



**PREVALENCE AND SOCIODEMOGRAPHIC FACTORS ASSOCIATED WITH PERIPARTUM DEPRESSION IN INDONESIA: NATIONAL BASIC HEALTH RESEARCH DATA 2018**

**Prevalensi Dan Faktor Sosiodemografi Yang Berhubungan Dengan Depresi Peripartum Di Indonesia: Data Riskesdas 2018**

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**Abstrak**

**Latar Belakang:** Depresi peripartum sering terjadi dan dapat menyebabkan morbiditas pada ibu dan bayi jika tidak ditangani. Penyakit ini memiliki beberapa tingkat keparahan dan tahap awal yang dapat muncul sebagai depresi prenatal, sindrom baby blues atau depresi postpartum.

**Tujuan :** Tujuan penelitian ini untuk mengetahui prevalensi depresi pada ibu peripartum secara nasional dan hubungannya dengan faktor risiko sosiodemografi di Indonesia.

**Metode:** Data berasal dari survei cros sektional Riset Kesehatan Dasar (Riskesdas 2018) Kementerian Kesehatan dengan menggunakan multistage sampling. Dari 8889 wanita kawin atau pernah kawin usia 15-49 tahun yang hamil dan melahirkan antara 1 Januari 2013 sampai dengan 31 Desember 2018. Total sampel sebanyak 77.021 ibu. Mereka memberikan persetujuan untuk menanggapi kuesioner *Mini International Neuropsychiatric Interview* (MINI) versi Indonesia yang dimodifikasi untuk menilai prevalensi depresi peripartum. Uji kai kuadrat dan regresi logistik multivariat digunakan untuk menentukan hubungan antara depresi peripartum dan karakteristik responden.

**Hasil :** Temuan menunjukkan bahwa depresi meliputi 7,9% kasus depresi prenatal dan 5,9% kasus depresi postpartum. Perkiraan prevalensi depresi prenatal adalah 10,2%, 7,7%, dan 6,7% berturut-turut pada trimester pertama, kedua dan ketiga. Sebuah hubungan yang signifikan secara statistik ditemukan antara depresi prenatal, tingkat pendidikan ibu dan status bekerja. Pada periode post partum, tingkat pendidikan, status pekerjaan dan tempat tinggal berhubungan signifikan dengan prenatal.

**Kesimpulan:** Skrining gejala depresi peripartum untuk deteksi dan pencegahan dini perlu diintegrasikan ke dalam perawatan rutin prenatal dan postpartum.

Kata kunci: Depresi Peripartum, Prevalensi, Depresi Prenatal, Depresi Postpartum

**Abstract**

**Background:** Peripartum depression is common and causes maternal and infant morbidity if left untreated. This illness has several severity levels and onset stages that could emerge as prenatal depression, 'baby blues' syndrome or postpartum depression.

**Objective:** This analysis aimed to investigate the national prevalence of depression among women in peripartum periods and its association with sociodemographic risk factors in Indonesia.

**Method:** Data from the 2018 Ministry of Health's cross-sectional survey that employed a multistage sampling (the 2018 Basic Health Research [Riskesdas]) were examined. Out of 8889 married or ever married women aged 15-49 years old who were pregnant and giving birth between January 1, 2013 and December 31, 2018, a total of 77021 mothers was the total sample of respondents. They gave consent to respond to the modified Indonesia version of the Mini International Neuropsychiatric Interview (MINI) questionnaires for assessing the prevalence of peripartum depression. Chi-square tests and multivariate logistic regression analysis were used to determine the association between peripartum depression and participants' characteristics.

**Result:** Findings showed that peripartum depression included 7.9% of cases of prenatal depression and 5.9% of cases of postpartum depression. The estimated prevalence of prenatal depression was 10.2%, 7.7%, and 6.7%

*consecutively by the first, second and third trimesters. A statistically significant relationship was found between prenatal depression, mother's education level and working status. In the post partum period, education level, working status and place of residence were significantly associated with prenatal.*

**Conclusion:** *Screening of depressive peripartum symptoms for early detection and prevention needs to be integrated into routine prenatal and postpartum care.*

**Keywords:** *Peripartum Depression, Prevalence, Prenatal Depression, Postpartum Depression.*

## Introduction

Depression is a significant contributor to the global burden of disease and affects people in all communities across the world. Depression is the leading cause of disability worldwide in terms of total years lost due to disability<sup>1</sup>. Clinically, women demonstrated a higher prevalence of depressive disorder than men, and roughly one-fifth of women experienced depression during pregnancy and postpartum (known as peripartum depression)<sup>2</sup>.

Peripartum depression is defined as depression that begins during pregnancy (prenatal depression) and/or depression that begins after delivery or within twelve months after delivery (postpartum depression)<sup>3</sup>. Peripartum depression is a serious condition, involving feelings of extreme sadness, indifference and/or anxiety, as well as changes in energy, sleep, psychomotor, concentration, fatigue, lack of appetite, and suicidal ideation<sup>4,5</sup>. About one in seven women experience peripartum depression<sup>6</sup>.

Risk factors for peripartum depression are multifactorial, including physical/biological, mental, obstetric/pediatric, sociodemographic, and social components. The risk factors that can be recognized early are hormonal changes<sup>7</sup>, depression or anxiety, and stressful life situations during pregnancy and early puerperium<sup>5,8</sup>. Socio-demographic factors such as age, education, occupation, income showed associations with postpartum depression. Unwanted pregnancy, lack of husband's support and marital problems also related to the incidence of peripartum depression, infant characteristics and protective factors<sup>9-12</sup>.

The results of a literature review found that postpartum depression produced terrible consequences on the mother, not only psychologically but also physically, such as relationship disorders (bad relationships with partners or socially), poor quality of life due to risky behavior, that ongoingly can trigger suicide<sup>13-15</sup>. Peripartum depression is a problem for the mother's health and quality of life and can affect the well-being of babies who can be born prematurely with low birth weight. Peripartum depression can cause bonding problems between mothers and babies that affect their care, including breastfeeding and infant feeding practices. In the long term, children of mothers with peripartum depression are at greater risk for cognitive, emotional, developmental, and verbal deficits and impaired social skills<sup>13,16</sup>. Postpartum depression also affects the psychological state of the father<sup>17</sup>. A meta-analysis study showed the prevalence rate of paternal postpartum depression was estimated at 8%, twice the rate of depression for men in general, with the highest rates, found 3-6 months postpartum<sup>18</sup>. Depression in fathers can also have negative implications in children<sup>19</sup>.

The prevalence of peripartum depression ranged from 6 to 20% of pregnancies, depending on how the diagnosis was made, the country, population and year<sup>20-22</sup>. Symptoms varied according to severity and onset periods: during prenatal, 'baby blues', and during postpartum period<sup>23</sup>. Up to 70% of all new mothers experienced the "baby blues," considered as a short-lasting condition<sup>24</sup>. Postpartum depression affected 10-15% of mothers with a prevalence of 0.5% to 60.8% worldwide, but this rate varies between studies<sup>22,25,26</sup>. In Indonesia, this rate varies from 25.4% to 59.2% according to various studies<sup>27-30</sup>. The data currently available in Indonesia is uncertain because the health services provided to mothers are more focused on the mother's physical condition; besides that, peripartum

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depression is considered a normal thing to happen to a pregnant and postpartum mother, even though this can increase the risk of maternal and child mortality and morbidity.

The significant impact of peripartum depression on maternal and infant morbidity makes maternal mental health an urgent global health priority. The program should be equipped with more reliable data to measure the prevalence of peripartum depression, which need appropriate detection and management mechanisms. In addition, a better understanding of the magnitude of peripartum depression will improve data quality of women's mental health during pregnancy and the puerperium.

### Method

Basic Health Research (Riskesdas) 2018 is a national health study to evaluate progress in achieving Sustainable Development Goals (SDGs) and, among others, to explore the symptoms of depression experienced in Indonesian women<sup>31</sup>. This analysis aims to determine the prevalence of depression among peripartum women and its association with sociodemographic risk factors in Indonesia.

The 2018 Riskesdas is a cross-sectional population-based survey without intervention to assess basic health indicators. A multi-stage sampling procedure was used, and selected pregnant mothers aged 15 and older were interviewed using a health questionnaire. A total of 8889 pregnant women and 77021 mothers who had given birth were the total respondents interviewed between 1 January 2013 to 31 December 2018. To detect symptoms of depression, Riskesdas employed the Mini-International Neuropsychiatric Interview (MINI) instrument, that had been translated into Bahasa. The MINI consisted of a 10-item question with "yes" or "no" answers. Depression was diagnosed with at least 2 "yes" answers to questions 1-3, and at least 2 "yes" answers to questions 4-10.

Socio-demographic variables such as age, education, working status, and place of residence were included in this analysis. Age was divided into 3 subgroups (<19 years, 19-35 years, and >35 years). Education was based on the last education obtained by the respondent and was grouped into none/unfinished primary school, primary school, junior school, senior high school, and college/university. Working status was divided into not working and working. Place of residence was divided into urban and rural.

The descriptive analysis reported the respondents' socio-demographic characteristics in percentages, as well as the prevalence of depressive symptoms among prenatal and postpartum mothers. Association with risk factors was assessed using Chi-square test to assess the relationship between each independent variable and the outcome variable (peripartum depression). Variables indicating the level of significance ( $p < 0,05$ ) during bivariate analysis were added to the multivariate regression logistic model. The limited number of postpartum women in this sample did not allow multi-variable analysis of postpartum depression as much as analysis of prenatal depression. The 2018 Riskesdas has obtained ethical approval from the Ethics Commission of the NIHRD (National Institute of Health Research and Development) of the Ministry of Health.

### Result

A total of 85.901 respondents participated, comprised of 8.889 pregnant mothers (prenatal) and 77.021 postpartum mothers. The overall mean age of the respondents (prenatal and postpartum) was 29 years. The majority of respondents were aged 19-35 years. More than 85% have primary school or higher education, more than 50% were not working, and two-third lived in rural areas (Table 1).

**Table 1. Socio-demographic Characteristics of Prenatal and Postpartum Women in Indonesia, 2018**

Variable	Prenatal (n=8889)		Postpartum (n=77021)	
	Frequency	%	Frequency	%
<b>Age (years)</b>				
<b>Mean <math>\pm</math> SD</b>	28,77 ( $\pm$ 6,2)		31,4( $\pm$ 6,7)	
<19	368	4,1	995	1,3
19-35	7160	80,5	54616	70,9

>35	1361	15,3	21401	27,8
<b>Education</b>				
None/unfinished primary school	708	8	7483	9,7
Primary school	1647	18,5	16897	21,9
Junior high school	1990	22,4	18058	23,4
High school	3057	34,4	24399	31,7
College/university	1487	16,7	10175	13,2
<b>Working status</b>				
No working	5053	56,8	41462	53,8
Working	3836	43,2	35550	46,2
<b>Place of residence</b>				
Urban	3761	42,3	31305	40,6
Rural	5128	57,7	45707	59,4

The 8889 prenatal mothers, 703 (7.9%) had depressive symptoms (Table 2). The results showed that the prevalence of prenatal depression was 10.2%, 7.7%, and 6.7% in the first, second and third trimesters. The results of

bivariate analysis showed that there was a significant relationship between trimester of pregnancy and prenatal depression ( $p < 0.001$ ). In overall postpartum mothers, 5,9% of 77.021 mothers had symptoms of depression.

**Table 2. Prevalence of Peripartum Depression by Periods in Indonesia, 2018**

Periods	Depression		No Depression	
	Frequency	%	Frequency	%
<b>Prenatal (n=8889)</b>	703	<b>7,9</b>	8188	92,1
<b>Trimester</b>				
1 <sup>st</sup> (n=2158)	220	10,2	1938	89,8
2 <sup>nd</sup> (n=3328)	256	7,7	3072	92,3
3 <sup>nd</sup> (n=3403)	227	6,7	3176	93,3
<b>Postpartum (n=77021)</b>	4458	<b>5,9</b>	72454	94,1

Table 3 shows that among the socio-demographic variables studied in prenatal mothers, education and working status were statistically significant ( $P < 0,05$ ). Prenatal depression was more common in women not working, and had primary school education. Among postpartum women, post partum depression occurs in women aged less than 19 years, none/unfinished primary school and do not work. Two independent prenatal three independent postpartum variables showed significant association with depression during bivariate analysis.

**Table 3. Bivariate Analysis of Sociodemographic Factors Associated with Peripartum Depression in Indonesia, 2018**

Variable	Prenatal (n=8889)		P value	Postpartum (n=77021)		P value
	Depression			Depression		
	Yes	No	Yes	No		
<b>Age (years)</b>						
<19	37 (10,1)	331 (89,9)	0,098	90 (9,0)	905 (91)	0,000
19-35	546 (7,6)	6614 (92,4)		3073 (5,6)	51543 (94,4)	
>35	120 (8,8)	1241 (91,2)		1395 (6,5)	20006 (93,5)	

<b>Education</b>						
None/unfinished primary school	65 (9,2)	643 (90,8)	0,008	587 (7,8)	6896 (92,2)	0,000
Primary school	154 (9,4)	1493 (90,6)		15647 (7,4)	61374 (92,6)	
Junior high school	158 (7,9)	1832 (92,1)		1128 (6,2)	16930 (93,8)	
High school	237 (7,8)	2820 (92,2)		1290 (5,3)	23109 (94,7)	
College/university	89 (6,0)	1398 (94,0)		303 (3,0)	9872 (97,0)	
<b>Working status</b>						
No working	436 (8,6)	4617 (91,4)	0,004	2651 (6,4)	38811 (93,6)	0,000
Working	267 (7,0)	3569 (93,0)		1907 (5,4)	33643 (94,6)	
<b>Place of residence</b>						
Urban	305 (8,1)	3456 (91,9)	0,575	1881 (6,0)	29424 (94,0)	0,389
Rural	398 (7,8)	4730 (92,2)		2677 (5,9)	43030 (94,1)	

The results of multivariable analysis on prenatal indicated two variables were associated with depression significantly (Table 4). Mothers without or unfinished primary school were one and a half more likely to have prenatal depression than mother with college/university education. Working mothers are also more likely to experience prenatal depression than working mothers.

In the multivariable analysis of the postpartum period, it was found that mothers who did not complete primary school or did not complete elementary school were twice as likely to experience post partum depression as mothers with college/university education. Mothers who live in urban areas and do not work are more likely to experience depression.

**Table 4. Analysis of Sociodemographic Factors Associated with Peripartum Depression in Indonesia, 2018**

Variable	Prenatal (n=8889)		Postnatal (n=77021)	
	COR (95%CI)	AOR (95%CI)	COR (95%CI)	AOR (95%CI)
<b>Education</b>				
None/unfinished primary school	1*	1*	1**	1**
Primary school	0,98 (0,72-1,33)	0,98 (0,73-1,33)	1,07 (0,96-1,20)	1,09 (0,98-1,20)
Junior high school	1,17 (0,87-1,60)	1,18 (0,88-1,61)	1,28 (1,15-1,42)	1,33 (1,20-1,47)
High school	1,20 (0,90-1,60)	1,21 (0,91-1,61)	1,53 (1,38-1,69)	1,63 (1,47-1,81)
College/university	1,58 (1,14-2,22)	1,49 (1,07-2,10)	2,77 (2,41-3,20)	1,90 (2,5-3,36)
<b>Working status</b>				
No working	1*	1*	1**	1**
Working	1,26 (1,07-1,48)	1,20 (1,02-1,41)	1,21 (1,13-1,28)	1,10 (1,03-1,17)
<b>Place of residence</b>				
Urban	-	-	1	1**
Rural			1,03 (0,97-1,09)	1,20 (1,12-1,27)

\*p-value<0,05, \*\*pvalue <0,01

## Discussion

Our results show that peripartum depression prevailed in Indonesia. The prevalence rate of total peripartum depression was 6,1% in both prenatal and postpartum mothers. The prevalence of prenatal depression was 7,9%, which was lower than findings from studies in India<sup>32</sup>, Ethiopia<sup>33</sup>, Zimbabwe<sup>34</sup>, and Africa<sup>35</sup>; but rather higher than findings from a study in Japan<sup>32</sup>. About 5,9% of the surveyed mothers experienced postpartum depression in

Indonesia. Studies in several countries such as China<sup>36</sup>, Egypt<sup>37</sup>, Nepal<sup>38</sup>, Ethiopia<sup>11</sup>, and India<sup>39</sup> reported higher rates of postpartum depression compared to Indonesia. The prevalence variation may be due to methodological differences between studies and study settings (institution vs. community-based), operational definitions, and reporting methods. Other variation may be due to differences in data measurement tools. The Mini International Neuropsychiatric Interview

(MINI) instrument in this study differs from the Edinburgh Postnatal Depression Scale (EPDS), Patient Health Questionnaire with nine items (PHQ9), the Hamilton Depression Scale (HDS), and the Beck Depression Inventory scale (BDI). Socio-economic differences might cause variances in the prevalence of peripartum depression among these countries too.

We also measured the pooled prevalence estimate of prenatal depression in each trimester of pregnancy. The highest prevalence of depression was found in the first trimester of pregnancy (10,2%), followed by depression in the second trimester (7,7%) and the third trimester (6,7%). These differences were statistically significant. These findings differed than findings presented in the meta-analysis study by Ayano et al. (2019) where the highest prevalence depression rate was during the third trimester of pregnancy (32,10%), followed by the first trimester (19,13%) and the second trimester (18,86%) (differences were not statistically significant ( $p = 0,544$ ))<sup>40</sup>. Findings from Indonesia seems to be in line with the conclusions presented by Fellmeth et al. (2020), where the highest prevalence of depression was in the first trimester, decreased during the third trimester and increased again during the one-month postpartum period<sup>41</sup>.

Low maternal education was found as a significant risk factor for prenatal and postpartum depression in Indonesia. This is similar to findings from a survey in Greece where mothers with low education were more at risk of developing DPP<sup>10</sup> despite contradictory results from other studies<sup>23,24</sup>. The highest education completed has a very important role important for survival in developing themselves and adapting to new conditions. Good education will have a positive influence on various aspects of life including the life of his soul so that mental disorders can be prevented.

Among the sociodemographic factors, prenatal and post partum depression was seen significantly more in participants who were not working. Similar results had been reported by Sidhu et al. (2019), which showed that working women got more satisfaction from their paid jobs and their work had prevented them from overthinking of other issues<sup>23</sup>. For mothers who don't work, the duties and responsibilities at home and the monotony of activities often

make a mother experience emotional imbalances which can lead to depression. Working mothers not only help their husbands in supporting the household economy, work can also be a way for mothers to meet their emotional needs.

Studies of places of residence with the incidence of post partum depression are rare, but in a study conducted in China, the incidence of depression was more found in urban areas<sup>42</sup>. Living in a big city was associated with a nearly 40 percent higher risk of depression than those living in a rural area. According to health data published by Urban Design Mental Health, social inequality, feelings of injustice, crime, and discrimination are some of the explanations why someone suffers from mental disorders. People who live in cities often experience increased stimulus overcrowding, noise, contrasting views, chaos, pollution, and other intense things. The constant stimulation of city life can push the body into a state of stress known as the stress response. fight or run. It can make us more vulnerable to mental health problems, such as depression and anxiety<sup>43</sup>.

So far, studies of peripartum depression in mothers in Indonesia are still limited, only focusing on the period of pregnancy (prenatal depression) or post partum (post partum depression). The limitations of this study are cross-sectional, so that although measurements were carried out for both pregnant women during prenatal and postpartum women, these were different mothers. This did not allow perfect analysis of the association between peripartum depression and its risk factors. In addition, the risk factors studied were limited to sociodemographic factors, not looking at other medical risk factors from the mother side that could also influence the risk of peripartum depression. Despite these limitations, the study still adds to the already existing knowledge on the burden of peripartum depression in Indonesia. It also helps to inform policymakers on the importance of applying screening for depression in pregnancy and the postpartum period as an integrated detection and prevention of possible mental health complications among women and their impact on their babies.

## **Conclusion**

In the current study, the prevalence of peripartum depression in Indonesia was 8.2%

(95% CI 7.6-8.8) among prenatal and postpartum mothers. Trimester of pregnancy, none/unfinished primary school, and not working were significantly associated with prenatal depression. Regrettably, the total postpartum women were inadequate for multivariable analysis. Attention needs to be given to the mental health state of all pregnant and postpartum women. This means integrating early detection of depression into basic and sustainable primary health care for women and their babies. Longitudinal study should be carried out to see the development of depression experienced by mothers from pregnancy to postpartum.

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