Overview of the Risk of Postpartum Depression in Mothersfollowing a Caesarean Section in a General Hospital Bali Mandara Region Bali Province

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This study was motivated by the higher risk of postpartum depression in mothers undergoing cesarean section (CS) compared to vaginal delivery. Physical trauma, prolonged recovery, and feelings of failure are key factors. Data shows that postpartum depression affects 46.7% of post-CS mothers, much higher than 2.2% in vaginal deliveries. This research aims to analyze postpartum depression risk among post-CS mothers at Bali Mandara Hospital by examining factors such as age, education, pregnancy status, marital status, parity, economic status, and spousal support. A descriptive quantitative method was employed, with a sample of 43 post-CS mothers collected from March to April 2025. Data were collected using the Edinburgh Postnatal Depression Scale (EPDS) and analyzed univariately. The results showed most respondents were over 35 years old (44.1%), highly educated (58.1%), and had strong spousal support (79%). The majority (74.4%) exhibited low depression risk, while 14% had moderate risk. Planned pregnancy, marital status, multiparity, income above minimum wage, and strong spousal support reduced depression risk. In conclusion, postpartum depression risk among post-CS mothers at Bali Mandara Hospital is low due to adequate protective factors. Healthcare providers should conduct routine screening, provide psychosocial interventions for high-risk mothers, and enhance family education on postnatal support.
Keywords: Postpartum depression, Cesarean section, Husband's support

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1. Introduction

A cesarean section (CS) is a surgical method of delivery used to remove the fetus from the uterus. This procedure can be performed electively (elective CS) or in an emergency (emergency CS). Elective CSs are performed based on medical indications before labor begins, such as a previous CS, a breech presentation, or a maternal condition that makes vaginal delivery unfeasible. Emergency CSs, on the other hand, are performed in situations that threaten the safety of the mother and fetus, such as fetal distress, placental abruption, or severe preeclampsia ([1]. Mothers who give birth by Caesarean section (CS) are at higher risk than those who deliver vaginally. The physical trauma of the surgery, feelings of failure, and a longer recovery period contribute to an increased risk of depression in mothers after a CS. Research suggests that mothers who give birth by cesarean section are more likely to experience postpartum depression than those who deliver vaginally. This is due to the longer post-surgical recovery process, which hinders mothers from embracing their new role as mothers [2].

Other research shows that postpartum depression is more common in mothers who undergo pathological deliveries (cesarean sections), with a prevalence of 46.7% of respondents, compared to only 2.2% of those who undergo normal deliveries [3] The prevalence of postpartum depression worldwide is estimated at around 13%, with rates even higher in developing countries, reaching 20% [4]. In Asia, the incidence of postpartum depression is quite significant, ranging from 26% to 85%, while in Indonesia the prevalence is

between 50% and 70% [5]. Several factors contributing to postpartum depression include poorly managed postpartum blues. Internally, factors such as the mother's age at marriage and pregnancy (under 20 or over 35), first-time birth (primipara), readiness to accept a new family member, knowledge or skills in caring for a baby, and the mother's education level play a significant role. Externally, family support, husband's support, community customs regarding childbirth, socioeconomic status, information regarding postpartum maternal care, and postpartum maternal care history also play a role (Lindayani and Marhaeni, 2020).

The birth of a baby can be an economic challenge for families, given the costs of infant care, child-rearing expenses, and changes in work schedules to fulfill caregiving responsibilities. These factors can lead to postpartum mothers experiencing psychological disorders, including depression [3]. The incidence of postpartum depression can also be influenced by pregnancy history. Primiparous mothers are at a 50%-60% higher risk of postpartum depression than multiparous mothers, due to anxiety related to inexperience and limitations in childcare [6]. Another factor that triggers postpartum depression is drastic changes in hormone levels, such as estrogen (estradiol and estriol), progesterone, prolactin, and cortisol. Rapid or slow increases or decreases in these hormones can be a biological cause of postpartum depression. The greater the decrease in estrogen and progesterone levels after childbirth, the higher a woman's risk of developing depression, especially in the first 10 days after delivery [7]. There are two main approaches to managing or treating postpartum depression: pharmacological and non-pharmacological. One non-pharmacological approach is psychotherapy. Individual or group psychotherapy, including cognitive-behavioral therapy and interpersonal therapy, has proven highly effective. One example is Cognitive Behavioral Therapy (CBT), a form of counseling that aims to improve health, achieve more satisfying experiences, and achieve a specific lifestyle through changes in thought patterns and behavior. CBT focuses on managing and monitoring the client's thought patterns to reduce negative thoughts and replace them with ones that produce more positive emotions. This is done through relaxation exercises and education. Research from a hospital in Indonesia showed that 24.5% of post-cesarean section mothers experienced symptoms of postpartum depression based on the Edinburgh Postnatal Depression Scale (EPDS) [8]. Another study found that 21.3% of post-cesarean section mothers were at high risk of postpartum depression, with key contributing factors including low social support, a history of psychological disorders, and stressful conditions during pregnancy and childbirth [5].

Based on a preliminary study conducted at Bali Mandara Regional General Hospital, Bali Province, through initial interviews with 34 post-cesarean section mothers, it was found that 11 of the 34 mothers (33%) reported experiencing prolonged feelings of sadness, excessive anxiety, and sleep disturbances after delivery. Several mothers also identified a lack of emotional support from their partners and families as a contributing factor to their psychological well-being. The high risk of postpartum depression among post-cesarean section mothers demonstrates the importance of early detection and appropriate treatment to prevent long-term negative impacts. This study aimed to determine the risk of postpartum depression in post-cesarean section mothers at Bali Mandara Regional Hospital.

2. Method

This quantitative descriptive study aimed to describe the risk of postpartum depression in post-cesarean section (CS) mothers based on sociodemographic characteristics. The study was conducted in the Tunjung Ward of Bali Mandara Regional Hospital, located in Denpasar, Bali, from January to May 2025. The population in this study was all post-cesarean section mothers. The sampling technique used purposive sampling. The sample size was 43 individuals. Data collection instruments used were a sociodemographic identity questionnaire, a husband's support questionnaire, and a postpartum depression risk questionnaire, measured using the Edinburgh Postnatal Depression Scale (EPDS). Data analysis in this study was

conducted through univariate data analysis on each variable from the research results. The data analysis in this study produced percentages that aimed to describe the characteristics of each variable studied. Data interpretation was performed by presenting percentages for each variable category.

3. Results And Discussion

Respondent characteristics

Based on the research conducted, the results obtained were processed in the form of a table and then narrated to obtain a complete picture of the results :

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristics	f	%
Age		
< 20 years old	6	14,0
20-35 years old	18	41,9
>35 years old	19	44,1
Total	43	100
Education		
Intermediate	18	41,9
Higher	25	58,1
Total	43	100
Pregnancy Status		
Planned	35	81,4
Unplanned	8	18,6
Total	43	100
Marital Status		
Married	42	97,7
Not married	1	2,3
Total	43	100
Parity		
Primipara	6	14,0
Multipara	37	86,0
Total	43	100
Wages		
<Regional Minimum Wage	9	20,9
≥ Regional Minimum Wage	34	79,1
Total	43	100,0
Husband's support		
Low	3	7,0
Medium	6	14,0
High	34	79,0
Total	43	100

*) source: primary data

Based on Table 1, the analysis of the characteristics of the study participants reveals several interesting trends. Demographically, the age group over 35 years emerged as the largest, comprising 44.1% of respondents. The majority (58.1%) of respondents had completed higher education, indicating an adequate

level of literacy within the study population. Regarding pregnancy and marital status, the data indicate that the majority of pregnancies (81.4%) were planned. This is in line with the fact that almost all respondents (97.7%) were married, reflecting a stable family context.

In terms of reproductive experience, the majority of participants (86%) were multiparous, indicating they had previous pregnancy experience. Meanwhile, in terms of socioeconomic aspects, 79.1% of respondents earned income equal to or exceeding the Regional Minimum Wage. A similar figure (79.0%) was also seen for levels of husband support, which were categorized as high, creating an interesting alignment between economic conditions and family support.

Table 2. Frequency Distribution of Depression Risk in Mothers Who Delivered by Caesarean Section at Bali Mandara Regional Hospital, Bali Province

Maternal Depression	equency (f)	rcentage (%)
No risk	5	11,6
Low risk	32	74,4
Moderate risk	6	14,0
Total	**43**	**100**

*) source: primary data

The results of the analysis in Table 2 reveal that the majority of mothers who underwent caesarean section (74.4%) were in the low risk category for depression.

Table 3. Frequency Distribution of Depression Risk in Mothers Delivering by Caesarean Section by Age at Bali Mandara Regional Hospital, Bali Province

Characteristics	Risk of Depression in Mothers Giving Birth by Caesarean Section							
	Medium Risk		Low Risk		No Risk		Total	
	f	%	f	%	f	%	f	%
Age								
< 20 years old	4	66,7	2	33,3	0	0	6	100
20-35 years old	1	5,5	16	89,0	1	5,5	18	100
>35 years old	1	5,3	14	73,7	4	21,0	19	100
Education								
Intermediate	5	27,8	13	72,2	0	0	18	100
Higher	1	4	19	76	5	20	25	100
Pregnancy Status								
Planned	0	0	30	85,7	5	14,3	35	100
Unplanned	6	75	2	25	0	0	8	100
Marital Status								
Married	5	11,9	32	76,2	5	11,9	42	100
Not married	1	100	0	0	0	0	1	100
Parity								
Primipara	5	83,3	1	16,7	0	0	6	100
Multipara	1	2,7	31	83,8	5	13,5	37	100
Wages								
<Regional Minimum	6	66,7	3	33,3	0	0	9	100
≥Regional Minimum	0	0	29	85,3	5	14,7	34	100
Husband's support								
Low	3	100	0	0	0	0	3	100

Characteristics	Risk of Depression in Mothers Giving Birth by Caesarean Section							
	Medium Risk		Low Risk		No Risk		Total	
	f	%	f	%	f	%	f	%
Medium	3	50	3	50	0	0	6	100
High	0	0	29	85,3	5	14,7	34	100

*) source: primary data

The data in table 3 shows variations in the risk of depression in mothers undergoing cesarean sections by age category. The under-20 age group showed a moderate risk trend at 66.7%, a higher figure than other age groups. In the 20-35 age group, 89% were in the low-risk category. Meanwhile, the over-35 age group also showed a similar pattern, with 73.7% falling into the low-risk category.

The data in table 3 shows showed a relationship between education level and the risk of postpartum depression following a cesarean section. Respondents with secondary education showed a low prevalence of depression risk of 72.2%, while in the highly educated group, the prevalence reached 76%.

This study showed a relationship between pregnancy planning status and the risk of post-cesarean section depression. In the group of respondents with planned pregnancies, the prevalence of low-risk depression reached 85.7%, a figure significantly higher than in the other groups. Conversely, in the group with unplanned pregnancies, 75% of respondents were found to be in the moderate-risk depression category.

This study showed a relationship between marital status and the risk of postpartum depression after a cesarean section. Among married respondents, the prevalence of low-risk depression reached 76.2%, while among unmarried respondents, 100% were in the moderate-risk category. The table shows that respondents with primiparous parity tend to experience a moderate risk of maternal depression who give birth by caesarean section, while multiparous respondents tend to experience a low risk of 83.8%.

The table shows that respondents with income below the minimum wage experienced a moderate risk of 66.7%, while those with income above the minimum wage tended to have a lower risk of 85.3%. The data analysis shows the relationship between the level of husband's support and the risk of postpartum depression after a cesarean section. In the group with low husband's support, 100% of respondents experienced a moderate risk of depression, with no cases of low risk. The group with moderate support showed an even distribution, with 50% each in the moderate and low risk categories. Significantly, the group with high husband's support dominated the low risk category (85.3%), with no cases of moderate or high risk found.

Discussion

The sociodemographic characteristics of mothers who delivered by cesarean section at Bali Mandara Regional Hospital (RSUD Bali) in Bali Province showed that the majority of respondents were aged over 35 (44.1%). This finding suggests that the elderly group significantly contributes to the cesarean delivery rate at the hospital. Ages over 35 are clinically considered a high-risk age group associated with increased obstetric complications such as hypertension, gestational diabetes, and preeclampsia. This aligns with research by [2], which found that the incidence of preeclampsia increases significantly in the age groups <20 and >35 years. Therefore, cesarean sections are often recommended as a preventive measure to avoid serious obstetric risks. Modern medical approaches also support this decision, citing legal considerations and clinical convenience.

Physiologically, advanced age is often associated with decreased uterine elasticity and an increased risk of complications such as prolonged labor and placental abruption. This reinforces the clinical rationale for choosing cesarean sections over vaginal deliveries. Furthermore, public perception, increasingly shaped

through digital media, contributes to the preference for cesarean sections, even though there is not always an absolute medical indication [4]. Educational characteristics indicate that the majority of respondents were highly educated (58.1%). Higher education plays a role in improving health literacy and the ability to make more rational decisions. Highly educated mothers tend to be more critical in weighing the benefits and risks of various delivery methods. They also have broader access to information and greater involvement in medical discussions with healthcare professionals [9]. In contrast, mothers with less education tend to be passive and follow medical advice without in-depth critical analysis.

Planned pregnancies also dominated (81.4%). This is important because planned pregnancies provide opportunities for expectant mothers to prepare themselves physically, mentally, and financially. According to Daly et al., pregnancy planning allows for prenatal checkups, chronic disease management, and reproductive education, which have a positive impact on delivery outcomes [10]. Other studies have also shown that pregnancy planning impacts changes in healthy behaviors and preparedness for pregnancy and childbirth [11]. The marital status of respondents was predominantly married (97.7%). This strongly correlates with high levels of emotional and social support from partners, which are crucial for labor and recovery after a CS. Leonard et al. found that partner support plays a significant role in reducing the risk of postpartum depression. A meta-analysis by Nugrahaeni et al. also concluded that increased social support significantly reduced the risk of postpartum depression [5].

The majority of respondents were multiparous (86%), indicating a tendency to repeat cesarean sections. The "once a cesarean, always a cesarean" paradigm remains widely applied in Indonesian obstetric practice. This approach prioritizes clinical safety and avoidance of legal risks over exploring vaginal delivery after cesarean section (VBAC), although it is still medically feasible in selected cases [4]. Respondents with incomes above the minimum wage (UMR) dominated the socioeconomic characteristics. A good economic status allows mothers to access higher-quality healthcare services, including elective cesarean sections. Bintabara's research shows that mothers with higher incomes tend to choose cesarean sections due to perceived safety, ease of control over the timing of labor, and pain reduction with modern anesthesia [12].

High levels of husband support (79%) were also an important characteristic. Husbands' involvement in birth planning and health education significantly influences more informed and rational decision-making. According to Anwar et al., husbands' involvement in the P4K program improves communication between families and health workers, resulting in appropriate and safe delivery decisions [13]. The risk of depression in post-cesarean mothers at Bali Mandara Regional Hospital showed that the majority were in the low-risk category (74.4%). This can be attributed to a good level of education, planned pregnancies, and high social support. Hassanzadeh's research indicates that antenatal education and pregnancy planning can reduce anxiety and improve mothers' mental readiness for labor and the postpartum process [9]. Digital-based interventions and structured counseling also help increase mothers' self-confidence and self-efficacy.

When associated with sociodemographic characteristics, older mothers (>35 years) tend to have a lower risk of depression due to better emotional maturity, financial preparedness, and coping skills. Higher education also contributes to a reduced risk of depression, as Rong Lin et al. noted that health literacy and access to good information aid stress management and healthy decision-making [14]. Planned pregnancies, legally married status, and high levels of spousal support are significantly associated with a lower risk of depression. This is supported by Maharani's study, which found that emotional support from a partner improves maternal mental health and aids psychological adaptation after childbirth [15]

Multiparity also shows a lower risk of depression than primiparity, possibly due to previous childbirth experiences that provide greater confidence and mental preparedness [16]. Socioeconomic status also plays a role. Mothers with higher incomes tend to have better access to healthcare and support services,

which significantly reduces the risk of stress and depression. Research by [7] shows that mothers with lower economic status have limited access to post-cesarean care, increasing the risk of depression [7]. Overall, the risk of depression in post-cesarean mothers is strongly influenced by a combination of factors, such as age, education, pregnancy status, marital status, parity, economic status, and husband's support. A comprehensive approach through education, social support, and comprehensive healthcare is essential to minimize postpartum psychological risks, especially in high-risk mothers.

4. Conclusion

The study found that the majority of mothers who delivered by cesarean section had a low risk of postpartum depression. Based on respondent characteristics, it was found that mothers aged <20 years, unplanned pregnancies, incomes below the minimum wage (UMR), and low husband support were more likely to be at moderate risk for depression. Conversely, respondents aged 20–35 years and >35 years, with higher education, formal marital status, multiparity, and high husband support and incomes above the minimum wage were more likely to be at low risk for depression. Therefore, it can be concluded that maternal age, parity, education level, marital status, pregnancy status, economic status, and husband support influence the risk of postpartum depression in post-cesarean mothers at Bali Mandara Regional Hospital. This study suggests that Bali Mandara Regional Hospital and health workers, especially midwives, provide education to pregnant women and their families regarding the importance of planning pregnancy at the ideal age, as well as encouraging husband involvement as a form of emotional support to prevent postpartum depression.

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