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Risk Factor Analysis of Caesarean Section

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Background: Maternal mortality rate (MMR) is the number of maternal deaths caused by pregnancy, childbirth, and postpartum or their management. In 2015, the global maternal mortality rate was estimated to reach 303,000 cases. According to WHO (2015), maternal deaths are estimated to be more than 585,000 per year due to pregnancy and/or childbirth. Caesarean section (CS) delivery is a surgical process aimed at delivering a fetus through an incision in the abdominal wall and uterine wall. CS delivery is carried out based on medical indications from both the mother and fetus, which can endanger the lives of both the mother and fetus. The purpose of this study was to determine the risk factors for Caesarean section procedures at the Sitti Khadijah 1 Muhammadiyah Makassar Maternity and Child Hospital (RSIA). Method: The study used a quantitative study with an analytical observational research design with a cross-sectional approach. Results: The results of this study are that maternal age greatly influences pregnancy, a good age for pregnancy ranges from 20-35 years. At that age, the female reproductive organs have developed and functioned optimally. On the other hand, for women aged <20 years or >35 years, it is not good to get pregnant because pregnancy at this age has a high risk, such as miscarriage or failed labor, delivery with assistive devices such as forceps or CS, and can even cause death. Conclusion: Maternal age is a risk factor for cesarean section at Sitti Khadijah 1 Muhammadiyah Makassar Hospital in 2021. Maternal parity is not a risk factor for cesarean section at Sitti Khadijah 1 Muhammadiyah Makassar Hospital in 2021.
Keywords: Risk factors, Caesarean section.

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1. Introduction

The maternal mortality rate (MMR) is an important indicator in assessing a country's health status. The MMR describes the number of women who die from pregnancy, childbirth, and the postpartum period, or their complications. Global data indicates that in 2015, there were an estimated 303,000 maternal deaths worldwide, with the main causes including hemorrhage, hypertension during pregnancy, infection, and childbirth complications (Ministry of Health of the Republic of Indonesia, 2019). According to a 2015 WHO report, the global maternal mortality rate reached more than 585,000 cases per year, the majority of which occurred in developing countries due to delays in adequate medical care.

The situation in Indonesia shows a similar trend. According to the 2020 Indonesian Health Profile, the number of recorded deliveries reached over 5.2 million cases in various health facilities. South Sulawesi Province ranked sixth with the highest number of deliveries, with approximately 185,004 women giving birth, while Makassar City recorded approximately 30,990 births (Ministry of Health of the Republic of Indonesia, 2018). These figures demonstrate the critical need for safe and effective obstetric services, including in the decision-making process for cesarean delivery (CS).

Childbirth can be performed using two main methods: vaginal (normal) delivery and surgical (cesarean section). According to Cunningham et al. (2018), a cesarean section is the process of delivering a fetus through an incision in the abdominal wall and uterus. This procedure is performed based on medical indications for both the mother and the fetus, with the goal of saving both. A cesarean section is generally

recommended when a normal delivery is considered high-risk, such as when there is fetal malposition, placenta previa, or severe preeclampsia (Dutton et al., 2010).

However, the increasing number of C-section deliveries in recent decades has become a concern in various countries, including Indonesia. The 2012 Indonesian Demographic and Health Survey (SDKI) reported that mothers who gave birth by C-section experienced approximately 55% more complications than mothers who delivered vaginally. Common complications include postpartum hemorrhage, surgical wound infections, and delayed physical recovery (Hartati, Suryani & Afiyanti, 2014).

National data shows that the percentage of CS procedures in Indonesia ranges from 5–15%. In government hospitals, this figure reaches around 11%, while in private hospitals it can exceed 30% (Prawirohardjo, 2014). The 2012 Indonesian Demographic and Health Survey (IDHS) also recorded that of 4,039,000 deliveries, 22.8% were by CS. According to the 2018 RISKESDAS report, this figure has increased to 17.6% of total deliveries throughout Indonesia (Ministry of Health, 2018).

The increase in CS rates is caused by various risk factors, both maternal and fetal. Some common complications of childbirth that lead to CS include breech or transverse fetal position, premature rupture of membranes, hemorrhage, prolonged labor, and gestational hypertension. According to Hapsari and Hendraningsih (2018), conditions such as placenta previa, umbilical cord entanglement, and severe preeclampsia are the dominant factors that lead to mothers having to undergo cesarean delivery. Furthermore, advanced pregnancy age and a history of previous CS also increase the likelihood of repeat surgery.

Aprina's (2016) study showed a significant association between severe preeclampsia, placenta previa, abnormal fetal position, and non-progressive labor with an increased risk of cesarean delivery. Similar research by Hasliani (2016) at Labuang Baji Regional Hospital in Makassar also found that a history of previous cesarean delivery, abnormal fetal position, and prolonged labor strongly influenced the decision to undergo surgery. These studies reinforce the understanding that medical indications and obstetric factors are key determinants in determining delivery method.

On the other hand, modern lifestyle developments have also contributed to the increasing trend in CS rates without clear medical indications. Some mothers choose elective CSs for reasons of convenience, pain relief, or to accommodate their birth schedule (Andayasari et al., 2015). According to Indiarti and Wahyudi (2013), these non-medical decisions are often made without considering long-term risks, such as impaired post-operative recovery or an increased risk of complications in subsequent pregnancies.

Pamilangan, Wantani, and Lumentut's (2019) study at Prof. Dr. RD Kandou General Hospital in Manado also showed a significant increase in CS cases. Of the total 2,822 deliveries in 2017 and 2018, 694 cases (49.64%) were performed via CS in 2017 and increased to 736 cases (51.69%) in 2018. Most indications came from maternal factors, such as a history of previous CS (25.23%), as well as fetal indications such as fetal distress (54.09%). This indicates that both maternal and fetal factors play a role in the decision to perform surgery.

A similar situation was also found at the Sitti Khadijah 1 Muhammadiyah Makassar Women's and Children's Hospital (RSIA) where the number of CS cases showed a fluctuating trend. Based on hospital medical records, 2,432 CS cases were recorded in 2016, increasing to 2,562 cases in 2017, and slightly decreasing to 2,441 cases in 2018. However, in 2019, the number increased again to 2,578 cases, before decreasing sharply to 1,763 cases in 2020 (Ministry of Health of the Republic of Indonesia, 2020). These figures demonstrate the importance of a comprehensive evaluation of the factors influencing the increase in CS procedures.

According to Prawirohardjo (2016), the reasons for performing a CS can be categorized into two types: those based on previously diagnosed indications and those based on an emergency during labor. The former include a narrow pelvis, a large baby, an abnormal fetal position, severe preeclampsia, placenta previa, and a history of previous surgery. The latter is usually made due to sudden complications such as prolonged labor, excessive contractions, or premature placental abruption.

In addition to medical factors, several studies highlight the social, economic, and cultural influences on the rising rate of CS. Andriani (2010) emphasized that maternal education, socioeconomic status, and access to health services contribute to the decision to have a caesarean section. Among urban communities, CS is often considered safer and more modern than vaginal delivery, although this is not always supported by strong medical evidence.

Based on these findings, it can be concluded that cesarean section (C-section) is an important method in modern obstetrics, but its use must be based on clear medical considerations to avoid the risk of unnecessary complications. Therefore, research into the risk factors for C-sections at the Sitti Khadijah 1 Muhammadiyah Makassar Women's and Children's Hospital (RSIA) in Makassar is highly relevant. This study aims to analyze the main determinants contributing to the increasing C-section rate at the hospital and provide recommendations for improving the quality of obstetric services based on scientific evidence.

2. Method

This study used a quantitative method with an observational analytical design and a cross-sectional approach. The aim was to determine the risk factors influencing cesarean section (CS) procedures at Sitti Khadijah 1 Muhammadiyah Makassar Hospital. The research data were obtained after obtaining official permission from the hospital. The data source used was secondary data, namely medical records of patients undergoing labor. The data were then collected, processed, and analyzed using Statistical Product and Service Solution (SPSS) software to display descriptive results through frequency distribution tables and a discussion of the research results.

The data processing process was carried out systematically and manually, with several important stages. The first stage was data checking (editing), which involved checking the completeness and clarity of the information in the medical record sheets collected by the data collector. This step aimed to ensure the data analyzed was valid and suitable for use. Next, coding was performed, where researchers classified the contents of the medical record data into specific categories to facilitate statistical analysis.

The next step is data entry, which involves entering the coded data into tables using SPSS version 21 by calculating the frequency and percentage of each research variable. This is followed by tabulation, which involves compiling tables that statistically depict the data distribution to determine the number and proportion of cases in various categories. This step allows the research results to be presented systematically, facilitating the analysis and interpretation of risk factors for cesarean sections in women in labor.

3. Results and Discussion

Result

This study was conducted from December 20, 2021 – January 14, 2022. The sample obtained in this study was 300 samples. The type of design in this study was observational with a cross-sectional approach, while the sampling technique in this study used a purposive sampling method. The purpose of this data collection was to see age (at risk if age <20 or >35 years) (not at risk if age 20-35 years), parity (at risk if parity is

nulliparous and grandemultiparous) (not at risk if parity is primiparous and multiparous), history of cesarean section (at risk if history of ≥2 times) (not at risk if there is no history of cesarean section or history of 1 time), failed induction (ifno uterine contractions (his) and failure to influence the opening of the birth canal after induction, premature rupture of membranes (PROM) (if the membranes rupture before there are signs of labor), severe preeclampsia (PEB) (if systolic high blood pressure ≥160 mmHg and diastolic blood pressure ≥110 mmHg, fetal distress (if the FHR <100 x/minute or >180 x/minute irregular heartbeat, hypoxia) and placenta previa (if the placenta covers part or all of the OUI). Is a factor in the action of sectio caesarea. Data collection was carried out using Medical Record data. After the data was collected and re-examined, it was then processed with SPSS. Furthermore, the complete research results were presented in table form which included univariate analysis tests and then continued with bivariate test analysis using Chi-Square. Based on the research results, the data obtained was then processed according to the research objectives and presented in tabular form. The results are as follows:

Parameter	Tindakan			
	PPN (n=150)		SC (n=150)	
	n	%	n	%
Usia ibu				
- Berisiko	18	12	33	22
- Tidak berisiko	132	88,0	117	78,0
Paritas				
- Berisiko	64	42,7	77	51,3
- Tidak berisiko	86	57,3	73	48,7
Riwayat sectio cesaria				
- Berisiko	0	0	72	48
- Tidak berisiko	150	100,0	78	52,0
Gagal induksi				
- Ya	2	1,3	42	28
- Tidak	148	98,7	108	72,0
Ketuban Pecah Dini				
- Ya	68	45,3	26	17,3
- Tidak	82	54,7	124	82,7
Preeklampsia berat				
- Ya	33	22	67	44,6
- Tidak	117	78,0	83	55,3
Gawat janin				
- Ya	17	11,3	37	24,7
- Tidak	133	88,7	113	75,3
Plasenta Previa				
- Ya	6	4	13	8,7
- Tidak	144	96,0	137	91,3
Total	**150**	**100,0**	**150**	**100,0**

Source: Secondary Data, 2021

Based on table 4.1, the distribution of characteristics of mothers giving birth at RSIA Sitti Khadijah 1 Muhammadiyah Makassar, consists of respondents based on the age of mothers at risk with normal delivery as many as 18 respondents (12%) and cesarean section as many as 33 respondents (22%), while based on parity mothers at risk with normal delivery as many as 64 respondents (42.6%) and cesarean section as many as 77 respondents (51.3%), based on history of cesarean section at risk with normal delivery as many as 0 respondents (0%) and cesarean section as many as 72 respondents (48%), while based on respondents with failed induction with normal delivery as many as 2 respondents (1.3%) and cesarean section as many as 42 respondents (28%), Based on respondents with premature rupture of membranes with normal delivery as many as 68 respondents (45.3%) and cesarean section as many as 26 respondents (17.3%), while based on respondents with severe preeclampsia with normal delivery as many as 33 respondents (22%) and cesarean section as many as 33 respondents (22%) and cesarean section as many as 38 ... 67 respondents (44.6%) had caesarean section, while based on fetal distress respondents with normal delivery measures were 17 respondents (11.3%) and 37 respondents (24.6%) had caesarean section, while based on placenta previa respondents with normal delivery measures were 6 respondents (4%) and 13 respondents (8.6%) had caesarean section.

Bivariate Analysis

Table 4.2 Analysis of maternal age as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Makassar Maternity Hospital in 2021.

Age	Action				p-value
	VAT		SC		
	N	%	n	%	
Risky	18	12	33	22	
No Risk	132	88	117	78	0.031
Total	150	100.0	150	100.0	

Source: Secondary Data, 2021

Based on the table above, it was found that respondents with normal delivery with a risky age (age < 20 or > 35 years) were 18 samples (12%) and not at risk (age 20 years - 35 years) were 132 samples (88%), while cesarean section actions with a risky age (age < 20 or > 35 years) were 33 samples (22%) and not at risk (age 20-35 years) were 117 samples (78%). The results of the chi-square test obtained a p-value of 0.031 or a p-value <0.05, which means that maternal age is a risk factor for caesarean section delivery.

Table 4.3 Analysis of maternal parity as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Makassar Maternity Hospital in 2021.

Parity	Action				p-value
	VAT		SC		
	n	%	n	%	
Risky	64	42.7	77	51.3	
No Risk	86	57.3	73	48.7	0.165
Total	150	100.0	150	100.0	

Source: Secondary Data, 2021

Based on the table above, it was found that respondents with normal delivery with risky parity (grandemultipara) were 64 samples (42.7%) and not at risk (primipara or multipara) were 86 samples (57.3%), while cesarean section with risky parity (grandemultipara) were 77 samples (51.3%) and not at risk (primipara and multipara) were 73 samples (48.7%). The results of the chi-square test obtained a p-value of 0.165 or a p-value>0.05, which means that parity is not a risk factor for caesarean section delivery..

Table 4.4 Analysis of history of caesarean section as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Makassar Hospital in 2021

History of Cesarean Section	Action				p-value
	VAT		SC		
	n	%	n	%	
Risky	0	0	72	48	
No Risk	150	100.0	78	52	0,000
Total	150	100.0	150	100.0	

Based on the table above, it was found that respondents with normal delivery with a history of risky cesarean section (CS history ≥2 times) were 0 samples (0%) and those who were not at risk (had no history of CS or history of CS 1 time) were 150 samples (50%), while cesarean section with risky parity (CS history ≥2 times) were 72 samples (48%) and those who were not at risk (had no history of CS or history of CS 1 time) were 78 samples (52%).

The results of the chi-square test obtained a p-value of 0.000 or a p-value <0.05, which means that a history of caesarean section is a risk factor for caesarean section delivery..

Table 4.5 Analysis of failed induction as a risk factor for labor at Sitti Khadijah 1 Muhammadiyah Makassar Hospital in 2021

Induction failure	Action				p-value
	VAT		SC		
	n	%	n	%	
Yes	2	1.3	42	28	
No	148	98.7	108	72	0,000
Total	150	100.0	150	100.0	

Source: Secondary Data, 2021

Based on the table above, it was found that respondents with normal delivery procedures with failed induction were 2 samples (1.3%) and those without failed induction were 148 samples (98.7%), while cesarean section procedures with failed induction were 42 samples (28%) and those without failed induction were 108 samples (72%). The results of the chi-square test obtained a p-value of 0.000 or a p-value <0.05, which means that failed induction is a risk factor for caesarean section delivery.

Table 4.6 Analysis of premature rupture of membranes as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Makassar Maternity Hospital in 2021

Premature rupture of membranes	Action				p-value
	VAT		SC		
	n	%	n	%	
Yes	68	45.3	26	17.3	
No	82	54.7	124	82.7	0,000
Total	150	100.0	150	100.0	

Source: Secondary data, 2021

Based on the table above, it was found that respondents with normal delivery procedures with premature rupture of membranes were 66 samples (44%) and those without premature rupture of membranes were 84 samples (56%), while those with cesarean section procedures with premature rupture of membranes were 26 samples (17.3%) and those without premature rupture of membranes were 124 samples (82.7%). The results of the chi-square test obtained a p-value of 0.000 or a p-value <0.05, which means that premature rupture of membranes (PROM) is a risk factor for caesarean section delivery.

Table 4.7 Analysis of severe preeclampsia as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Women's and Children's Hospital Makassar in 2021

Severe preeclampsia	Action				p-value
	VAT		SC		
	n	%	n	%	
Yes	33	22	67	44.7	0,000
No	117	78	83	55.3	
Total	150	100.0	150	100.0	

Source: Secondary data, 2021

Based on the table above, it was found that respondents with normal delivery procedures with a risk of preeclampsia were 33 samples (22%) and those without a risk of preeclampsia were 117 samples (78%), while cesarean section procedures with a risk of preeclampsia were 67 samples (44.7%) and those without

a risk were 83 samples (55.3%). The results of the chi-square test obtained a p-value of 0.000 or a p-value <0.05, which means that severe preeclampsia (PEB) is a risk factor for caesarean section delivery.

Table 4.8 Analysis of fetal distress as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Makassar Maternity Hospital in 2021

Fetal distress	Action				p-value
	VAT		SC		
	N	%	n	%	
Yes	17	11.3	37	24.7	
No	133	88.7	113	75.3	0.004
Total	150	100.0	150	100.0	

Source: Secondary Data, 2021

Based on the table above, it was found that respondents with normal delivery procedures that had a risk of fetal distress were 17 samples (11.3%) and those without a risk of fetal distress were 133 samples (88.7%), while cesarean section procedures that had a risk of fetal distress were 37 samples (24.7%) and those without a risk were 113 samples (75.3%). The results of the chi-square test obtained a p-value of 0.004 or a p-value <0.05, which means that fetal distress is a risk factor for caesarean section delivery.

Table 4.9 Analysis of placenta previa history as a risk factor for delivery procedures at Sitti Khadijah 1 Muhammadiyah Makassar Hospital in 2021

Placentia Previa	Tindakan				p-value
	PPN		SC		
	n	%	N	%	
Ya	6	4	13	8,7	
Tidak	144	96	137	91,3	0,155
Total	150	100,0	150	100,0	

Source: Secondary Data, 2021

Based on the table above, it was found that respondents with normal delivery with placenta previa were 6 samples (4%) and those without placenta previa were 144 samples (96%), while cesarean section with placenta previa was 13 samples (8.7%) and those without placenta previa were 137 samples (91.3%). The results of the chi-square test obtained a p-value of 0.155 or a p-value>0.05, which means that placenta previa is not a risk factor for caesarean section delivery.

Discussion

a. Analysis of Age as a Risk Factor for Caesarean Section
   Age is an important factor influencing pregnancy and childbirth. In this study, maternal age groups were categorized into those aged <20 and >35. The chi-square test results showed a p-value of 0.031 (p<0.05), indicating that age is a significant risk factor for cesarean section at Sitti Khadijah 1 Muhammadiyah Makassar Hospital. Pregnancy at ages <20 and >35 is considered risky because the reproductive organs are not yet ready or are starting to experience a decline in physiological function. This can increase the risk of miscarriage, prolonged labor, and the need for a cesarean section for the safety of the mother and fetus (Mulyawati, 2011). This study aligns with the findings of Priharyanti (2018, in Mulyawati, 2011) who stated that at-risk ages (<20 or >35) are highly susceptible to cesarean delivery due to immature or weakened reproductive organs.
b. Analysis of Parity as a Risk Factor for Caesarean Section
   Parity is the number of deliveries a mother has experienced, whether live births or stillbirths. High parity (>4 times) can cause uterine muscle weakness, which increases the risk of complications such as postpartum hemorrhage and prolonged labor (Prawirohardjo, 2014). However, the results of this study

indicate that parity is not a risk factor for C-sections with a p-value of 0.165 (p>0.05). These results are supported by research by Ida Nurmawati (2020) which showed no significant association between parity and the incidence of C-sections at RSIA Srikandi IBI Jember, as well as findings by Hasliani (2017) at RSUD Labuang Baji Makassar. However, these results are inconsistent with research by Mulyawati (2011) which stated a relationship between parity and C-sections. This difference in results may be due to other factors such as the mother's medical condition, previous pregnancy history, or other obstetric indications that more dominantly influence the decision to perform a C-section.

c. Analysis of Caesarean Section History as a Risk Factor
A history of previous cesarean section is a strong risk factor for repeat cesarean section. Every woman who has undergone a cesarean section should consider risks such as uterine rupture if attempting a vaginal delivery after a previous operation (Dutton et al., 2010). In this study, a p-value of 0.000 (p<0.05) was obtained, which means that a history of cesarean section is a significant risk factor for subsequent cesarean section. This is in line with the theory of Prawirohardjo (2016) and research by Aprina (2016) which states that the more cesarean sections performed (≥2 times), the higher the risk of complications such as infection, bleeding, and placenta previa in subsequent pregnancies.

d. Analysis of Induction Failure as a Risk Factor
Labor induction is an attempt to stimulate uterine contractions before spontaneous labor. However, unsuccessful induction can result in a CS to prevent the risk of fetal hypoxia or uterine rupture (Prawirohardjo, 2014). The results of this study showed a p-value of 0.000 (p<0.05), which means that failed induction is a significant risk factor for CS. This is in line with research by Rinukti (2012, in Prawirohardjo, 2014), which states that 3.03% of CS cases are caused by failed induction. This condition usually occurs when the cervix is immature, the fetus does not enter the pelvic cavity, or contractions are ineffective, making CS the safest alternative for both mother and fetus.

e. Analysis of Premature Rupture of Membranes (PROM) as a Risk Factor
Premature rupture of membranes (PROM) is the rupture of the amniotic sac before labor begins. PROM can cause complications such as maternal infection, fetal asphyxia, and an increased risk of CS (Cunningham et al., 2018). The study obtained a p-value of 0.000 (p<0.05), indicating that PROM is associated with CS, although the relationship is negative. This means that mothers with PROM actually have more vaginal deliveries than those without PROM. This may occur because PROM is not an absolute indication for CS, but rather depends on other factors such as fetal condition and labor progress. These results are supported by Hendraningsih (2018) and Nurdin et al. (2021), who found a relationship between the duration of PROM and the method of delivery and the incidence of neonatal asphyxia.

f. Analysis of Severe Preeclampsia (PEB) as a Risk Factor
Severe preeclampsia (PEB) is a serious pregnancy complication that occurs after 20 weeks of gestation, characterized by hypertension, edema, and proteinuria (Cunningham et al., 2018). The results of this study indicate that PEB is a significant risk factor for CS with a p-value of 0.000 (p<0.05). This condition often requires immediate pregnancy termination for the safety of the mother and fetus. This finding is consistent with research by Subekti (2020, in Prawirohardjo, 2016), which states that PEB is one of the main causes of the increasing number of CSs in Indonesia.

g. Analysis of Fetal Distress as a Risk Factor
Fetal distress is a condition where the fetus experiences a lack of oxygen (hypoxia) during labor, which can cause nerve damage and even fetal death (Nugroho, 2010). The results of the study showed a p-value of 0.004 (p<0.05), which means fetal distress is a significant risk factor for C-section procedures. This finding is in line with Zanah's research (2015, in Hasliani, 2017) which found a relationship between fetal distress and C-section at Panembahan Senopati Bantul Regional Hospital. C-section

procedures in cases of fetal distress are carried out to prevent neonatal asphyxia and fetal death due to hypoxia.

h. Analysis of Placenta Previa as a Risk Factor
Placenta previa is a condition where the placenta implants in the lower uterine segment, partially or completely covering the internal uterine os, thus obstructing the birth canal (Prawirohardjo, 2016). Based on the results of the chi-square test, a p-value of 0.155 (p>0.05) was obtained, which means that placenta previa is not a significant risk factor for CS at Sitti Khadijah 1 Muhammadiyah Makassar Hospital. This result is in line with Andriani's (2010) study which also found no significant relationship between placenta previa and CS. However, obstetric theory states that total placenta previa is an absolute indication for CS (Prawirohardjo, 2016). Different results were found by Aprina (2016) who stated a significant relationship between placenta previa and CS at Dr. H. Abdul Moeloek Regional Hospital, Lampung Province.

4. Conclusion

Based on the research results and discussions conducted, it can be concluded that age, history of previous cesarean section (CS), failed labor induction, premature rupture of membranes (PROM), severe preeclampsia (PEB), and fetal distress have been shown to have a significant relationship as risk factors for cesarean section. Meanwhile, parity and placenta previa did not show a significant relationship with cesarean section at Sitti Khadijah 1 Muhammadiyah Makassar Hospital in 2021. These results indicate that risk factors influencing cesarean section are more related to medical conditions and pregnancy complications than general obstetric factors such as number of deliveries or placental position.

As a follow-up, future researchers are advised to conduct research with different designs or more in-depth approaches to specifically identify the indications that constitute risk factors for CS. Furthermore, health workers are expected to play a more active role in educating pregnant women about the factors that can influence the decision to perform a CS. Appropriate education can help pregnant women understand their pregnancy, improve childbirth preparedness, and reduce the number of CSs without a strong medical indication.

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