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The proportion of postpartum depression and its association with mode of delivery and parity

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ABSTRACT

Postpartum depression is a severe mood problem that can harm postpartum women. Depression is three times more common in the postpartum period than at any other time in a woman's life. The prevalence of postpartum depression in the world ranges from 17.22% and 11.76% in Indonesia. Depression at the age of ≥15 years in West Sumatra (8.2%) and Padang (7.8%). Many factors can contribute to postpartum depression. This study aimed to determine the proportion of postpartum depression and its association with the mode of delivery and parity. This study was an Analytical survey with a Cross-sectional design at the Andalas Health Center from July to August 2022. The study population was all postpartum mothers (3-6 months), and the study sample was 134 with Proportional random sampling from each ward. Data had collected through interviews and assessment of postpartum depression using the Edinburgh Postnatal Depression Scale questionnaire by respondents. Data analysis used univariate and bivariate (Chi-square). The results describe that the proportion of postpartum depression at the Andalas Health Center was 36.6%. The results reported that the mode of delivery had no significant association with postpartum depression (p=0.812). Parity showed a statistically significant association with postpartum depression (p=0.016).

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INTRODUCTION

Depression is a common mental disorder and a leading cause of disability worldwide. Depression is a primary contributor to the overall global burden of disease too s. Postpartum depression is one of the most severe mood problems that can harm postpartum women (Kendall-Tackett, 2017). World Health Organization found that the incidence of depression in the postpartum period is three times greater than at any other time in a woman's life (Nurbaeti, Deoisres, & Hengudomsub, 2019). The prevalence of postpartum depression worldwide is estimated to be around 17.22% and in Indonesia is 11.76% (Wang et al., 2021). The prevalence of postpartum depression seems to be high, especially in developing countries, which is almost twice as high as in developed countries (Liu, Wang, & Wang, 2022; Wubetu, Engidaw, & Gizachew, 2020). West Sumatra is in the 6th highest position with the prevalence of depression in people aged ≥15 years (8,2%) based on all

provinces in Indonesia. Padang is in the 10th top position out of 19 districts/cities (7,8%) (Litbangkes, 2018).

The first six months postpartum is a high-risk time for depression (O'Hara & Mc Cabe, 2013). Mothers experiencing postpartum depression have negative consequences for themselves and their children for up to three years. Postpartum depression harms mothers, especially in psychological health, quality of life, and interactions with babies, partners, and relatives. Children are closely related to the health of their mothers (Slomian, Honvo, Emonts, Reginster, & Bruyère, 2019). Mothers with postpartum depression are twice as likely to develop depression four years after giving birth. Mothers will be more at risk of experiencing chronic disease too (Abdollahi & Zarghami, 2018). Postpartum depression causes a lower quality of life for mothers in the second and fourth months postpartum (Sadat, Abedzadeh Kalahroudi, Kafaei Atrian, Karimian, & Sooki, 2014). Children of depressed mothers are at increased risk of being underweight and stunted in the first year of life (Farías-Antúnez, Xavier, & Santos, 2018). The impact of mothers experiencing depressive symptoms at four weeks postpartum related to stopping the duration of exclusive and partial breastfeeding and starting to introduce formula milk within 12 months postpartum (Sha et al., 2019).

The causes of postpartum depression are unclear until now, but previous research has shown an association with several risk factors (Zhao & Zhang, 2020). Negative birth experiences can trigger the development of Post-traumatic stress disorder (Steegers et al., 2019). Several studies show differences regarding whether the mode of delivery can affect the risk of developing postpartum depression. A study shows that cesarean section can reduce the risk of postpartum depression (Chaaya et al., 2006). Other studies have shown that women giving birth by cesarean section, especially emergency cesarean sections, are more at risk of developing postpartum depression (Ilska et al., 2020; Sun, Wang, & Li, 2021; Zanardo et al., 2018). But other studies have still found no association between the mode of delivery and postpartum depression (Goker et al., 2012; Rauh et al., 2012; Sword et al., 2011).

Another risk factor associated with postpartum depression is parity. Postpartum depression is twice at risk for primiparous (Tikmani, Soomro, & Tikmani, 2016). Primiparous experience more discomfort and problems in the postpartum period. The role of being a new mother can be a trigger for postpartum depression (Dubey, Chatterjee, Chauhan, Sharma, & Adhvaryu, 2021; Kendall-Tackett, 2017). Multiparous can also be a risk factor for postpartum depression, where many children can trigger stress in postpartum mothers (Adeyemo, Oluwole, Kanma-Okafor, Izuka, & Odeyemi, 2020). Other studies have found no association between parity and postpartum depression (Fatmawati & Gartika, 2021). The research results were quite diverse regarding risk factors, and the lack of description of the proportion of postpartum depression, especially at the Andalas Health Center, made the researchers interested in conducting this study. This study aims to determine the proportion of postpartum depression and its association with the mode of delivery and parity.

RESEARCH METHOD

This study is an Analytical survey with a Cross-sectional study design in the working area of the Andalas Health Center. This work area has seven wards in the Padang Timur sub-district, Padang, West Sumatra. The population for this study was all postpartum mothers from January to May 2022, with a total of 315 respondents and 134 postpartum mothers as a research sample who had to meet the inclusion and exclusion criteria. The sampling technique for this study was Proportional random sampling from each ward. The research tools used were informed consent sheets, respondent information data, and the Edinburgh Postnatal Depression Scale (EPDS) questionnaire developed by Cox (1987) for risk screening for postpartum depression (Cox et al., 1987). The EPDS questionnaire consists of 10 items, with four responses for each question covering mood, sleep problems, and self-harm importantly. The total score can range from 0-30, with a cutoff score of

≥12 indicating symptoms of postpartum depression (Nurbaeti et al., 2019). Collection data was carried out in July-August 2022 using interview techniques to fill in the respondent's information data. The EPDS questionnaire had filled out by the research sample without assistance. Analysis of research data used is univariate and bivariate. The univariate analysis had used to produce frequency distributions and percentages of research characteristics and variables. The bivariate analysis used the Chi-square test ($p<0.05$). This research had declared to have passed an ethical review from the Research Ethics Commission of the Faculty of Medicine, Andalas University, with Certificate No: 808/UN.16.2/KEP-FK/2022.

RESULTS AND DISCUSSIONS

Results

This study used primary data from respondents (postpartum mothers) who met the inclusion and exclusion criteria at the Andalas Health Center in July-August 2022.

Table 1. Respondent characteristics

Characteristics	f (n=134)	%
Age (years)		
<20	1	0,8
20-35	113	84,3
>35	20	14,9
Education		
No school	1	0,7
Elementary school	2	1,5
Junior high school	10	7,5
Senior high school	71	53,0
College	50	37,3
Postpartum period		
3rd month	61	45,5
4th month	32	23,9
5th month	10	7,5
6th month	31	23,1
Occupation		
Work	27	20,1
Doesn't work	107	79,9

The characteristics of the respondents based on (Table 1.) above show that the majority are in the age range of 20-35 years (84.3%), and the majority have high school education (53.0%). The postpartum period of the majority of respondents was at the third month postpartum (45.5%). Characteristics based on work indicate that the majority of respondents in this study did not work (79.9%).

Table 2. The proportions of postpartum depression

Postpartum depression	f (n=134)	%
Have depressive symptoms	49	36,6
No depressive symptoms	85	63,4

The description of the proportion of postpartum depression in this study based on (Table 2.) above shows that out of 134 respondents, 49 (36.6%) reported experiencing symptoms of postpartum depression.

Table 3. The Association between the mode of delivery and postpartum depression

Mode of delivery	Postpartum depression		Total f (%)	*p*
	Have symptoms f (%)	No symptoms f (%)		
Cesarean section	27 (35,1)	50 (64,9)	77 (100)	0,812

Vaginal delivery	22 (38,6)	35 (61,4)	57 (100)	
Total	**49 (36,6)**	**85 (63,4)**	**134 (100)**	

The results based on (Table 3.) above show that the presence of postpartum depression symptoms was more experienced in the vaginal delivery group by 22 (38.6%) of 57 respondents. Bivariate analysis obtained p=0.812 (p> 0.05). These results indicate that the mode of delivery has no statistically significant association with postpartum depression.

Table 4. The association between parity and postpartum depression

Parity	Postpartum depression		Total f (%)	*OR* (*CI* 95%)	*p*	
	Have symptoms f (%)	No symptoms f (%)				
Multiparous (>1 child)	36 (45,6)	43 (54,4)	79 (100)	2,705 (1,260-5,804)	0,016	
Primiparous (1 child)	13 (23,6)	42 (76,4)	55 (100)			
Total	49 (36,6)	85 (63,4)	134 (100)			

The results based on (Table 4.) above show that the presence of postpartum depression symptoms was more experienced in the multiparous group by 36 (45.6%) of 79 respondents. Bivariate analysis obtained p=0.016 (p<0.05). These results indicate that parity has a statistically significant association with postpartum depression. Multiparous is 2,705 times at risk of experiencing symptoms of postpartum depression (*OR*=2,705).

Discussions

The proportion of postpartum depression based on (Table 2.) describes as many as 49 (36.6%) experienced depressive symptoms from 134 postpartum mothers. A meta-analysis study reported the prevalence of postpartum depression (17.22%) globally and the highest prevalence in South Africa (39.96%). Postpartum depression in Indonesia is around 11.76%. Country development and income inequalities affected depression postpartum epidemiology (Wang et al., 2021). The prevalence of postpartum depression varies from 1.9% to 82.1% in developing countries (Norhayati, Nik Hazlina, Asrenee, & Wan Emilin, 2015). Research conducted at two community health centers in South Jakarta, Indonesia, reported a prevalence of postpartum depression of 19.88% (Nurbaeti et al., 2019). The results of this study describe that the incidence of postpartum depression symptoms in the working area of the Andalas Health Center, Padang, West Sumatra, Indonesia is 36.6%. The characteristics of the respondents in this study showed that the majority were aged 20-35 years (84.3%), had a high school education level (53.0%), had a third-month postpartum period (45.5%), and did not work (79, 9%).

Postpartum depression is defined based on the Diagnostic and Statistical Manual of Mental Disorders-V as major depression in which the onset of depressive symptoms (mood changes, sleep problems, and self-harm) occurs during pregnancy or within four weeks postpartum (Kendall-Tackett, 2017). Depression that occurs more than four weeks postpartum (does not meet the criteria for major depression) can still be severe and requires treatment. Nonpsychotic puerperal depression in clinical services and research is defined variously as depression that occurs at 1, 3, 6, or 12 months postpartum (Stewart & Vigod, 2016).

Childbirth is a physiological process in which the products of conception are removed from the uterus either vaginal delivery (spontaneous/intervention) or through cesarean section (emergency/elective), and then the puerperium begins (Nurhayati, 2019; Steegers et al., 2019). This study shows that the mode of delivery has no significant association with postpartum depression (p=0.812) in (Table 3.). The results of this study differ from previous studies (Meky, Shaaban, Ahmed, & Mohammed, 2020). Mothers with cesarean section are 1.34 times at risk of experiencing postpartum depression compared to vaginal delivery (Sun et al., 2021).

Stress due to surgery will inhibit 5-hydroxytryptamine (5-HT) in the brain, increasing cortisol which can trigger susceptibility to postpartum depression. Cortisol is a hormone secreted due to the stress response (Dinan, 1994; Edwards, Porter, & Stein, 1994; Sun et al., 2021). The effects of surgery, such as inflammation, pain, and stress, could theoretically increase a woman's vulnerability to postpartum depression (Eckerdal et al., 2018). Women with cesarean sections usually have lower oxytocin levels than vaginal delivery. Oxytocin will help reduce stress and increase feelings of happiness, which reduces the vulnerability to postpartum psychological problems (Kim & Dee, 2018; Lonstein, Maguire, Meinlschmidt, & Neumann, 2017; Mottolese, Redouťe, Costes, Le Bars, & Sirigu, 2014; Sun et al., 2021). Mothers with cesarean section lack confidence because they cannot give birth naturally and adapt to postpartum life, which will cause psychological problems and then develop into postpartum depression (Loto et al., 2010).

This study also showed that postpartum depressive symptoms were more common in the vaginal delivery group (38.6%) compared to cesarean section (35.1%). This condition is the same as a study that found postpartum depression was more common in the vaginal delivery group than cesarean section, but there was no statistically significant association (Liu et al., 2017). Another study reported that cesarean section was a protective factor for postpartum depression in some cases (Chaaya et al., 2006).

Negative birth experiences can trigger the development of post-traumatic stress disorder (Steegers et al., 2019). Increased cortisol secretion during vaginal delivery, negative emotions, and adaptations to postpartum life can also trigger psychological problems in a mother. This study did not differentiate between the cesarean section (emergency/elective) or vaginal (spontaneous/intervention) groups which showed no association in contrast to previous studies. Various factors, either singly or comprehensively, can influence the occurrence of postpartum depression (Sun et al., 2021).

Parity is the number of term babies born to a mother (Manuaba, 2012). This study shows that parity has a significant association with postpartum depression (p=0.016) in (Table 3.). Respondents who experienced symptoms of postpartum depression were more in the multiparous group (45.6%) than primiparous (23.6%). This result is in line with previous studies, which reported that multiparous is a risk factor that can influence postpartum depression (Adeyemo et al., 2020; Nasri, Wibowo, & Ghozali, 2017).

Primiparous may influence postpartum depression in other previous studies. Primiparous are twice as likely to experience postpartum depression (Dubey et al., 2021; Tikmani et al., 2016). New moms who don't have experience in raising children can feel worried and afraid if they make a mistake. The role of being a new mother can make mothers feel confused, increasingly burdened, and feel less independent after the birth of a baby. An inexperienced mother will affect her performance in caring for her baby. A mother's knowledge influences the quality of caring for her baby (Putriarsih, Budihastuti, & Murti, 2017). Primiparous is a risk factor for postpartum depression because new mothers generally experience discomfort and problems after giving birth (Dubey et al., 2021).

Multiparous had considered psychologically more prepared to welcome the birth of a baby than primiparous. Previous knowledge and experience related to giving birth can affect a mother's next readiness (Sapulette, Ayawaila, Guntur, Ingrit, & Tahapary, 2022; Soep, 2011). Multiparous showed more symptoms of postpartum depression, and there was a statistically significant association between parity and postpartum depression. This study is in line with previous studies, which reported that multiparous is a risk factor for postpartum depression. This condition can be caused by many children, thus triggering stress on the mother (Adeyemo et al., 2020). Multiparous who experience postpartum depression are also related to costs, where the more children, the greater the expense needed to meet the needs of children and their families (Yasa & Lesmana, 2019).

The description above shows that primiparous or multiparous are at risk for postpartum depression. Other studies still find no association between parity and postpartum depression (Fatmawati & Gartika, 2021). A mother's health can be affected by the number of children born. The first birth generally has a high risk compared to the second or third birth, which is usually safer. Infant and maternal deaths are at higher risk for the fourth birth and the next (Apriliana, Maftuchah, & Nurhudhariani, 2016). High parity can not only have a negative psychological impact on mothers, but a large number of births a mother can also affect the quality of her child's health. A parity of more than four children is significantly associated with neonatal death. Premature babies and high fetal mortality occur in the high parity group (Khan et al., 2022; Siahaan & Ariawan, 2021). Early detection of the risk of postpartum depression is necessary to implement in postpartum care. This detection aims to screen so that it gets proper medical, so it doesn't endanger the mother or other family members. Parity is a risk factor that influences postpartum depression, so the increase in BKKBN program must be increased to reduce the Total Fertility Rate (TFR) (Siahaan & Ariawan, 2021; Stewart & Vigod, 2016).

CONCLUSION

The results of this study describe that the proportion of postpartum depression at the Andalas Health Center, Padang, West Sumatra, was 36.6%. The results of the statistical analysis reported that there was no significant association between the mode of delivery and postpartum depression. Parity showed that there was a statistically significant association with postpartum depression. This study can contribute to detecting the presence of postpartum depression symptoms by using the Edinburgh Postnatal Depression Scale questionnaire, so it is expected to be input in providing postpartum care services. The limitation of this study is that it does not distinguish between vaginal delivery (spontaneous or intervention) and cesarean section (emergency or elective).

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