

## Postpartum depression in Indonesian women: a national study

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### Abstrak

**Latar belakang:** Ibu yang melahirkan diharapkan tidak mengalami rasa sedih pasca persalinan yang berdampak jangka panjang antara lain menyebabkan gangguan pertumbuhan dan perkembangan anak. Tujuan analisis ini untuk mengidentifikasi beberapa faktor terhadap rasa sedih pasca melahirkan.

**Metode:** Analisis ini merupakan sebagian data Riset Kesehatan Dasar (Riskesdas) 2010 yang dilaksanakan di seluruh Indonesia dengan sampling bertahap. Analisis dilakukan terhadap wanita yang menikah atau pernah menikah berumur 13-49 tahun yang melahirkan bayi antara 1 Januari 2005 sampai 31 August 2010. Analisis menggunakan regresi logistik.

**Hasil:** Prevalensi rasa sedih pasca persalinan sebesar 2,32% (440/18937). Wanita yang melahirkan bayi dengan ukuran sangat kecil berisiko tertinggi mengalami (4,8-lipat) rasa sedih pasca persalinan [rasio odds suaian (ORa)=4,84; 95% interval kepercayaan (CI)=2,89-8,12], dan yang mempunyai bayi kecil 67% lebih besar mengalami rasa sedih pasca persalinan (ORa=1,67; 95% CI =1,20-2,33). Selain itu wanita yang mengalami komplikasi pasca persalinan berisiko lebih besar mengalami rasa sedih pasca persalinan. Dibandingkan dengan yang tidak mengalami komplikasi, wanita yang mengalami pecah ketuban dini mengalami risiko lebih tinggi 6 kali lipat (ORa=6,02; 95% CI=4,63-7,83), disusul yang mengalami partus macet (ORa=5.75; 95% CI=3,05-10,85).

**Kesimpulan:** Wanita yang mengalami komplikasi selama persalinan atau mempunyai besar bayi tidak rata-rata berisiko lebih besar mengalami rasa sedih pasca persalinan. (*Health Science Indones 2012;1:3-8*)

**Kata kunci:** post partum, rasa sedih, komplikasi, besar bayi, Indonesia

### Abstract

**Background:** A mother's postpartum depression may have long-term impacts on a child's growth and development. This analysis aimed to identify several risk factors related to postpartum depression.

**Methods:** The data analyzed originated from a cross-sectional Basic Health Survey (Riskesdas) 2010 of Indonesia which provided specific information on the health Millennium Development Goals (MDG). Multistage sampling was used. For this analysis, we included married or ever-married women between the ages of 13-49 years who delivered babies during the period between 1 January 2005 and 31 August 2010. We used logistic regression methods to estimate the postpartum depression risk.

**Results:** The prevalence of postpartum depression was 2.32% (440/18937). Compared to women with average size babies, women who had very small babies had a higher risk (4.8-fold) for postpartum depression [adjusted odds ratio (ORa)=4.84; 95% confidence interval (CI)=2.89-8.12]. Women who had small babies had a 67% higher risk than women with average size babies for having post partum depression (ORa=1.67; 95% CI =1.20-2.33). In addition, All women who reported any delivery complications were at a greater risk for postpartum depression. Compared to those who did not report any complications, those who reported premature rupture of the membrane during their deliveries (ORa=6.02; 95% CI=4.63-7.83), followed by those who experienced obstructive labor (ORa=5.75; 95% CI=3.05-10.85) were at a greater risk for postpartum depression.

**Conclusion:** Women who reported any delivery complication or had a very small or small babies had a higher risk for postpartum depression. (*Health Science Indones 2012;1:3-8*)

**Key words:** postpartum, depression, complication, baby size

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Mood disorder is a common disorder which can occur in the postpartum period. There are three mood disorders which are prevalent during the postpartum period: mother and baby blues, postpartum depression and postpartum psychosis. Baby blues is milder than depression, whereas postpartum psychosis is classified as a severe mental disorder.<sup>1,2</sup>

Postpartum depression plays an important role in the development of a child. Mothers with postpartum depression may not be able to adequately care for their babies. If this condition continues, it may have a long-term impact on a child's development and result in more severe mental disorders and emotional problems, behavioral disorders, cognitive and interpersonal relationships.<sup>1,3</sup>

The prevalence of PPD is 10-15 among women who give birth<sup>1</sup>. This figure varies among different ethnic groups and depends on the diagnostic criteria used. Postpartum blues was found in connection with mild symptoms. The prevalence rate of baby blues ranges from 30 to 75%, and generally appears on day 3 or 4 after birth. Postpartum psychosis, which is the most severe disorder, usually appears between 48 to 72 hours after birth and generally continues through the first two weeks.<sup>1, 2</sup>

Basic Health Research in 2010 or Basic Health Study (Riskesdas) 2010, a nationwide health study was conducted to evaluate the achievement of the Millennium Development (MDGs), and among others, to explore depressive symptoms experienced in Indonesian women.<sup>4</sup>

The objective of this analysis was to determine several factors which contribute to postpartum depression in mothers who gave birth.

## **METHODS**

The data analyzed originated from Riskesdas 2010. The first stage of sampling was selection of census blocks. It was conducted with respect to economic status and the ratio of urban /rural areas. The second stage of household selection was by systematic random sampling.

Specially trained interviewers collected data using the special questionnaire for this study. The eligible population included households in the entire Republic of Indonesia with equal probability of being selected.

Nationally representative sample of Riskesdas 2010 was 33 provinces with over 441 districts/cities of the total 497 districts/cities in Indonesia. The interviews were held in the respondent's home. The subjects consisted of 69,300 households with 251,388 respondents, and 20,591 ever or still married women age 10-59 years.

The interviewers consisted of 104 teams. Each team consisted of one supervisor, one field editor and data entry person, and two interviewers. Data were collected through interviews at subjects' homes.

The sub-sample included in this analysis were women meeting all criteria: (1) aged 13-49 years; (2) gave birth to their last 5 years between January 1 2005 and August 2010; (3) did not have an ectopic pregnancy between January 1 2005 and August 2010; (4) answered the question about their postpartum experience with "did or did not"; (5) answered the question about having a delivery complication as reported by health personnel, with "yes/no", leaving 18,937 subjects for this analysis.

Baby size was based on the mother's perception of the baby's size after birth and consisted of five subgroups (average, very small, small, large, and very large).

Place of living was divided into urban and rural. Antenatal care (ANC) was divided into two subgroups (complete and incomplete). Women were classified as having complete ANC if they had height and weight measurements, blood pressure measurement, urine sample taken, abdominal examination, and informed of signs of pregnancy complications. Age was divided into 3 subgroups (13-19 years, 20-34 years, and 35-49 years).

Education was based on the last education obtained by the respondent and was grouped into none/unfinished primary school, finished primary school, junior/senior high school, and college/university. Working status was divided into housewife/student, private/government employee, farmer/fisherman, laborer, and others.

We had no objection from NIHRD for publishing part of the Riskesdas 2010 data. We used logistic regression for estimating the risk of postpartum depression,<sup>5</sup> using STATA 9.0 software.

The Ethical Committee of National Institute of Health Research and Development (NIHRD) Ministry of Health of Republic of Indonesia approved the Riskesdas 2010 study.

## RESULTS

Table 1 shows that the prevalence of postpartum depression was 2.32% (440/18,937). Urban women had a higher prevalence of postpartum depression. The urban-rural prevalence ratio for postpartum depression was 1.4 (261/9,709 over 179/9,228). In terms of age, the highest prevalence occurred among the youngest group of 13-19 years (3.48%).

Table 1 reveals that urban women were more likely than rural women to have postpartum depression. On the side, Table 1 reveals that older women who had higher education, were private/government employees, had 3-5 children, and did not have postpartum health check-ups were less likely to have post partum depression compared to the reference groups.

Table 1. Several demographic, gynecologic factors and risk of post partum depression

	Post partum depression				Crude odds ratio	95% confidence interval	P
	No (n=18497)		Yes (n=440)				
	n	%	n	%			
Residence							
Rural	9049	48.9%	179	40.7	1.00	Reference	
Urban	9448	51.1%	261	59.3	1.40	1.15-1.69	0.001
Age group							
13-19 years	472	2.6	17	3.9	1.00	Reference	
20-35 years	13880	75.0	327	74.3	0.65	0.40-1.07	0.094
36-49 years	4145	22.4	96	21.8	0.64	0.38-1.09	0.099
Education							
None/unfinished primary school	2152	11.6	58	13.2	1.00	Reference	
Finished primary school	5312	28.7	122	27.7	0.85	0.62-1.17	0.322
Junior/senior high school	9375	50.7	225	51.1	0.90	0.66-1.19	0.437
College/university	1658	9.0	35	8.0	0.78	0.51-1.20	0.259
Marital status							
Married	18174	98.3	429	97.5	1.00	Reference	
Divorced	227	1.2	8	1.8	1.50	0.73-3.04	0.270
Widow	96	0.5	3	0.7	1.32	0.42-4.19	0.633
Working status							
Housewife/student	9459	51.1	231	52.5	1.00	Reference	
Private/government employee	1247	6.7	25	5.7	0.82	0.54-1.25	0.354
Farmer/fisherman	2460	13.3	54	12.3	0.90	0.67-1.21	0.485
Laborer	3383	18.3	85	19.3	1.03	0.80-1.32	0.825
Others	1948	10.5	45	10.2	0.95	0.68-1.31	0.736
Parity							
1-2	12304	66.5	297	67.5	1.00	Reference	
3-5	5476	29.6	121	27.5	0.92	0.74-1/33	0.418
6-15	717	3.9	22	5.0	1.27	0.82-1.97	0.285
Complete antenatal care							
Yes	2910	15.7	70	15.9	1.00	Reference	
No	15587	84.3	370	84.1	0.99	0.76-1.28	0.920
Post-partum health check-up							
Yes	13793	74.6	351	79.8	1.00	Reference	
No	4704	25.4	89	20.2	0.74	0.59-0.94	0.013

Our final model (Table 2), revealed that compared to women who had average size babies, mothers who had very small babies had the highest risk (4.8-fold) for postpartum depression. In addition, those who had small babies had a 67% higher risk for postpartum depression. However, those who had or did have postpartum depression were similarly distributed in terms of a bigger baby size.

In term of complications, those who reported any complications experienced a higher risk for postpartum depression compared to those who did not report any complications. The highest risk occurred among mothers who had premature rupture of the membrane during their deliveries (6-fold), followed by those who experienced obstructive labor (5.8-fold).

Table 2. Baby size, symptoms of complication during delivery and risk of postpartum depression

	Postpartum depression				Adjusted odds ratio*	95% confidence interval	P
	No (n=18497)		Yes (n=440)				
	n	%	n	%			
<b>Baby size</b>							
Average	12999	70.3	263	59.8	1.00	Reference	
Very small	122	0.7	20	4.5	4.84	2.89-8.12	0.000
Small	1077	5.8	47	10.7	1.67	1.20-2.33	0.003
Bigger	3736	20.2	89	20.2	1.04	0.81-1.33	0.784
Very big	563	3.0	21	4.8	1.61	1.02-2.54	0.040
<b>Complication</b>							
None	16419	88.8	252	57.3	1.00	Reference	
Bleeding	300	1.6	24	5.5	4.74	3.06-7.35	0.000
(Pre-) eclampsia	239	1.3	18	4.1	4.25	2.62-7.11	0.000
Uterine rupture	193	1.0	13	3.0	4.32	2.38-7.61	0.000
Obstructive labor	116	0.6	11	2.5	5.75	3.05-10.85	0.000
Premature ruptured of membrane	874	4.7	90	20.5	6.02	4.63-7.83	0.000
Others	356	1.9	32	7.3	5.29	3.39-7.80	0.000

\* Adjusted each other between risk factor listed on this Table, residence and age group

## DISCUSSION

Several limitations must be considered in interpreting the findings. Firstly, this analysis was based on data from a nationwide survey. Secondly, data on complications during delivery were based on subject responses as reported by health personnel, and baby size was based on the subject's perception. Thirdly, the Riskesdas 2010 did not have additional detailed risk factor data related to delivery complications. Fourthly, the symptoms of postpartum depression were assessed using one simple question only, whether a woman had or did not feel sad during their last delivery (in the last 5 years). Recall bias problems may have occurred.

In spite of these limitations, this study used a national wide survey with a large sample consisting of 20,591 still or ever married women.

Our results show that the prevalence rate of postpartum depression was 2.32% and the ratio between urban

and rural was 1.4. Some previous studies informed that prevalence of mood changes after postpartum ranges from 10 to 75 %. Ten to fifteen percent for baby blues and third tenth to seventeenth percent for PPD.<sup>1</sup> The different results were resulted according to background of population and the diagnostic tools used. A study found 39% of PPD prevalence using Edinburgh Post Partum Depression Scale (EPDS), but this study used women who registered for delivery from academic study units.<sup>6</sup> After confirmed the results with Structured Clinical Interview for Diagnostic and Statistical Manual (SCID for DSM), the prevalence was 13%. The most common tool for PPD screening is EPDS. Some studies use twice assessment. The first was for screening and the second was followed using specific diagnostic tools such as SCID. In another study in Lebanon population, the PPD prevalence was 21%. The subjects were interviewed 24 hours and 3–5 months after delivery using EPDS.<sup>7</sup> The women

of Riskesdas 2010 population were interviewed whether they have feeling sad and depressed in their last delivery (in the last 5 years). Recall bias problems may contribute in this study.

Our results showed that older women, those with higher education, private/government employees, women with a parity of 3-5 children, and women who did not have postpartum health check-ups were less likely to have postpartum depression compared to the reference groups. On the other hand, a previous study focusing on risk factors of PPD revealed that there was no relationship between PPD and ethnicity, maternal age, level of education, parity, or gender of child for western societies.<sup>2</sup> That study come from two big meta analysis study conducted in 1996 and 2001 with multi ethnic population such as America, Europe, Asia, Australasia, China, Middle East, and Africa. Those meta analysis consisted 77 and 84 studies respectively.<sup>2</sup>

In addition, our results showed that women who had very small babies had the highest risk (4.8-fold) for postpartum depression . In addition, those who had small babies had a 67% higher risk for postpartum depression compared with women who had average sized babies. However, those who had or did have postpartum depression were similarly distributed in terms of bigger baby size. Our finding was similar with a previous report that the baby size is probably associated with low birth weight (LBW). Mothers who had depression during the pregnancy tend to have LBW babies.<sup>8</sup>

Compared to those mothers who did not report any complications, those who reported any complication had a higher risk for postpartum depression, and the highest occurred among mothers who had premature rupture of the membrane during their deliveries (6-fold), followed by those who experienced obstructive labor (5.8-fold). In contrast with our result, a literature study found both pregnancy and obstetric complications were only small predictors of PPD.<sup>2</sup> It seems that pregnant women with complications during pregnancy or delivery have to be managed seriously because if they have a caesarean section it will decrease the risk of PPD.<sup>7</sup>

In Burkina Faso, a study at facilities revealed that women who experienced severe obstetric complications significantly more likely to have experienced depression

and anxiety at 3 months, to have more experienced suicidal thought within the past year, and to had more reported pregnancy having had a negative effect on their lives than women with uncomplicated delivery. The complications described near miss such as severe pre eclampsia, eclampsia, Band'1 ring for dystocia, bleeding with hysterectomy, coagulopathy, shock, blood transfusion, infection leading to hypothermia or hyperthermia, hemoglobin level <40gr/l or 40-70 gr/l with sign of shock or blood transfusion. Diagnostic tools to assess depression and anxiety was Kessler-10.<sup>9</sup>

The similar result was also in Benin West Africa, that was near miss have more risk to be depression for women after giving birth.<sup>10</sup> Other study in Croatia for 100 women in third day of postpartum showed that women who had obstetric complication such as prolonged delivery, pain, medical problem in order to delivery, postterm etc showed higher score of EPPDS than control group.<sup>11</sup>

A study of depression among mother who were in antepartum or postpartum of period was limited in Indonesia.

This study conducted in Persahabatan Hospital Jakarta (2002) used EPPDS and the rater was a psychiatrist with 500 women in their antepartum period revealed that the prevalence of antepartum depression using EPPDS was 18%. Both antepartum depression and non-antepartum depression were similar in terms of age groups, level of education, occupations, monthly expenditures, number of pregnancies, number of children, number of deliveries, physical health condition, and history of premenstrual syndromes.<sup>12</sup>

In some countries with certain culture, the baby gender contributes to mother emotional in relation to social support received by mother from family response.<sup>13</sup>

In conclusion, women who reported any delivery complication or did not have an average sized baby had a higher risk for postpartum depression.

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