KIAN JOURNAL
ISSN 2964-3910
PREFIX DOI: 10.56359/kian
Vol. 5 No. 2 Page Number 156-164

Association Between Parity and Placenta Previa Among Pregnant Women at BLUD RSU Banjar City

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DOI: https://doi.org/10.56359/kian.v5i2.1073
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ABSTRACT

Introduction: Obstetric haemorrhage remains one of the leading causes of maternal mortality in Indonesia. Antepartum bleeding can result from various obstetric and non-obstetric conditions, with placental abnormalities, particularly placenta previa, being among the important obstetric causes. Several factors are associated with placenta previa, including maternal parity, particularly multiparity and grand multiparity. In Indonesia, the estimated incidence of placenta previa was 0.4%–0.7% of pregnancies in 2023. Furthermore, 64 cases of placenta previa were reported at BLUD RSU Banjar City in 2024.
Objective: This study aimed to analyze the association between parity and the incidence of placenta previa among pregnant women at BLUD RSU Banjar City.
Methods: This study employed a quantitative cross-sectional design. The study population consisted of 1,118 medical records of pregnant women at BLUD RSU Banjar City in 2024. A total of 92 medical records were selected using random sampling. Data were collected from medical records and analyzed using univariate and bivariate analyses, with the Chi-square test used to examine the association between parity and placenta previa.
Results: The univariate analysis showed that, among the 92 medical records, 50 women (54.3%) were classified into the low-risk parity category (primiparity), while 42 women (45.7%) were classified into the high-risk parity category (multiparity and grand multiparity). Regarding the incidence of placenta previa, 58 women (63.0%) did not have placenta previa, whereas 34 women (37.0%) were diagnosed with the condition. The Chi-square test demonstrated a statistically significant association between parity and the incidence of placenta previa ($p < 0.001$).
Conclusion: There was a statistically significant association between parity and the incidence of placenta previa among pregnant women at BLUD RSU Banjar City. These findings highlight the importance of considering maternal parity as one of the factors in identifying pregnant women who may require closer obstetric monitoring.

Keywords: placenta previa; parity; pregnant women

Introduction

Maternal death is defined as the death of a woman during pregnancy, childbirth, or within 42 days after the termination of pregnancy, irrespective of the duration or location of the pregnancy and the cause of death, provided that the death is related to or aggravated by the pregnancy or its management, excluding accidental or incidental causes. Pregnancy and childbirth may pose various health risks to mothers, potentially resulting in serious complications and maternal death (Dinkes Kota Banjar, 2024).

According to data from the Maternal Perinatal Death Notification (MPDN) system, the number of maternal deaths in Indonesia increased from 4,005 cases in 2022 to 4,129 cases in 2023. A similar trend was observed in West Java, where maternal deaths increased by 114 cases, from 678 in 2022 to 792 in 2023, corresponding to a maternal mortality ratio of 96.89 per 100,000 live births (Rokom, 2024).

In 2023, non-obstetric complications accounted for 24.49% of maternal deaths, followed by pregnancy-related hypertension, childbirth, and postpartum hypertension (23.61%), obstetric hemorrhage (19.07%), other causes (21.34%), and other obstetric complications (5.81%). Obstetric hemorrhage remains a major concern in maternal healthcare. Hemorrhage during pregnancy can occur before or after childbirth. Antepartum hemorrhage, defined as bleeding from the genital tract after 20 weeks of gestation and before the birth of the baby, is an important cause of maternal morbidity and mortality. It is estimated to occur in approximately 5% of pregnancies (Atthaya, 2023).

Antepartum hemorrhage may result from both obstetric and non-obstetric conditions. Among the obstetric causes, placental abnormalities, particularly placenta previa, are important contributing factors. In Indonesia, the estimated incidence of placenta previa was 0.4%–0.7% of pregnancies in 2023. In West Java, the reported incidence ranged from 2.4% to 3.6%, equivalent to approximately one case in every 40–50 pregnancies. At the local level, BLUD RSU Banjar City reported 64 cases of placenta previa among pregnant women in 2024 (Pratiwi et al., 2024; Azzahra et al., 2023; BLUD RSU Banjar City, 2024).

Placenta previa is a condition in which the placenta implants in the lower uterine segment and partially or completely covers the internal cervical os. This abnormal placental location may obstruct the birth canal and interfere with vaginal delivery, potentially leading to complications during childbirth (Lumbanraja, 2017; Fadlin, 2024).

Although the exact etiology of placenta previa remains unclear, several factors have been associated with its occurrence, including uterine scarring and endometrial abnormalities following procedures such as dilation and curettage. Maternal parity, particularly multiparity and grand multiparity, has also been identified as a potential risk factor (Dwijayanti & Aristina, 2024). Women who have given birth multiple times may have an increased risk of placenta previa due to changes in the uterine endometrium associated with previous pregnancies and placental implantation. These changes may contribute to abnormal placental implantation in subsequent pregnancies, including implantation in the lower uterine segment (Andika Puteri et al., 2022).

Objective

To identify the distribution of parity and the incidence of placenta previa among pregnant women and to analyze the association between parity and placenta previa at BLUD RSU Banjar City.

Method

Design and Setting

This study using a quantitative analytical design with a cross-sectional approach to examine the association between parity and the incidence of placenta previa among pregnant women at BLUD RSU Banjar City. Data were collected from medical records for the 2024 study period. The cross-sectional design was used to assess the association between the independent variable (parity) and the dependent variable (placenta previa) (Sugiyono, 2023; Adiputra et al., 2021).

Population and Sampling

The study population consisted of 1,118 medical records of pregnant women at BLUD RSU Banjar City from January to December 2024. The sample size was calculated using Slovin's formula with a margin of error of 10%, resulting in a total sample of 92 medical records. The samples were selected using a simple random sampling technique (Sugiyono, 2023).

The inclusion criteria were medical records of pregnant women at 20 weeks of gestation or later, medical records documenting cases with and without placenta previa, and records that were complete, clear, and legible. All eligible records were required to fall within the period from January to December 2024 at BLUD RSU Banjar City.

Instrument and Measurement

Data were collected using a checklist designed to record information on maternal parity and the presence or absence of placenta previa. The checklist was used to extract relevant data from the patients' medical records. A validity test was not conducted because the instrument was used as a data-extraction checklist based on information documented in the medical records.

Data Collection and Analysis

The data used in this study were secondary data obtained from the medical records of pregnant women at BLUD RSU Banjar City for the period January to December 2024. Data were processed and analyzed using IBM SPSS Statistics. The data processing procedures included editing, coding, data entry, data cleaning, and tabulation.

Data analysis consisted of univariate and bivariate analyses. Univariate analysis was performed to describe the distribution of each study variable, including maternal parity and the occurrence of placenta previa. Bivariate analysis was conducted using the chi-square test to examine the association between parity and placenta previa. Statistical significance was determined at a 95% confidence level, with a significance level of $\alpha = 0.05$. A p-value of less than 0.05 indicated a statistically significant association between the two variables, whereas a p-value of 0.05 or greater indicated no statistically significant association.

Result

Distribution of Parity

A total of 92 medical records of pregnant women at BLUD RSU Banjar City in 2024 were included in this study. As presented in Table 1, 50 women (54.3%) were classified into the no-risk parity category, while 42 women (45.7%) were classified into the risk parity category. These findings indicate that the no-risk parity category accounted for a slightly larger proportion of the study sample.

Table 1. Distribution of Maternal Parity and Placenta Previa (n = 92)

No	Parity	Frequency	Percentage
1	High-risk parity (multiparity/grand multiparity)	42	45,7%
2	Low-risk parity (primiparity)	50	54,3%
	Total	92	100%

Incidence of Placenta Previa

As shown in Table 2, placenta previa was identified in 34 women (37.0%), whereas 58 women (63.0%) did not have placenta previa. Thus, the majority of the women included in the sample did not have placenta previa.

Table 2. Distribution of Placenta Previa Among Pregnant Women (n = 92)

No.	Plasenta previa	Frequency	Percentage
1	Yes	34	37,0%
2	No	58	63,0%
	Total	92	100%

Association Between Parity and the Incidence of Placenta Previa

Table 3. Analysis of the Association Between Parity and Previa at BLUD RSU in Banjar City

Parity	Plasenta previa				Number		*p-value*
	Yes		No				
	F	%	F	%	F	%	
High Risk parity	26	61,9	16	38,1	42	100	0,000
Low Risk parity	8	16,0	42	84,0	50	100	
Σ	34	37,0	58	63,0	92	100	

As shown in Table 3, placenta previa was identified in 26 women (61.9%) with high-risk parity, compared with 8 women (16.0%) with low-risk parity. Conversely, the proportion of women without placenta previa was higher in the low-risk parity group (84.0%) than in the high-risk parity group (38.1%).

The chi-square test indicated a statistically significant association between maternal parity and the incidence of placenta previa ($p < 0.001$). These findings suggest that maternal parity was significantly associated with the occurrence of placenta previa among pregnant women at BLUD RSU Banjar City

Discussion

Distribution of Maternal Parity

The findings showed that, among the 92 medical records included in this study, 50 women (54.3%) were classified as having low-risk parity (primiparity), while 42 women (45.7%) were classified as having high-risk parity (multiparity and grand multiparity). These findings indicate that the proportion of women with low-risk parity was slightly higher than that of women with high-risk parity.

The distribution of parity may be influenced by several maternal and reproductive factors. Parity alone does not determine the risk of placenta previa, as other factors, including maternal age and a history of uterine procedures such as dilation and curettage, may also contribute to the occurrence of abnormal placental implantation. Therefore, the relationship between parity and placenta previa should be interpreted in consideration of other potential risk factors (Podungge et al., 2023).

Incidence of Placenta Previa

The study found that 34 women (37.0%) had placenta previa, whereas 58 women (63.0%) did not have the condition. Thus, the proportion of women without placenta previa was higher than that of women diagnosed with placenta previa in the study sample.

These findings should be interpreted in the context of the study population and sampling method. Although previous literature has reported that placenta previa occurs in approximately one out of every 40–50 pregnancies, the proportion identified in this study was 37.0% of the 92 medical records analyzed. This difference may be related to the characteristics of the study population and the selection of medical records at a hospital where patients may have different obstetric risk profiles. Therefore, the proportion observed in this sample should not be interpreted as the general incidence of placenta previa in the wider community (Pratiwi et al., 2024).

The findings highlight the importance of appropriate antenatal care and early identification of obstetric risk factors. Regular pregnancy monitoring and appropriate diagnostic examinations may help healthcare professionals identify placental abnormalities and provide timely management to reduce potential complications for mothers and their babies.

Association Between Parity and Placenta Previa

The findings demonstrated that 26 women (61.9%) in the high-risk parity group experienced placenta previa, compared with 8 women (16.0%) in the low-risk parity group. Meanwhile, the proportion of women without placenta previa was 38.1% in the high-risk parity group and 84.0% in the low-risk parity group. These results indicate that placenta previa was more frequently observed among women classified as having high-risk parity.

The chi-square test demonstrated a statistically significant association between maternal parity and placenta previa at BLUD RSU Banjar City ($p < 0.001$). This finding supports the study hypothesis that parity is associated with the occurrence of placenta previa. However, because this study employed a cross-sectional design, the findings indicate a statistical association and do not establish a causal relationship between parity and placenta previa.

The findings are consistent with the explanation presented by Sakinah (2022) and Ibrahim (2022), who described an increased risk of placenta previa among multiparous women compared with primiparous women. Previous pregnancies may be associated with changes in the endometrium and uterine vascularization, potentially affecting the process of placental implantation in subsequent pregnancies. These changes have been proposed

as possible mechanisms linking repeated pregnancies with abnormal placental implantation.

Maternal parity is also discussed as one of several factors associated with placenta previa. Previous studies have suggested that repeated pregnancies and changes in the uterine lining may contribute to an increased likelihood of placental implantation in the lower uterine segment (Ramadhan, 2022; Prawirohardjo, 2020). Nevertheless, the development of placenta previa is multifactorial, and parity should not be considered the only determinant of this condition.

The present findings are also in line with previous research by Ibrahim et al. (2022) and Andika et al. (2022), which discussed the association between high parity and placenta previa. Repeated pregnancies may be accompanied by changes in the uterine endometrium and its blood supply. Such changes may influence the location and development of placental implantation during subsequent pregnancies. These proposed mechanisms provide a possible explanation for the association observed in this study.

Similarly, Rachmawati and Battya (2022) reported an association between maternal parity and placenta previa. Their discussion highlighted the potential contribution of repeated pregnancies, short intervals between pregnancies, and changes in the decidua following previous deliveries. These factors may influence the uterine environment and placental implantation. However, the relative contribution of each factor requires further investigation.

Comparison with Previous Studies

The findings of this study are comparable with those of Rachmawati and Battya (2022), in their study entitled "The Relationship Between Age and Parity and the Incidence of Placenta Previa Among Parturient Women at Arjawinangun Regional General Hospital, Cirebon Regency, in 2022."

Both studies examined the association between parity and placenta previa using a cross-sectional design. However, they differed in their study populations, sample sizes, locations, and data collection periods. The previous study involved women in labor at Arjawinangun Regional General Hospital in 2022, whereas the present study examined medical records of pregnant women at BLUD RSU Banjar City from January to December 2024.

Despite these differences, both studies provide information regarding the potential association between maternal parity and placenta previa. The consistency of these findings supports the importance of considering parity when assessing obstetric risk. Nevertheless, differences in population characteristics and study settings should be considered when comparing the results.

Practical and Theoretical Implications

From a practical perspective, the findings may provide additional information for healthcare professionals, particularly midwives and nurses, when assessing obstetric risk among pregnant women. Maternal parity can be considered as one component of obstetric history during antenatal assessments. Women with high parity may benefit from appropriate monitoring and further assessment based on their overall clinical condition and other risk factors.

Health education should also emphasize the importance of regular antenatal care, early recognition of warning signs, and timely access to healthcare services. The findings should not be interpreted as evidence that women should limit the number of pregnancies specifically to prevent placenta previa, because this study did not investigate the effectiveness of such an intervention.

From a theoretical perspective, this study contributes to the existing evidence regarding the association between maternal parity and placenta previa. The findings are consistent with previous literature suggesting that reproductive history may be relevant when evaluating the risk of placental abnormalities

Study Limitations

This study has several limitations. First, the sample consisted of 92 medical records from a single hospital, which may limit the generalizability of the findings to other healthcare facilities and populations. Second, the study used secondary data from medical records; therefore, the completeness and accuracy of the analysis depended on the quality of the available documentation.

Third, the analysis focused primarily on parity and placenta previa without including other potential contributing factors, such as maternal age, previous cesarean section, history of uterine procedures, and the interval between pregnancies. Consequently, the study could not determine the independent contribution of parity after accounting for these factors. Finally, the cross-sectional design limits the ability to establish causal relationships between the variables.

Future studies should consider larger samples from multiple healthcare facilities and include additional obstetric and maternal characteristics. Analytical approaches that account for potential confounding variables, such as multivariable regression analysis, may provide a more comprehensive understanding of the factors associated with placenta previa.

Conclusion

This study found that 42 pregnant women (45.7%) were classified as having high-risk parity, while 34 women (37.0%) were diagnosed with placenta previa. The chi-square test demonstrated a statistically significant association between maternal parity and placenta previa at BLUD RSU Banjar City ($p < 0.001$). These findings indicate that high-risk parity was associated with a higher proportion of placenta previa cases in the study sample. Therefore, maternal parity should be considered as one of the factors in obstetric risk assessment. However, further studies involving larger samples and additional potential risk factors are needed to provide a more comprehensive understanding of this association.

Acknowledgement

The authors would like to express their gratitude to several parties involved in this study, including the Director of the Banjar City General Hospital (BLUD RSU), who provided the authors with the opportunity to conduct this research; the Chair of the Bina Putera Banjar School of Health Sciences (STIKes) for the support provided; the medical records staff; fellow faculty members for their guidance and input; and others who cannot be mentioned individually.

Author Contribution

This study was conducted by two authors, each of whom played complementary roles. The first author contributed by proposing the main idea or topic of the study, performing data analysis, and drafting the main body of the manuscript. The second author played a role in the preliminary study, data collection, and editing the manuscript.

Conflict of Interest

This study has no financial, personal, or professional conflicts of interest that could influence the research results; every step of the process was carried out with the full agreement of both the first and second authors, as well as other relevant parties.

Ethical Clearance

This study has been reviewed and approved by an ethics committee and has been confirmed to comply with ethical standards. In this study, research ethics were ensured through the use of an informed consent form provided to the person in charge of medical records and a research permit from the director of BLUD RSU Banjar City, numbered B/400.7/984/RSU/2025. Confidentiality is maintained because only the respondent's identification number is listed.

Funding

This study was funded by the authors' personal funds, and no funding was received from any external source.

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