



## RELATIONSHIP BETWEEN POSTPARTUM ANXIETY AND BABY BLUES SYNDROME AT UNIVERSITAS AIRLANGGA HOSPITAL

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### Abstract

**Background:** Postpartum mothers are vulnerable to mental health problems, including baby blues syndrome, which occurs in the first week. Baby blues syndrome has the potential to predict postpartum depression, and if left untreated, it can lead to more severe mental disorders. This study aims to determine the relationship between the level of postpartum maternal anxiety and the occurrence of baby blues syndrome at Universitas Airlangga Hospital. **Method:** This was a quantitative study with an observational analytic method and a cross-sectional design. The population in this study was mothers 1-2 days postpartum who were treated at Universitas Airlangga Hospital in December 2023. The study involved 33 postpartum mothers sampled using the consecutive sampling method. The instruments used were questionnaires, the Perinatal Anxiety Screening Scale (PASS) to measure anxiety and the Edinburgh Postnatal Depression Scale (EPDS) to measure symptoms of baby blues syndrome. The analysis method used was the chi-square test. **Results:** Respondents with anxiety without symptoms were 12 (36.36%), none of whom experienced baby blues syndrome. Out of 16 respondents with mild to moderate anxiety and experienced baby blues syndrome, one person (3.03%) did. And out of 5 respondents with severe anxiety and experienced baby blues syndrome, one person (3.03%). The p-value of 0.289 based on the chi-square test. **Conclusion:** The level of anxiety in postpartum mothers is not related to the incidence of Baby Blues Syndrome.

Keyword : anxiety postpartum, baby blues syndrome, postpartum psychological disorder.

### INTRODUCTION

The postpartum period is the stage of labor that begins after the birth of the baby and placenta and lasts up to 6 weeks or 42 days, marked by the cessation of bleeding (Azizah & Rosyidah, 2019). During this period, postpartum mothers experience many physical and psychological changes, requiring them to adapt to these changes and their new roles. Intense changes can disrupt mood, as certain hormones after childbirth can lead to feelings of anxiety, stress, and even depression (Lim, 2021). The prevalence of postpartum anxiety in Indonesia reaches 28.7%

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(Agustin & Septiyana, 2018). When a mother experiences fear, worry, and anxiety, it can increase the risk of psychological disorders, one of which is baby blues syndrome. Baby blues syndrome is a feeling of sadness that occurs after childbirth, with symptoms appearing two or three days postpartum. If left untreated, baby blues syndrome can develop into long-term postpartum depression (NIMH, 2023). Mothers experiencing depressive symptoms may struggle to care for their babies optimally due to feelings of inadequacy and helplessness, which can undermine their sense of responsibility toward their child (Istiqomah et al., 2021).

The global prevalence of baby blues syndrome is approximately 70-80%, with nearly 13% progressing to postpartum depression. In Indonesia, baby blues syndrome ranks fourth, affecting about 31 births per 1,000 population (WHO, 2018). According to data from the Surabaya City Health Office, maternal mortality declined from 87 to 57 per 100,000 live births during the 2015-2020 period. Efforts to accelerate the reduction of maternal mortality can be achieved by ensuring that all mothers have access to quality maternal healthcare services during pregnancy, childbirth, and the postpartum period. In Surabaya, 99.08% of births in 2020 were assisted by healthcare professionals in health facilities, while 109 births at Universitas Airlangga Hospital involved 61 spontaneous deliveries and 49 by cesarean section.

Factors influencing baby blues syndrome result from a multifactorial mechanism, including age, parity, education, occupation, family support, type of delivery, and other aspects. Previous studies, such as Arisani and Noordati in 2021 at Dr. Doris Sylvanus General Hospital in Palangka Raya revealed that anxiety, delivery method, and onset of lactation accounted for 45.1% of the factors influencing baby blues syndrome, with the remaining 54.9% due to other factors. According to Bidayati's (2022) study, 31% of respondents experienced moderate anxiety, 34.5% experienced baby blues syndrome, and there was a significant relationship between postpartum anxiety levels and baby blues syndrome at the Ungaran Health Center.

Research into the relationship between postpartum anxiety and the incidence of baby blues syndrome has highlighted significant connections between maternal mental health and postpartum psychological challenges. Studies, such as



those by Alifah (2016) and Arisani & Noordiati (2021), have examined how psychosocial factors influence postpartum blues in various hospital settings, noting a correlation between high anxiety levels and the onset of baby blues symptoms. Alifah's study specifically identified that postpartum anxiety can increase the risk of emotional instability and mild depressive episodes common in baby blues syndrome. Meanwhile, Istiqomah et al. (2021) explored postpartum anxiety levels in mothers and found a direct impact on the mother's adaptation to new motherhood, often resulting in emotional disturbances and stress. These previous findings suggest a basis for understanding the link between postpartum anxiety and baby blues, though research specific to Universitas Airlangga Hospital is still needed to clarify this relationship further within its patient population. Based on the background presented, this research is crucial to determine the correlation between postpartum anxiety levels and the occurrence of baby blues syndrome at Universitas Airlangga Hospital.

## METHOD

The research design used in this study was observational analytic with a cross-sectional approach. The sampling technique was consecutive sampling, where the sample consists of postpartum mothers who were on the first or second day after delivery and admitted to Universitas Airlangga Hospital during December 2023. A total of 33 respondents were included in the study. The inclusion criteria for this study were as follows mothers with married status, mothers who could read and write, and mothers who were willing to participate as respondents.

Data collection was carried out using two standardized questionnaires: the Perinatal Anxiety Screening Scale (PASS) and the Edinburgh Postnatal Depression Scale (EPDS). These instruments were distributed to the respondents to assess their levels of anxiety and symptoms of baby blues syndrome. The PASS is used to screen for perinatal anxiety, while the EPDS assesses the likelihood of postpartum depression and related mood disorders. The analysis of the collected data was performed using the chi-square statistical test to evaluate the association between postpartum anxiety and baby blues syndrome. The level of significance was set at 0.05 (5%), indicating that results with a p-value less than 0.05 would be considered statistically significant. The study variables include postpartum anxiety levels

(measured by PASS scores) and the incidence of baby blues syndrome (measured by EPDS scores). The analysis procedures were carried out to determine the correlation between the anxiety levels of the respondents and the occurrence of baby blues syndrome during the specified postpartum period. Ethical approval for this study was obtained from the Institutional Review Board of Airlangga University Hospital, ensuring that all protocols complied with the hospital's ethical guidelines (177/KEP/2023). Informed consent was acquired from all participants prior to inclusion in the study.

## RESULT AND DISCUSSION

**Table 1** Frequency Distribution of Postpartum Mother's Characteristics on the First and Second Day at Universitas Airlangga Hospital

Respondent Characteristics	Frequency	Percentage
<b>Age</b>		
20 – 35 years	28	84,84
>35 years	5	15,16
<b>Education</b>		
Primary school	1	3,0
Middle school	4	12,1
High school	19	57,6
Associate degree	2	6,1
Bachelor's degree	7	21,2
<b>Occupation</b>		
Housewife	22	66,6
Private sector	11	33,4
<b>Gravida status</b>		
Primigravida	14	42,42
Multigravida	19	57,58
<b>Comorbid conditions</b>		
No	20	60,6
Yes	13	39,4
<b>Family opposed to pregnancy</b>		
No	31	93,9
Yes	2	6,1
<b>Type of delivery</b>		
Normal	16	48,5
Caesarean section	17	51,5
<b>Days of hospitalization</b>		
First day	12	36,4
Second day	21	63,6
<b>Total</b>	<b>33</b>	<b>100,0</b>

**Table 2** Anxiety Levels of Postpartum Mothers at Universitas Airlangga Hospital



Anxiety Level	Frequency	Percentage
No symptoms	12	36,4
Mild - moderate	16	48,5
Severe	5	15,2
Total	33	100,0

**Table 3** Baby Blues Syndrome at Universitas Airlangga Hospital

Baby blues syndrome	Frequency	Percentage
Yes	2	6,1
No	31	93,9
Total	33	100,0

Based on age characteristics, the results show that 28 postpartum mothers (84.84%) were aged between 20 and 35 years. Among these, 10 mothers did not experience anxiety, 13 had mild to moderate anxiety, and 5 experienced severe anxiety. Meanwhile, 5 postpartum mothers (15.16%) were over 35 years old, with 2 not experiencing anxiety and 3 experiencing mild to moderate anxiety. During pregnancy, the safe age range for mothers is considered to be between 20 and 35 years. Ages outside this range, such as below 20 years or above 35 years, are categorized as high-risk for pregnancy, from both physical and psychological perspectives (Hafid, 2021).

In this study, no mothers over 35 years old experienced severe anxiety, whereas 5 mothers aged between 25 and 35 years did experience severe anxiety. This aligns with research conducted by Tearne (2016) in Australia, which found that older maternal age was not significantly associated with anxiety compared to younger maternal age. This finding is consistent with Morris (2016), who reported no increased risk of anxiety in older women becoming mothers.

Therefore, a person's readiness for parenthood is not solely determined by age but can also be influenced by other factors that contribute to being more prepared for motherhood, thus reducing the likelihood of experiencing anxiety during the postpartum period. This study was conducted at Universitas Airlangga Hospital (RSUA), one of the referral centers for childbirth in Surabaya. Consequently, mothers over 35 years old, who are at higher risk during pregnancy and postpartum, especially concerning physical and mental health, may have anxiety levels influenced by these conditions.

Regarding educational background, the highest frequency was observed among mothers with a high school education, comprising 19 mothers (57.6%).

Among them, 5 postpartum mothers did not experience anxiety symptoms, 11 had mild to moderate anxiety, and 3 experienced severe anxiety. The second most common educational level was diploma/bachelor's degree (D4/S1), comprising 7 postpartum mothers (21.2%), with 4 not experiencing anxiety symptoms and 3 experiencing mild to moderate anxiety. At the junior high school level, there were 4 mothers (12.1%), with 1 not experiencing anxiety, 2 having mild to moderate anxiety, and 1 experiencing severe anxiety. Furthermore, 6.1% or 2 postpartum mothers did not experience anxiety at the diploma level (D3). In this study, one mother (3.0%) had an elementary education level and experienced severe anxiety.

Educational attainment can enhance an individual's understanding of health. Thus, the higher the education level, the broader the knowledge and ability to utilize available healthcare services (Muzayyana & Saleh, 2021). Mothers with higher education levels tend to have a deeper understanding of pregnancy and are better equipped to manage stress during pregnancy. Some studies show that individuals with higher education levels tend to respond more rationally than those with lower or no education (Rinata & Andayani, 2018).

These findings are consistent with this study, as there was no severe anxiety observed among postpartum mothers with D3 and D4/S1 education levels. The research was conducted at RSUD, located in Surabaya, the capital city of East Java Province. Surabaya is also ranked second in East Java for the highest level of education (BPS, 2022). Furthermore, recent government policies require a minimum of a high school education to apply for jobs. Therefore, residents of Surabaya, one of Indonesia's largest cities, pursue higher education levels to improve their quality of life and obtain employment in this major city.

Based on occupation characteristics, the majority (22 mothers or 66.6%) were housewives, with 8 postpartum mothers not exhibiting anxiety symptoms, 10 experiencing mild to moderate anxiety, and 4 experiencing severe anxiety. The remaining 33.4% (11 mothers) were private sector employees, with 4 not experiencing anxiety symptoms, 6 experiencing mild to moderate anxiety, and 1 experiencing severe anxiety.

According to Hafid (2021), personal knowledge and experience can enhance informal information through social interactions or work environments. Working



mothers tend to have greater access to information and experiences compared to housewives, who may have limited exposure. This could lead to higher anxiety levels among housewives.

However, in this study, working mothers did not significantly experience severe anxiety. This may be due to other factors influencing the occupational characteristics of mothers, reducing the likelihood of anxiety. Surabaya still maintains a strong patriarchal tradition, which may contribute to most respondents being housewives while their husbands work. Additionally, some respondents in this study were first-time mothers (primigravida), experiencing the transition to being a mother and wife, with some deciding to resign from their jobs to focus on caring for their babies and husbands.

Regarding gravidity status, 19 mothers (57.58%) were multigravida, with 9 mothers not experiencing anxiety symptoms, 9 experiencing mild to moderate anxiety, and 1 experiencing severe anxiety. Among the 14 primigravida mothers (42.42%), 3 did not experience anxiety, 7 experienced mild to moderate anxiety, and 4 experienced severe anxiety.

Every woman undergoes different experiences during pregnancy (Siregar, 2021). There are differences in emotional state, physical condition, and psychosocial aspects between first-time mothers (primigravida) and those who have had previous pregnancies (multigravida). Almost all pregnant mothers feel some level of anxiety, particularly among first-time mothers, which differs from women who have had previous pregnancies (Wulandari & Perwitasari, 2021). This finding aligns with this study, as 4 primigravida mothers experienced severe anxiety. Multigravida mothers have more experience in caring for babies compared to first-time mothers, who tend to have a higher risk of anxiety. This study was conducted at RSUD in Surabaya, where the education level is higher compared to other districts in East Java. Moreover, multigravida mothers who have had children before are better able to understand pregnancy, childbirth, and the postpartum period, which may explain the lower occurrence of severe anxiety.

Regarding comorbidities, 20 postpartum mothers (60.6%) did not have any comorbid conditions during pregnancy, with 7 mothers not experiencing anxiety, 9 experiencing mild to moderate anxiety, and 4 experiencing severe anxiety. The

remaining 13 mothers (39.4%) had conditions such as hypertension, asthma, gestational diabetes, preeclampsia, vertigo, stomach issues, and hepatitis B. Among them, 5 did not experience anxiety, 7 experienced mild to moderate anxiety, and 1 experienced severe anxiety.

The relationship between pregnancy and postpartum health status is one factor that can trigger anxiety (Dewi, et al., 2022). Mothers experiencing health issues tend to be more vulnerable to anxiety than healthy mothers. Anxiety levels in mothers tend to double when there are other health problems present (Dewi, et al., 2022). However, this was not consistent with the findings of this study, as mothers without comorbid conditions also experienced anxiety. This may be due to various factors influencing postpartum mothers' anxiety levels.

In this study, some mothers had infectious and non-infectious diseases because RSUA is one of the maternity referral centers. Among the 13 mothers with comorbid conditions, all experienced anxiety, either mild to moderate or severe. This could be due to the numerous procedures these mothers had to undergo during pregnancy or childbirth, such as various tests or taking medication to prevent worsening health conditions that could affect their babies.

Regarding family support, the study examined whether families supported or opposed the pregnancy. The results showed that almost all (31 mothers or 93%) received full support from their families. Among them, 7 mothers did not experience anxiety, 9 experienced mild to moderate anxiety, and 4 experienced severe anxiety. Meanwhile, 2 postpartum mothers did not receive family support during pregnancy due to economic issues and failed contraception, with 1 mother not experiencing anxiety and the other experiencing mild to moderate anxiety.

Family support plays a crucial role in alleviating anxiety by providing material or emotional assistance (Utomo & Sudjiwanati, 2018). The involvement of family members and husbands significantly impacts the social support felt by the mother (Utomo & Sudjiwanati, 2018). Postpartum mothers need not only support from their husbands but also from their families and surrounding community. However, other people around the mother can also act as stressors. For example, giving advice that tends to restrict the mother may be a source of stress, even if the mother is not lacking knowledge about postpartum or baby care. Instead of overwhelming the



mother with advice, providing direct support through concrete assistance would be more beneficial.

Most respondents in this study had full support during their pregnancy and childbirth because the majority of Surabaya's population is aware of these issues and has access to information through various media, including social media. The high internet usage in Java, which accounts for 65% of the internet users in Indonesia, supports this (Surabaya City Government, 2017). Thus, families are more knowledgeable about supporting mothers during pregnancy.

Regarding the type of delivery, 17 mothers (48.5%) had spontaneous vaginal deliveries, with 5 mothers not experiencing anxiety symptoms, 11 experiencing mild to moderate anxiety, and 1 experiencing severe anxiety. In addition, 16 mothers (51.5%) underwent cesarean section (CS), with 7 not experiencing anxiety, 5 experiencing mild to moderate anxiety, and 4 experiencing severe anxiety.

Cesarean section is a potential risk factor for emotional disorders during the pre-and postnatal periods, with pain levels being an indicator of potential severity (Ilska & Basista, 2020). Emotional instability can occur after delivery, whether vaginal or cesarean. However, it is more common following cesarean sections (Moyo & dan Djoda, 2020). RSUD serves as a referral center for mothers requiring either emergency or elective cesarean section (SC). Mothers who undergo SC tend to experience higher levels of anxiety compared to those who give birth vaginally, due to concerns related to the type of delivery they will face, especially if it was not initially planned.

**Table 4** The Relationship Between Anxiety Levels of Postpartum Mothers and Baby Blues Syndrome at Universitas Airlangga Hospital Using Chi-Square

Anxiety Level	Baby blues syndrome				Total	%	P value
	No	%	Yes	%			
No symptoms	12	100	0	0	12		0,289
Mild - moderate	15	93,75	1	18,75	16	100	
Severe	4	80	1	20	5		
Total	31	273,75	2	38,75	33	100	

The study found that 12 respondents experienced no symptoms of anxiety, and none of them developed baby blues syndrome. Most of these respondents were aged 20-35 years (75%), worked as housewives (66.67%), had a high school education (41.67%), did not have any comorbid conditions (58.3%), received full family support (91.67%), underwent SC delivery (58.3%), and were on the second day of postpartum hospitalization (66.8%).

The findings suggest that postpartum mothers who did not experience anxiety were not at risk of developing baby blues syndrome. Anxiety can exacerbate symptoms of baby blues syndrome, such as mood changes and emotional instability. Thus, when postpartum mothers can manage their anxiety levels, the likelihood of experiencing baby blues syndrome may decrease.

Among 16 respondents who had mild to moderate anxiety, one developed baby blues syndrome. This individual was 25 years old, had a bachelor's degree, was a housewife, primigravida, had a history of preeclampsia during pregnancy, received family support, underwent SC, and was on the second day of hospitalization. Out of the five respondents with severe anxiety, one experienced baby blues syndrome. This respondent was 25 years old, had only an elementary school education, worked as a private employee, was multigravida, had no comorbid conditions, received family support, underwent SC, and was on the first day of hospitalization.

The results indicate that mothers with mild to moderate and severe anxiety who developed baby blues syndrome shared a common characteristic: they had undergone SC. The potential risk of post-SC complications may increase maternal anxiety. Additionally, some working mothers who had SC expressed concerns about how the procedure might affect their job performance and quality of life.

Based on the chi-square test results, the p-value was 0.289, indicating that  $p\text{-value} > 0.05$ . Therefore, it can be concluded that the level of anxiety was not significantly associated with the occurrence of baby blues syndrome. However, postpartum mothers who experienced anxiety were more likely to develop postpartum blues compared to those who did not, although not significantly. High anxiety scores during the postpartum period can disrupt women's lives, particularly in terms of child development.



The discrepancy between this study and previous research may be due to differences in sample size, location, and characteristics of the respondents. For example, studies conducted by Bidayati (2022) at Puskesmas Ungaran, Semarang, and by Noordiaty and Arisani (2021) at BLUD RSUD dr. Doris Sylvanus Palangka Raya, showed a significant relationship between postpartum anxiety, delivery method, and the onset of lactation with the incidence of postpartum blues.

Children born to mothers with anxiety disorders are at an increased risk for adverse outcomes during childhood, including difficult temperament, emotional and behavioral problems, and cognitive difficulties (Newman, Judd, & Komiti, 2017). These children may also develop anxiety disorders and other psychopathologies later in life (Telman, van Steensel, Maric, & Bögels, 2018).

## CONCLUSION

The majority of postpartum mothers at RSUD were aged 20-35, had a high school education, worked as housewives, and were multigravida. They had no history of psychological or comorbid conditions, had a desired pregnancy, delivered vaginally, and were on the second day of hospitalization. Twelve respondents experienced no symptoms of anxiety, and none developed baby blues syndrome. Among the 16 respondents with mild to moderate anxiety, one developed baby blues syndrome, while one out of the five respondents with severe anxiety experienced baby blues syndrome. The study concludes that the level of anxiety among postpartum mothers was not significantly associated with the incidence of baby blues syndrome at RSUD.

## DECLARATION

### **Conflict of Interest**

Authors declare no conflict of interest regarding the publication of this research.

### **Authors' Contribution**

All authors contributed significantly to the research, analysis, and writing of this article. Author designed the study and supervised data collection, performed

statistical analysis, and contributed to data interpretation and manuscript preparation. All authors reviewed and approved the final version.

### **Ethical Approval**

Ethical approval for this study was obtained from the Institutional Review Board of Universitas Airlangga Hospital, ensuring that all protocols complied with the hospital's ethical guidelines (177/KEP/2023). Informed consent was acquired from all participants prior to inclusion in the study.

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### **Data Availability**

The data supporting the findings of this study are available upon reasonable request from the corresponding author, with restrictions due to participant confidentiality.

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