ANALYSIS OF FACTORS AFFECTING CAESAREAN SURGERY DELIVERY IN THE PRACTICE OF MIDWIFE NURHAYANI NASUTION, KAMPUNG RAKYAT DISTRICT, SOUTH LABUHANBATU REGENCY IN 2023

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ABSTRACT

The number of deliveries by cesarean section (CS) continues to increase, including in primary healthcare settings such as independent midwifery practices. This is concerning because the World Health Organization (WHO) recommends an ideal cesarean section rate of around 10–15% of all deliveries. Independent midwife Nurhayani Nasution's practice in Kampung Rakyat District, South Labuhanbatu Regency, showed an increase in referrals for cesarean deliveries during 2023.

This research is quantitative, using statistical techniques to measure something. The process of seeking knowledge that uses numerical data as a tool to analyze what one wants to know is called quantitative research methodology.(Sujarweni, 2022)The method used in this study is analytical with a cross-sectional approach, which examines the dynamics of the correlation between risk factors and their effects through observation or collective data collection. This study aims to analyze the factors influencing the decision or referral for cesarean section delivery by independent midwives.

Factors influencing CS delivery include medical factors (history of previous CS, preeclampsia, CPD, fetal distress), sociocultural factors (family request, fear of pain), and service factors (the midwife's ability to detect complications). A history of previous CS was the dominant factor (30%), followed by family request (20%).

CS deliveries in independent midwifery practices are influenced by various factors, both clinical and non-clinical. An educational approach and improved communication between midwives and patients are needed to ensure that CS decisions are based on appropriate medical indications.

Keywords: Caesarean section, childbirth factors, independent midwives, referrals, midwifery services

Introduction

The World Health Organization reported in 2021 that the global maternal mortality rate was 391,000, compared to 16,000 in Southeast Asia. (WHO, 2022)The number of maternal deaths recorded by the Ministry of Health's family health program has been increasing annually. In 2021, there were 7,389 maternal deaths in Indonesia, and in 2020, there were 4,627 maternal deaths. This figure represents an increase compared to the previous year. (Ministry of Health of the Republic of Indonesia, 2021)

The province with the highest maternal mortality rate is East Java province with 1,279 cases, while North Sumatra province has 248 cases.(Ministry of Health of the Republic of Indonesia, 2021). Based on the Indonesian health profile report in 2021, the general causes of maternal death in 2021 were Covid-19 with 2,982 cases, hemorrhage with 1,330 cases, and hypertension during pregnancy with 1,007

cases.(Ministry of Health of the Republic of Indonesia, 2021)

A Caesarean section is a delivery through an incision in the uterus to remove the fetus and placenta. Rates of cesarean sections vary between countries and even between urban and rural areas, due to differing socioeconomic status and opportunities to access public and private health services.(Gedefaw et al., 2020).

Based on WHO statistical data, the average birth standard for caesarean section is around 5-15% per 1000 births worldwide.(Reilly & Williams, 2020)According to the American College of Obstetricians and Gynecologists (ACOG), cesarean delivery significantly increases a woman's risk of morbidity and mortality related to cesarean delivery (35.9 deaths per 100,000 live births) compared to women who give birth vaginally (9.2 deaths per 100,000 live births).(Gedefaw et al., 2020).

The annual incidence of cesarean deliveries in Indonesia averages 19.06% per 1,000 births. Giuliati's 2021 study found that 480 respondents

undergoing cesarean section in the Emergency Room of Sangla General Hospital, Denpasar based on maternal factors including preeclampsia (30.6%), Premature Rupture of Membranes (18.9%), Placenta Previa (7.5%)(Juliathi et al., 2021).

Based on the results of observations and data analysis using the number of respondents, it can be concluded that 47.9% of mothers who experienced c-section delivery based on age, some were aged 21-34 years, while based on parity, the largest number was multigravida mothers at 50.2%.

The list of skills that are valid until 2026 covers the scope of obstetric surgical assistance care per abdominal level 3 where midwife graduates can carry out clinical midwifery skills under supervision or in collaboration with a team, and refer to further actions. The purpose of this clinical skills list is to be compiled as a guideline for midwives, midwifery education institutions ensure that the midwife graduates they produce have adequate competence to provide appropriate care and are appropriate to

the client's case based on the authority they have.

Regulation of the Minister of Health of the Republic of Indonesia Number 21 of 2021 concerning the Provision of Health Services during the Pre-Pregnancy, Pregnancy, Childbirth, and Post-Childbirth Periods, Contraceptive Services, and Sexual Health Services. The third section on health services is contained in Article 16, which states that childbirth is carried out in health facilities. Article 17 explains in paragraphs 1 and 2 that if the mother and fetus experience complications during pregnancy and childbirth, the delivery will be carried out in a hospital according to its competence.(Ministry of Health, 2021).

In the case of a mother and fetus experiencing complications or emergencies at a primary health care facility, the primary health care facility must immediately take pre-referral measures and immediately refer the mother to a hospital.(Ministry of Health, 2021).

The prevalence of cesarean deliveries in Indonesia has exceeded the WHO average standards. In these cases, the role of midwives is crucial, including as implementers, educators, managers, researchers, and advocates. As implementers, midwives play a crucial role in providing professional and comprehensive midwifery care, including integrated, high-quality antenatal care.
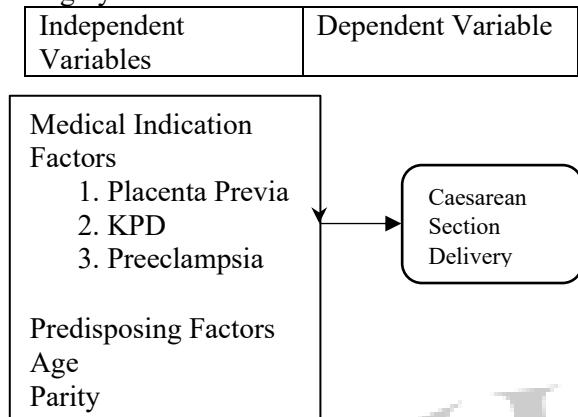
Research Method

This research is quantitative, using statistical techniques to measure something. The process of seeking knowledge that uses numerical data as a tool to analyze what one wants to know is called quantitative research methodology.(Sujarweni, 2022). The method used in this study is Analytical with a cross-sectional approach is the approach used in this study, which examines the dynamics of the correlation between risk factors and their effects through observation or data collection together.

The conceptual framework used in this study is based on the research objective, namely "Analysis of Factors Influencing Caesarean Section Delivery Practice of Midwife

Nurhayani Nasution, Kampung Rakyat District, South Labuhanbatu Regency in 2023". The variables to be studied are variables that have the potential to influence Caesarean section surgery.

Independent Variables	Dependent Variable

Medical Indication Factors
  1. Placenta Previa
  2. KPD
  3. Preeclampsia

Predisposing Factors
Age
Parity

→ Caesarean Section Delivery

Population is the total number of objects or subjects that have certain characteristics and qualities determined by the researcher.(Sujarweni, 2022).

The population in this study was all mothers who gave birth by caesarean section at the Midwife Practice of Nurhayani Nasution, Kampung Rakyat District, South Labuhanbatu Regency in 2023 during the period of January-March 2023, totaling 40 people.

Sampling technique is a technique used to select samples for research. Samples taken from each unit of the research population have an equal chance of being selected for the study, using simple random sampling.

The location of this research was the practice of Midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhanbatu Regency in 2023.

Univariate data analysis in this study uses univariate analysis aimed at explaining the characteristics of each variable and in general this analysis only produces the frequency distribution and percentage of each variable. In this study to analyze the caesarean section delivery factor.

Bivariate data analysis if univariate analysis has been carried out the results will be known the characteristics or distribution of each variable and can be continued with bivariate analysis. Analysis of the results of the chi square test to see from the results of this statistical test will be able to conclude whether there is a relationship between 2 variables namely placenta previa, PROM, Preeclampsia, age and parity to the caesarean delivery is significant or not significant.

Multivariate data analysis to determine the relationship between more than one independent variable and one dependent variable, must be continued by conducting multivariate analysis. The test that is usually used is multiple regression.

Result

Univariate Test Analysis Shows the Results of the Analysis of the Frequency Distribution of Each Variable Studied to Find Out the Description of the Variable Studied in Nurhayani Nasution's Midwife Practice 2023.

Table 4.1
Frequency Distribution of Placenta Previa, PROM, Preecl ampsia, Age, Parity and Delivery in Midwife Nurhayani Nasution's Practice 2023

NO	Respondent Characteristics	Frequency	Percentage
1.	Placenta Previa		
	Yes	31	40.3%
	No	46	59.7%
	Total	**77**	**100%**
2.	Premature Rupture of Membranes (PROM)		
	Yes	29	37.7%
	No	48	62.3%
	Total	**77**	**100%**
3	Preeclampsia		
	Yes	34	44.2%

	No	43	55.8%
	Total	**77**	**100%**
4	Age		
	At Risk (>35 Years)	32	41.6%
	No Risk (20-35 Years)	45	58.4%
	Total	**77**	**100%**
5	Parity		
	At Risk (3-5 Children)	35	45.5%
	No risk (1-2 Children)	42	54.5%
	Total	**77**	**100%**
6	CS Operation Delivery		
	Yes	43	55.8%
	No	34	44.2%
	Total	**77**	**100%**

Based on table 4.1 above, the frequency distribution of the characteristics of the research subjects shows that the majority of the research subjects with placenta previa were 46 (No).59.7%) and a small proportion of placenta previa Yes, namely 31 (40.3%). Premature Rupture of Membranes is mostly No, namely 48 subjects (62.3%),and a small part of KPD Yes, namely 29 (37.7%). Preeclampsia is mostly No, namely 43 (55.8%), and a small proportion of preeclampsia Yes, namely 34 (44.2%). Age of the majority is not at risk (20-35 years) namely 45 (58.4%), and a small proportion is at risk (>35 years) namely 32 (41.6%). Parity is mostly not at risk (1-2 children) namely 42 (54.5%)

and a small proportion is at risk (3-5 children) namely 35 (45.5%)The last characteristic is that the delivery is by CS operation, mostly by CS operation. YESnamely 43 (55.8%)and a small portion with CS delivery, namely 34 (44.2%).

This bivariate analysis is used to prove the hypothesis of the study, namely Analysis of Factors Affecting Caesarean Section Delivery in the Practice of Midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhan Batu Regency in 2023. With a statistical test with a chi square test with a significance level of 5% (0.05) as the level (p <α) thus Ha is accepted or there is a relationship between the independent variable and the dependent variable.

Table 1. Bivariate Results Analysis of the Relationship Between Placenta Previa and Caesarean Section Operations in the Practice of Midwife Nurhayani Nasution in 2023

Placenta Previa	Caesarean Section Delivery				Total		P-Value
	Yes		No				
	N	N	N	%	N	%	
Yes	26	60.5%	5	14.7%	31	40.3%	
No	17	39.5%	29	85.3%	46	59.7%	0,000
Total	43	100%	34	100%	77	100.0%	

Based on table 4.2, out of 77 respondents, there were 31 respondents (40.3%) with placenta previa, which was Yes, where in26 respondents (60.5%) had a CS

section delivery in the Yes category.%)and in the No category there were 5 respondents (14.7%),and fromThere were no placenta previa in 46 respondents (59.7%)where in17

respondents had a CS section delivery in the Yes category (39.5%)and in the No category there were 29 respondents (85.3%).

From the results of the statistical test using Chi-Square, it shows that p = 0.000, which means H0 is rejected and Ha is accepted (p value <0.05), so it can be interpreted that there is a significant relationship between Placenta Previa and Caesarean Section Operations in the Practice of Midwife Nurhayani Nasution in 2023.

Multivariate analysis aims to analyze the relationship between several independent variables and a single dependent variable simultaneously. The multivariate analysis used is logistic regression analysis to determine which independent variables have the greatest influence on the dependent variable.

The variables that are candidates for the multivariate method are independent dependent variables with a P-value <0.25 in the bivariate analysis. The variables included in the multivariate model can be seen in the following table :

Table 4.7
Summary of Bivariate Analysis Results

No	Variables	RP	95% CI	P
1	Placenta Previa	8,871	2,869-27,431	0.000
2	Premature Rupture of Membranes (PROM)	7,326	2,381-22,540	0.000
3	Pre-eclampsia	4,971	1,827-13,523	0.001
4	Age	5,357	1,915-14,986	0.001
5	Parity	5,484	2.007-14,985	0.001

Based on table 4.7 above, the results of the bivariate analysis show that the variables with a P value <0.25 that were included in the multivariate model were placenta previa, premature rupture of membranes, preeclampsia, age, and parity. Then, a multiple logistic regression analysis was performed using the Backward LR method, which included all independent variables in the model, but then each independent variable was removed from the model based on certain statistical significance criteria.

In the first step, the independent variable step 1 Parity was removed because Pvalue> α (0.25 > 0.129), step 2 the independent variable KPD Pvalue> α (0.25 > 0.129).146),Step 3 independent variable Pre-Eclampsia Pvalue> α (0.25 > 0,502). Variables that can be included in the logistic regression model are variables that have a P value <0.25.

Based on the results of the logistic regression analysis, it can be seen in the following table :

Table 4.8
Variables Related to the Analysis of Factors Influencing Caesarean Section Delivery in the Practice of Midwife Nurhayani Nasution 2023

No	Variables	NiliaB	aRP	95%	Cl	P
1	Placenta previa	1,775	5,902	1,760	19,788	0.004
2	Age	1,006	2,735	.860	8,700	0.088

Constant	-4,795	0.008

Based on Table 4.8 Multivariate Analysis, it is known that the variablesPlacenta Previa and Ageis the strongest or most dominant factor in the Analysis of Factors Influencing Caesarean Section Delivery in the Practice of Midwife Nurhayani Nasution in 2023 with a p-value of 0.004 for Placenta Previa and OR5.902, which means that mothers giving birth with placenta previa have a 5.9 times greater chance of going into labor. *Caesarean Section Operation*compared to mothers giving birth who do not have placenta previa, and the age variable is also the strongest or most dominant factor in the analysis of factors influencing caesarean section delivery in the practice of midwife Nurhayani Nasution in 2023 with a p-value at age of 0.088 and OR2,735 which means that the mothers giving birth are older thanAt risk >35 yearshas a 2.7 times greater chance of labor occurring*Caesarean Section Operation*compared to mothers who are not at risk aged 20-35 years.

Discussion

From the results of the statistical test using Chi-Square, it shows that p = 0.000, which means H0 is rejected and Ha is accepted (p value <0.05), so it can be interpreted that there is a significant relationship between Placenta Previa and Sectio Caesarea Operations in the Practice of Midwife Nurhayani Nasution in 2023.

This research is in line with research(Fristika, 2023)The results of the chi-square statistical test showed that there was a relationship between placenta previa and cesarean section delivery. P-Value = 0.001 (P-value >α) with α = 5%.

The decision to deliver vaginally or by cesarean section depends heavily on the location of the placenta. Pregnant women with placenta previa can deliver vaginally if the placenta does not completely cover the birth canal. However, if the placenta completely covers the birth canal, a cesarean section is recommended to avoid potential medical complications.

Based on table 4.5, out of 77 respondents, there were 34 respondents (44.2%) at an age at risk, where in26 respondents had a CS section delivery in the Yes category (60.5%)and in the No category there were 8 respondents (23.5%), and from preeclampsia, there were 43 respondents (55.8%) where in the category of Yes, there were 17 respondents (39.5%) in the category of No, and 26 respondents (76.5%) in the category of No.

From the results of the statistical test using Chi-Square, it shows that p = 0.001, which means H0 is rejected, Ha is accepted (p value <0.05), so it can be interpreted that there is a significant relationship between preeclampsia and Caesarean section delivery in the practice of midwife Nurhayani Nasution in 2023.

The results of this study are in line with the results of research(Asta et al., 2023)thatthat of the 96 respondents, 54 (56.3%) did not have PEB (Severe Preeclampsia). The statistical test results obtained a p-value of 0.032 < 0.05, which means there is a significant relationship between severe preeclampsia and cesarean delivery. Thus, the hypothesis stating that there is a relationship between severe preeclampsia and cesarean delivery is statistically proven.

This research is also in line with research(Fristika, 2023)The results of the chi-square statistical test show that there is a significant relationship between preeclampsia and childbirth with cesarean section. Where P-Value = 0.001 (P-Value <α) with α = 5%.

Preeclampsia is a specific condition during pregnancy, characterized by increased blood pressure (BP) and proteinuria. Severe preeclampsia, which can lead to eclampsia, can lead to maternal and fetal death. To prevent this, immediate termination of pregnancy is recommended through induction or a caesarean section. To prevent preeclampsia, pregnant women are advised to have regular checkups with a midwife or doctor (Ayu *et al.*, 2025).

This allows for monitoring of the mother's condition, including blood pressure and fetal well-being. During antenatal visits, the midwife provides advice on blood pressure relief, blood pressure monitoring, and supplemental nutrition during pregnancy. It is highly recommended that the mother's blood pressure return to normal before delivery, allowing for a normal birth. In an emergency, a pregnant woman with preeclampsia must undergo a cesarean section (Isyos Sari and Siti Nurmawan, 2024)

Based on Table 4.12 Multivariate Analysis, it is known that the variablesPlacenta Previa and Ageis the strongest or most dominant factor in the Analysis of Factors Influencing Caesarean Section Delivery in the Practice of Midwife Nurhayani Nasution in 2023 with a p-value of 0.004 for Placenta Previa and OR5.902, which means that mothers giving birth with placenta previa have a 5.9 times greater chance of going into labor.*Caesarean Section Operation*compared to mothers giving birth who do not have placenta previa, and the age variable is also the strongest or most dominant factor in the analysis of factors that influence caesarean section delivery in the practice of midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhan Batu Regency in 2023 with a p-value for placenta previa of 0.088 and OR2,735 which means that the mothers giving birth are older thanAt risk > 35 yearshas a 2.7 times greater chance of labor occurring *Caesarean Section Operation* compared to mothers who are not at risk aged 20-35 years.

This research is in line with research(Fristika, 2023)The results of the chi-square statistical test showed that there was a relationship between placenta previa and cesarean section delivery. P-Value = 0.001 (P-value >α) with α = 5%.

Determining whether a normal delivery or a cesarean delivery depends on the condition of the mother's placenta. Routine antenatal care (ANC) and ultrasound examinations during pregnancy are crucial to monitor fetal development, placental position, and amniotic fluid levels (Simanjuntak and Manurung, 2024)

Based on research that has been conducted(Handayany, 2022)with the title Factors Associated with the Incidence of Sectio Caesarea in Mothers Giving Birth at Handayani Hospital, North Bumi Lampung City in 2020. Of the 64 respondents who were in the at-risk age category, 50 people (78.1%) experienced sectio caesarea, while of the 24 respondents who were in the non-risk age category, 17 people (70.8%) did not experience sectio caesarea. The results of the chi square statistical test obtained a p value <α (0.000 <0.05). This means that Ho is rejected, it can be concluded that there is a significant relationship between age and the incidence of sectio caesarea in childbirth at Handayani Hospital, North Bumi Lampung City in 2020. The OR value is 8.673, which means that respondents who are in the at-risk age category have an 8 times greater chance of experiencing sectio caesarea during childbirth compared to respondents who are in the non-risk age category (Anggraini *et al.*, 2023)

Conclusion and Suggestion

1. The prevalence of cesarean section deliveries at Nurhayani Nasution's Midwife Practice, Kampung Rakyat District, South Labuhan Batu Regency in 2023 was 43 respondents (55.8%).
2. Based on the placenta previa factor, placenta previa is related to Caesarean section operations at the practice of midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhan Batu Regency in 2023.
3. Based on the factor of Premature Rupture of Membranes (PROM), Premature Rupture of Membranes (PROM) is related to Caesarean Section Operations in the Practice of Midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhan Batu Regency in 2023.
4. Based on the Preeclampsia factor, Preeclampsia is related to Caesarean Section Operations in the Practice of Midwife Nurhayani Nasution, Kampung

Rakyat District, South Labuhan Batu Regency in 2023.

5. Based on the age factor, age is related to Caesarean Section Operations in the Practice of Midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhan Batu Regency in 2023.

6. Based on the Parity factor, Parity is related to Caesarean Section Operations in the Practice of Midwife Nurhayani Nasution, Kampung Rakyat District, South Labuhan Batu Regency in 2023.

7. The factors most associated with the occurrence of CS delivery include placenta previa and age.

Suggestionwhich is expected to increase students' understanding of the risk factors that influence caesarean section delivery, the results of the study are expected for midwives to always update their knowledge to be able to reduce the incidence of caesarean section delivery, and for clinics to further increase promotional efforts to all communities so that they realize how important it is to routinely make repeat ANC visits.

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