Learman, 2018). According to World Health Organization (WHO) data, at a global level, more than 300 million people are estimated to suffer from depression equivalent to 4.4% of the world's population (WHO, 2017). The incidence of postpartum depression is 1 to 2 out of 1000 births and about 50 to 60% of mothers experience postpartum depression when they have their first child and about 50% of mothers who have a family history of mood disorders (Anokye et al., 2018). The Center for Diseases Control data from 2004 to 2012 shows the prevalence of postpartum depression at 11.5% in 27 countries (Çankaya, 2020; Mathias et al., 1996). The incidence of postpartum depression in Asia is quite high and varies from 3.5% to 63.3% (Karl et al., 2020). The prevalence of postpartum depression in lower-middle-income countries is from 1.9% to 82.1% and in high-income countries is from 5.2% to 74% (Rahmadhani, 2021a). The incidence of postpartum depression is lower than in other countries in Asia (Rahmadhani & Asti, 2020). Postpartum depression in Asia is quite high and varies between 26 and 85% (Fatmawati & Gartika, 2021). Meanwhile, in Indonesia, based on research results in some hospitals, 16% of 50 postpartum mothers experience postpartum depression (Rahayu & Ferian, 2020).

In Yogyakarta, the prevalence of post-partum incidence was 7.7% in 2017 which globally reached 10-15% (Hanifah, 2017; Cordell et al., 2002).

History of depression, marital problems, lack of family support, stress, and low socioeconomic status became the most frequently reported predictors (Ransing et al., 2020). Poor marital relationship, prenatal depression, illness in children, low socioeconomic status, low level of education, unwanted pregnancy, obesity, previous history of postpartum depression, and complications during pregnancy are determinants of postpartum depression (Dinwiddie et al., 2018). Socioeconomic status is a strong predictor of mental health (Slomian et al., 2019). Higher rates of depression have been shown to occur in pregnant and postpartum women who are socially and economically disadvantaged (Sangsawang et al., 2019). Postpartum depression has a direct impact on the mother and long-term risk to the mother's mental health. It also has a negative impact on children's physical, social, and cognitive development. Many studies have revealed the factors affecting postpartum depression, but only in adult women and not in adolescent mothers (Rokhanawati et al., 2022).

2 Materials and Methods

This study used an observational analytic method with a cross-sectional design. The sample size used the formula by Hsieh et al and it got 886 postpartum mothers as respondents. The sample selection in this study used multi-stage random sampling. The inclusion criteria in the study were mothers who had given birth under the age of 20 years, had the delivery of a baby within six months, could communicate well, could read and write well, and were willing to participate in the study. Before conducting the research, the researcher distributed informed consent to the respondents. Eligible postpartum mothers who were willing to sign the informed consent were included as respondents (Bhutta et al., 2014; Hedman et al., 2002).

The research instrument used some questionnaires. The first questionnaire was about demographic and socio-economic characteristics: age, marital status, education, occupation, type of residence, type of household, family monthly income, and financial status. The second questionnaire was the history of the last delivery including planned pregnancy, wanted pregnancy, Antenatal Care (ANC) visit, type of delivery, gender of baby, mother's expected baby's sex, spouse's expected baby's sex, satisfaction with baby's sex, and husband's support. The Edinburgh Postnatal Depression Scale (EPDS) was used to measure Postpartum Depression with values of ≥13 as postpartum depression and <13 as not having postpartum depression (Robertson et al., 2004; Horowitz & Goodman, 2005). The Cronbach's alpha coefficient of the EPDS was 0.82. Demographic, socio-economic, and latest pregnancy data were described by frequency and percentage with categorical data. Simple logistic regression was used to determine the relationship between each variable with a significant value <0.25 which would be input into multivariate analysis. Multiple logistic regression was used to see which factors influence postpartum depression using an Adjusted odds ratio (Adj OR) and 95% CI with a significant value level of <0.05.

3 Results and Discussions

3.1 Result

A total of 886 adolescent mothers aged <18 years (57.90%) with marital status married without a certificate 465 (52.48%) and had 389 high school education (43.90%). The majority of respondents' occupations are housewives 582 (65.91%) and live in rural areas 500 (56.43%) with extended family 680 (76.75%). Most respondents did not plan to have the latest pregnancy 492 (55.53%) and did not want the latest pregnancy 468 (52.82%).

Table 1
Demographic and socio-economic characteristics of respondents

Characteristics	n	%
Demographic and socio-economic		
Age		
<18 years old	513	57.90
≥18 years old	373	42.10
Marital Status		
Married with certificate	421	47.52
Married without certificate	465	52.48
Education		
Elementary school	89	10.05
Junior high school	308	34.76
Senior high school	389	43.90
University	100	11.29
Occupational		
Unskilled Worker	302	34.09
Housewife	582	65.91
Type of staying		
Urban	386	43.57
Rural	500	56.43
Type of Household		
Nuclear Family	206	23.25
Extended Family	680	76.75
Family monthly Income		
High	189	21.33
Low	697	78.67
Financial Status		
Enough without saving	339	38.26
Enough with saving	289	32.62
Not enough	180	20.32
Not Enough with debts	78	8.80
Latest Pregnancy		
Planned Pregnancy		
Yes	394	44.47
No	492	55.53
Wanted Pregnancy		
Yes	410	41.18
No	468	52.82
ANC Visit		
<4	457	51.58
≥4	429	48.42
Type of Delivery		
Normal	389	43.91
Caesarea	497	50.09
Mothers expected the baby's sex		
Male	465	52.48
Female	421	47.52
Father expected the baby's sex		
Male	501	56.55
Female	385	43.45
Satisfied with baby's sex		

Yes	395	44.58
No	491	55.42
Husband Support		
Yes	407	45.94
No	479	54.06

Based on the Edinburgh Postnatal Depression Scale (EPDS), a total of 50.68% (95% CI: 24.88-32.58) of adolescent mothers experienced postpartum depression.

Table 2
Prevalence of postpartum depression among adolescent mothers

Postpartum Depression	n	%	95%CI
Postpartum Depression			
Yes (≥13)	449	50.68	24.88-32.58
No (<13)	437	49.32	20.16-29.90
Mean ± SD		12.90 ± 6.88	
Median (Min-Max)		13 (3-21)	

Based on table 3, the analysis using simple logistic regression showed that marital status (95%CI: 1.11-4.89, p-value: 0.010), type of staying (95%CI: 2.98-4.55, p-value: 0.18) type of household (95CI : 3.09 – 6.99, p-value: 0.01), family monthly income (95%CI: 4.04-6.08, p-value: 0.000), planned pregnancy (95 CI% 8.01-11.34, p-value: 0.000), wanted pregnancy (95%CI: 7.07 – 9.10, p-value: 0.210), type of delivery (95%CI: 3.23-6.09, p-value: 0.001), satisfied with baby' sex (95%CI: 2.34-6.02, p -value: 0.000), and husband support (95%CI: 3.59-6.93, p-value: 0.059) would be continued in the next model because the p-value was <0.25.

Table 3
Bivariate Analysis of factors associated with postpartum among adolescent mothers: a simple logistic regression

Variables	n	%	Crude OR	95%CI	p-value
Age					
<18 years old	513	57.90	1		0.680
≥18 years old	373	42.10	6.90	10.90-25.01	
Marital Status					
Married with certificate	421	47.52	1		0.010
Married without certificate	465	52.48	2.91	1.11-4.89	
Type of staying					
Urban	386	43.57	1		0.180
Rural	500	56.43	4.55	2.98- 4.55	
Type of Household					
Nuclear Family	206	23.25	1		0.001
Extended Family	680	76.75	1.28	3.09 – 6.99	
Family monthly Income					
High	189	21.33	1		0.000
Low	697	78.67	3.90	4.04-6.08	
Planned Pregnancy					
Yes	394	44.47	1		0.000
No	492	55.53	5.04	8.01-11.34	
Wanted Pregnancy					

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	n	%	Crude OR	95%CI	p-value
Yes	410	41.18	1		0.210
No	468	52.82	2.77	7.07 – 9.10	
ANC Visit					
<4	457	51.58	1		0.890
≥4	429	48.42	5.78	4.56 – 12.66	
Type of Delivery					
Normal	389	43.91	1		0.001
Caesarea	497	50.09	5.13	3.23- 6.09	
Satisfied with baby's Sex					
Yes	395	44.58	1		0.000
No	491	55.42	3.23	2.34-6.02	
Husband Support					
Yes	407	45.94	1		0.059
No	479	54.06	4.24	3.59-6.93	

The final model of this multivariate analysis using multiple logistic regression showed that the variables of family monthly income (95%CI: 4.09-6.75, p-value: 0.001), planned pregnancy (95%CI: 1.26-4.9, p-value: 0.000), wanted pregnancy (95%CI: 2.37-5.67, p-value: 0.001), type of delivery (95%CI: 4.39 – 5.21, p-value: 0.002), satisfied with baby's sex (95%CI: 4.39 – 5.21, p-value: <0.000), and husband support (95%CI: 2.89-5.88, p-value: 0.000) have a significant effect on postpartum depression seen considering the p-value of <0.005

Table 4
Multivariate analysis of factors associated among adolescent mothers: multiple logistic regression

Variables	n	%	Crude OR	Adj OR	95%CI	p-value
Marital Status						
Married with certificate	421	47.52	1			0.233
Married without certificate	465	52.48	2.38	2.31	10.11-14.65	
Type of staying						
Urban	386	43.57	1			0.056
Rural	500	56.43	3.67	4.35	2.89-10.75	
Type of Household						
Nuclear Family	206	23.25	1			0.248
Extended Family	680	76.75	8.90	8.30	6.90-10.32	
Family monthly Income						
High	189	21.33	1			0.001
Low	697	78.67	3.77	4.06	4.09- 6.75	
Planned Pregnancy						
Yes	394	44.47	1			0.000
No	492	55.53	2.05	2.41	1.26-4.91	
Wanted Pregnancy						
Yes	410	41.18	1			0.001
No	468	52.82	3.53	4.69	2.37-5.67	
Type of Delivery						
Normal	389	43.91	1			0.002
Caesarea	497	50.09	4.01	3.84	4.39 – 5.21	
Satisfied with baby's Sex						
Yes	395	44.58	1			<0.000
No	491	55.42	3.71	3.89	5.43-8.23	

Husband Support						
Yes	407	45.94	1			0.000
No	479	54.06	4.29	4.38	2.89-5.88	

3.2 Discussions

From the results of the study, the prevalence of adolescent mothers who experienced postpartum depression reaches 50.68%. This happens because women, especially aged <20 years have a three times greater risk of experiencing depression. According to research by Gausia, et al in Bangladesh, the risk factors for postpartum depression are sociodemographic factors, obstetric factors, and marital factors (Anokye et al., 2018). Mothers who have given birth before have more experience in caring for their babies compared to mothers who have given birth for the first time and tend to experience mild mood disorders (Arami et al., 2021). The first experience in dealing with the process of childbirth and caring for children often leads to various attitudes in primiparous mothers (Sari, 2020). Mothers are in the process of adaptation and have no experience in caring for children, so they feel they are facing problems alone (Ariyanti et al., 2020). Therefore, primiparous mothers need people to accompany them during the postpartum period to pass this period well (Basuki, 2019). Perinatal mental health systems are not yet available in many developing countries, but there are also cultural factors and the capacity of paramedics that prevent optimal handling of this problem (Ariyanti, 2020a).

Economic status has a direct and indirect relationship to postpartum depression. Low monthly family income is associated with postpartum depression with an incidence of 4.06 times greater than high monthly family income. The birth of a baby is a challenge to the family's economic status due to the cost of caring for the baby and changing work schedules for babysitting responsibilities (Kerie et al., 2018). Family economic status can make the mother experience psychological disorders of depression (Roumieh et al., 2019). The presence of a newborn as a new member of the family can be an economic burden for families with low economic status because they are worried about the costs of meeting family needs, including the baby's health and maternal health (Madeghe et al., 2016). This is in line with the research by Sunthorn et al. (2021), that economic status was significantly related to the incidence of postpartum depression (Sunthorn et al., 2021).

Unplanned pregnancy status has a key role in postpartum depression. This study found that planned pregnancy has a p-value of 0.000 so it can be concluded that planned pregnancy affects postpartum depression. Pregnancy with a planned pregnancy status makes the mother more prepared to face childbirth and carry out her role as a mother (Almeida et al., 2020). The mother's readiness helps mothers to be more receptive to the baby and the role changes (Dominiak et al., 2021). Besides, the planned pregnancy will support the presence of the baby during family life (Shitu et al., 2019). The risk of depression will continue to increase even if the mother decides to give birth to their baby (Gunst et al., 2021). Mothers with unplanned and unwanted pregnancies easily experience depression and are not easy to adjust to their new roles (Alshikh Ahmad et al., 2021). Thus, they are more easily depressed and experience postpartum depression. Unplanned pregnancy with low economic conditions can add to the mother's burden. Unplanned and unwanted pregnancies can increase the expenditure on caring for children and make the mother ignorant of the baby (Adeyemo et al., 2020).

This study found that the type of delivery with Caesarea affected postpartum depression as evidenced by a p-value of 0.002. In terms of the type of delivery with complications, mothers who experience childbirth with action tend to experience complications compared to mothers who give birth normally (Ariyanti, 2020b). The results of this study are in line with previous studies that the probability of postpartum depression in respondents who experienced delivery with complications was 53.7% (Ariyanti et al., 2020).

The results of this study indicate that mothers who are not satisfied with the baby's sex have a 3.89 greater relationship with postpartum depression than those who accept and are satisfied with the sex of the baby. These results are in line with the research by Rahmadhani (2020), that dissatisfaction with the sex of the baby affects postpartum depression with a p-value <0.001 (Rahmadhani & Laohasiriwong, 2020c). It can also result in damage to the mother's emotional connection. Besides, there is a sense of disappointment in the mother because the reality is not in line with expectations and can trigger postpartum depression (Kusuma, 2019). It is estimated that there are supporting factors causing postpartum depression because there are mothers who have a positive acceptance of gender (Achyar & Margiana, 2018).

The results of the analysis showed that there was a significant influence on mothers who did not receive their husband's support with a 4.38 times greater tendency to experience postpartum depression compared to those who received their husband's support. A husband's support is a very important coping strategy when experiencing stress and serves as a preventive strategy to reduce stress and its negative consequences (Woldeyohannes et al., 2021). The husband's support is important and cannot be underestimated to build a positive atmosphere where the wife feels the first days are tiring (Hutchens & Kearney, 2020). Therefore, the support or positive attitude of the partner and family gives strength to postpartum mothers (Wan Mohamed Radzi et al., 2021). The results of this study are following research by Fatimah (2009), that there is a relationship between the husband's support and the incidence of postpartum blues in primiparous mothers in the Bugenvile Room of Tugurejo Hospital Semarang with a p-value of 0.033 (Nurdianty et al., 2020). Thus, more husband support is needed by women to prevent postpartum blues symptoms (Pradhananga et al., 2020).

4 Conclusion

Most adolescent mothers experience postpartum depression with a prevalence value of 50.68%. Mothers with postpartum depression have a negative impact on themselves, their babies, and their families. The risk factors affecting the incidence of postpartum depression in Central Java cover low monthly income, unplanned pregnancies, unwanted pregnancies, type of delivery, dissatisfaction with the sex of the baby, and husband's support. However, this can also be influenced by cultural differences in each region. Thus, there may be other risk factors affecting postpartum depression. Knowing the risk factors affecting the incidence of depression is expected to prevent and reduce the incidence of postpartum depression.

References

Achyar, K., & Margiana, W. (2018). Gambaran Kejadian Depresi Postpartum di Wilayah Kerja Puskesmas 2 Sokaraja. *Jurnal Kebidanan Harapan Ibu Pekalongan*, *4*, 101-107.

Adeyemo, E. O., Oluwole, E. O., Kanma-Okafor, O. J., Izuka, O. M., & Odeyemi, K. A. (2020). Prevalence and predictors of postpartum depression among postnatal women in Lagos, Nigeria. *African health sciences*, *20*(4), 1943-54.

Almeida, M., Kosman, K. A., Kendall, M. C., & De Oliveira, G. S. (2020). The association between labor epidural analgesia and postpartum depression: a systematic review and meta-analysis. *BMC women's health*, *20*(1), 1-7.

Alshikh Ahmad, H., Alkhatib, A., & Luo, J. (2021). Prevalence and risk factors of postpartum depression in the Middle East: a systematic review and meta–analysis. *BMC pregnancy and childbirth*, *21*(1), 1-12.

Anokye, R., Acheampong, E., Budu-Ainooson, A., Obeng, E. I., & Akwasi, A. G. (2018). Prevalence of postpartum depression and interventions utilized for its management. *Annals of general psychiatry*, *17*(1), 1-8.

Arami, N., & Mulasari, S. A. (2021). Gejala Depresi Postpartum Mempengaruhi Keberhasilan Asi Eksklusif: Sistematik Literatur Riview. *Jurnal Kesehatan Kusuma Husada*, 27-34.

Ariyanti, R. (2020a). Hubungan Dukungan Keluarga dengan Risiko Depresi Postpartum. *Jurnal Kebidanan Mutiara Mahakam*. https://doi.org/10.36998/jkmm.v8i2.99

Ariyanti, R. (2020b). Risiko Depresi Postpartum pada Persalinan Sectio Caesarea di RSUD Sleman. *Jurnal Bidan Komunitas*.

Ariyanti, R., Nurdiati, D. S., & Astuti, D. A. (2020). Pengaruh jenis persalinan terhadap risiko depresi postpartum pada ibu nifas. *Jurnal Kebidanan Dan Keperawatan Aisyiyah*.

Basuki, K. (2019). Depresi Postpartum. *ISSN 2502-3632 (Online) ISSN 2356-0304 (Paper) Jurnal Online Internasional & Nasional Vol. 7 No.1, Januari – Juni 2019 Universitas 17 Agustus 1945 Jakarta*.

Bhutta, Z. A., Das, J. K., Bahl, R., Lawn, J. E., Salam, R. A., Paul, V. K., ... & Lancet Every Newborn Study Group. (2014). Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost?. *The Lancet*, *384*(9940), 347-370. https://doi.org/10.1016/S0140-6736(14)60792-3

BPS, BKKBN, & Kemenkes RI. (2018). Indonesia Demographic and Health Survey 2017. *Kemenkes RI*.

Çankaya, S. (2020). The effect of psychosocial risk factors on postpartum depression in antenatal period: A prospective study. *Archives of psychiatric nursing*, *34*(3), 176-183. https://doi.org/10.1016/j.apnu.2020.04.007

Cordell, W. H., Keene, K. K., Giles, B. K., Jones, J. B., Jones, J. H., & Brizendine, E. J. (2002). The high prevalence of pain in emergency medical care. *The American journal of emergency medicine*, *20*(3), 165-169. https://doi.org/10.1053/ajem.2002.32643

Diniz, E., Santos, L. D. S. D., & Koller, S. H. (2017). Apoyo Social como Moderador del Conocimiento sobre el Desarrollo Infantil en Madres Adolescentes. *Paidéia (Ribeirão Preto)*, *27*, 281-289.

Dinwiddie, K. J., Schillerstrom, T. L., & Schillerstrom, J. E. (2018). Postpartum depression in adolescent mothers. *Journal of Psychosomatic Obstetrics & Gynecology*, *39*(3), 168-175.

Dominiak, M., Antosik-Wojcinska, A. Z., Baron, M., Mierzejewski, P., & Swiecicki, L. (2021). Recommendations for the prevention and treatment of postpartum depression. *Ginekologia Polska*, *92*(2), 153-164.

Fatima, A. (2009). Socio-economic constraints to demand for borrowing among rural females of Pakistan. *International Journal of Social Economics*.

Fatmawati, A., & Gartika, N. (2021). The Relationship of Psychosocial Condition and Parity with Postpartum Depression Incidence in Adolescent Mothers. *Falatehan Health Jurnal*, *8*(1), 36-41.

Govender, D., Naidoo, S., & Taylor, M. (2020). Antenatal and postpartum depression: prevalence and associated risk factors among adolescents' in KwaZulu-Natal, South Africa. *Depression research and treatment*, *2020*.

Gunst, A., Sundén, M., Korja, R., Boddy, A. M., Kotler, J., Paavonen, E. J., ... & Antfolk, J. (2021). Postpartum depression and mother–offspring conflict over maternal investment. *Evolution, medicine, and public health*, *9*(1), 11-23.

Hanifah, R. S., & Yuli Kusumawati, S. K. M. (2017). *Faktor-faktor yang berhubungan dengan kejadian depresi postpartum di wilayah kerja puskesmas karanganyar kabupaten karanganyar tahun 2017* (Doctoral dissertation, Universitas Muhammadiyah Surakarta).

Hedman, C., Pohjasvaara, T., Tolonen, U., Suhonen-Malm, A. S., & Myllylä, V. V. (2002). Effects of pregnancy on mothers' sleep. *Sleep medicine*, *3*(1), 37-42. https://doi.org/10.1016/S1389-9457(01)00130-7

Horowitz, J. A., & Goodman, J. H. (2005). Identifying and treating postpartum depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *34*(2), 264-273. https://doi.org/10.1177/0884217505274583

Hutchens, B. F., & Kearney, J. (2020). Risk factors for postpartum depression: an umbrella review. *Journal of midwifery & women's health*, *65*(1), 96-108.

Johnson, S. B., Blum, R. W., & Giedd, J. N. (2009). Adolescent maturity and the brain: the promise and pitfalls of neuroscience research in adolescent health policy. *Journal of adolescent health*, *45*(3), 216-221. https://doi.org/10.1016/j.jadohealth.2009.05.016

Karl, M., Schaber, R., Kress, V., Kopp, M., Martini, J., Weidner, K., & Garthus-Niegel, S. (2020). Precarious working conditions and psychosocial work stress act as a risk factor for symptoms of postpartum depression during maternity leave: results from a longitudinal cohort study. *BMC Public Health*, *20*(1), 1-11.

Kemenkes RI, D. P. (2020). Kementerian Kesehatan Republik Indonesia. *Kementerian Kesehatan RI*, *5*(1), 1–114.

Kemenkes RI. (2017). Situasi Kesehatan Reproduksi Remaja. In *Situasi Kesehatan Reproduksi Remaja*.

Kemenkes. (2018). *Profil Kesehatan Indonesia 2018 [Indonesia Health Profile 2018]*.

kementerian Kesehatan RI. (2020). Situasi Kesehatan Reproduksi Remaja Dalam Rangka Hari Keluarga Nasional 29 Juni. In *Pusat Data dan Informasi*.

Kemetrian Kesehatan Republik Indonesia. (2018). Basic Health Research 2018. In *Riskesdas 2018*.

Kerie, S., Menberu, M., & Niguse, W. (2018). Prevalence and associated factors of postpartum depression in Southwest, Ethiopia, 2017: a cross-sectional study. *BMC research notes*, *11*(1), 1-7.

Kusuma, R. (2019). Karakteristik Ibu Yangmengalami Depresi Postpartum. *Jurnal Ilmiah Universitas Batanghari Jambi*, *19*(1), 99-103.

Learman, L. A. (2018). Screening for depression in pregnancy and the postpartum period. *Clinical obstetrics and gynecology*, *61*(3), 525-532.

Madeghe, B. A., Kimani, V. N., Vander Stoep, A., Nicodimos, S., & Kumar, M. (2016). Postpartum depression and infant feeding practices in a low income urban settlement in Nairobi-Kenya. *BMC research notes*, *9*(1), 1-9.

Mathias, S. D., Kuppermann, M., Liberman, R. F., Lipschutz, R. C., & Steege, J. F. (1996). Chronic pelvic pain: prevalence, health-related quality of life, and economic correlates. *Obstetrics & Gynecology*, *87*(3), 321-327. https://doi.org/10.1016/0029-7844(95)00458-0

Nurdianty, Ansariadi, & Masni. (2020). Determinants of the indications of sectio caesarea in Makassar city hospital. *Enfermeria Clinica*, *30*, 349–352.

Organization, world health. (2016). WHO Recommendation on Antenatal care for positive pregnancy experience. *WHO Recommendation on Antenatal Care for Positive Pregnancy Experience*, 152.

Pradhananga, P., Mali, P., Poudel, L., & Gurung, M. (2020). Prevalence of Postpartum Depression in a Tertiary Health Care. *JNMA: Journal of the Nepal Medical Association*, *58*(223), 137.

Rahayu, F. T., & Ferian, P. (2020). Hubungan dukungan suami dengan tingkat depresi ibu postpartum di Puskesmas Trauma Center Samarinda. *Borneo Student Research*.

Rahmadhani, W. (2020). Knowledge of Postpartum Mothers on Postpartum Care in Healthcare Centers in Kebumen. *Jurnal Ilmiah Kesehatan Keperawatan*, *16*(1), 28-43.

Rahmadhani, W. (2021). Pembentukan posyandu remaja di Desa Bejiruyung, Kecamatan Sempor Kabupaten Kebumen. *JURNAL INOVASI ABDIMAS KEBIDANAN (JIAK)*, *1*(2).

Rahmadhani, W. (2021). The Affecting Factors of Implementation of Expanding Maternal and Neonatal Survival Program by the Ministry of Health of the Republic of Indonesia in Determining Midwifery in Kebumen, Central Java, Indonesia.

Rahmadhani, W., & Asti, A. D. (2020). Peningkatan kesehatan reproduksi remaja melalui pendampingan kelompok terapeutik di desa indrosari, kecamatan bulus pesantren, kebumen. *Jurnal EMPATI (Edukasi Masyarakat, Pengabdian dan Bakti)*, *1*(1), 51-55.

Rahmadhani, W., & Laohasiriwong, W. (2020a). Gender of baby and postpartum depression among adolescent mothers in central Java, Indonesia. *International Journal of Child & Adolescent Health*, *13*(1 PG-43–49), 43–49.

Rahmadhani, W., & Laohasiriwong, W. (2020b). Gender of baby and postpartum depression among adolescent

mothers in central Java, Indonesia. *Int J Child Adolesc Health*.

Rahmadhani, W., & Laohasiriwong, W. (2020c). Gender of baby and postpartum depression among adolescent mothers in central Java, Indonesia. *International Journal of Child & Adolescent Health*.

Rahmadhani, W., Suyanto, J., Soe, T. K., & Mutoharoh, S. (2021). The Relationship Between Husband Support and Behavior of Pregnant Teenagers to Face Pregnancy During the Covid-19 Pandemic in Gombong, Kebumen, Indonesia. *development*, *12*, 13.

Ransing, R., Kukreti, P., Deshpande, S., Godake, S., Neelam, N., Raghuveer, P., ... & Padma, K. (2020). Perinatal depression–knowledge gap among service providers and service utilizers in India. *Asian journal of psychiatry*, *47*, 101822. https://doi.org/10.1016/j.ajp.2019.10.002

Robertson, E., Grace, S., Wallington, T., & Stewart, D. E. (2004). Antenatal risk factors for postpartum depression: a synthesis of recent literature. *General hospital psychiatry*, *26*(4), 289-295. https://doi.org/10.1016/j.genhosppsych.2004.02.006

Rokhanawati, D., Salimo, H., Andayani, T. R., & Hakimi, M. (2022). Parenting peer education on adolescent mothers: A scoping review. *International Journal of Health Sciences*, *6*(1), 405–423. https://doi.org/10.53730/ijhs.v6n1.4679

Roumieh, M., Bashour, H., Kharouf, M., & Chaikha, S. (2019). Prevalence and risk factors for postpartum depression among women seen at Primary Health Care Centres in Damascus. *BMC pregnancy and childbirth*, *19*(1), 1-5.

Sangsawang, B., Wacharasin, C., & Sangsawang, N. (2019). Interventions for the prevention of postpartum depression in adolescent mothers: a systematic review. *Archives of women's mental health*, *22*(2), 215-228.

Sari, R. A. (2020). Literature Review: Depresi Postpartum. *Jurnal Kesehatan*, *11*(1), 167-174.

Shitu, S., Geda, B., & Dheresa, M. (2019). Postpartum depression and associated factors among mothers who gave birth in the last twelve months in Ankesha district, Awi zone, North West Ethiopia. *BMC pregnancy and childbirth*, *19*(1), 1-9.

Slomian, J., Honvo, G., Emonts, P., Reginster, J. Y., & Bruyère, O. (2019). Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health*, *15*, 1745506519844044.

Spear, L. P. (2013). Adolescent neurodevelopment. *Journal of adolescent health*, *52*(2), S7-S13. https://doi.org/10.1016/j.jadohealth.2012.05.006

Sunthorn, W., Thapinta, D., Panuthai, S., & Xuto, P. (2021). Factors explaining postpartum depression among Thai adolescent mothers. *Pacific Rim International Journal of Nursing Research*, *25*(1), 48-59.

Wan Mohamed Radzi, C. W. J. B., Salarzadeh Jenatabadi, H., & Samsudin, N. (2021). Postpartum depression symptoms in survey-based research: a structural equation analysis. *BMC public health*, *21*(1), 1-12.

WHO. (2019). *Trends in Maternal Mortality: 2000 to 2017 WHO, Gavena, 2019*.

Woldeyohannes, D., Tekalegn, Y., Sahiledengle, B., Ermias, D., Ejajo, T., & Mwanri, L. (2021). Effect of postpartum depression on exclusive breast-feeding practices in sub-Saharan Africa countries: a systematic review and meta-analysis. *BMC Pregnancy and Childbirth*, *21*(1), 1-10.

World Health Organization. (2019). WHO _ Maternal and child mental health. In *WHO*.

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