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RISK FACTORS FOR ABORTION IN KELIAT PERAK HOSPITAL, DELI SERDANG REGENCY, NORTH SUMATRA PROVINCE IN 2024

Vian Kristina Hulu[1], Yunita Aprianti[2],Yesika Ritonga[3,] Julaiha[4] , Lasria Simamora[5]

[1,2,3,4,5]Sekolah Tinggi Ilmu Kesehatan Mitra Husada Medan

Email : 2419201577@mitrahusada.ac.id , 2319201081@mitrahusada.ac.id , 2319201079@mitrahusada.ac.id , 2319201247@mitrahusada.ac.id , lasriasimamora@mitrahusada.ac.id

ABSTRACT

Background: Abortion is the spontaneous termination of pregnancy before reaching 20 weeks of gestation, and is a crucial reproductive health issue in Indonesia. At Keliat General Hospital, Deli Serdang Regency, there are reports of spontaneous abortion cases frequently experienced by pregnant women.**Pourpose** : This study aims to examine the risk factors associated with abortion incidents at Keliat General Hospital, Deli Serdang Regency, North Sumatra Province.**Method**: This quantitative study applies an observational analytical approach with a case-control study design. The study sample consisted of 60 respondents, divided into 30 people in the case group (mothers who experienced abortion) and 30 people in the control group (mothers who did not experience abortion). Data collection was carried out retrospectively through medical records using a structured questionnaire. **Data analysis**: included univariate analysis and bivariate analysis using the Chi-Square statistical test (alpha = 0.05). **Result** :Bivariate analysis indicated that age had a significant correlation with the incidence of abortion (p = 0.007; OR = 4.57), indicating that mothers in the high age category (35 years) were at 4.5 times higher risk of abortion. Furthermore, anemia also showed a statistically significant correlation (p = 0.018; OR = 3.59), indicating that pregnant women with anemia were more likely to experience miscarriage. On the other hand, parity (p = 0.605) and history of previous abortion (p = 0.371) showed p values > 0.05, indicating no significant association with the incidence of abortion in the study area.**Conclusion**: Extreme maternal age (high risk) and anemia are important risk factors directly related to the incidence of abortion at Keliat General Hospital. Therefore, it is necessary to improve the quality of antenatal care, early detection of at-risk ages, and optimization of screening programs and anemia management from the beginning of pregnancy to reduce the potential for spontaneous miscarriage in pregnant women.

Keywords: Abortion, Maternal Age, Anemia, Risk Factors, Case Study Control

INTRODUCTION

Maternal mortality is influenced by various factors that can be categorized as direct and indirect causes. Direct causes of maternal mortality relate to problems that arise during pregnancy, childbirth, and the postpartum period, such as hemorrhage,
preeclampsia/eclampsia, infection, abortion, and obstructed labor. Indirect causes of maternal mortality stem from factors that worsen the mother's condition, such as the 4Ts (too young, too old, too frequent pregnancies, and too close birth spacing) according to Minister of Health Regulation No. 97 of 2014.(Siregar, 2023)

Abortion can be triggered by various factors. According to research conducted by Aidil, there are eight main factors that contributed to abortion in Indonesia from 2010 to 2019: maternal age at pregnancy (27 cases), parity (21 cases), history of previous abortions (10 cases), spacing between pregnancies (9 cases), gestational age (7 cases), education and employment levels (6 cases each), and anemia (5 cases).(Bancin *et al.*, 2023)

In Deli Serdang Regency, Keliat General Hospital, as a mid-level healthcare provider, has handled a number of abortion cases in recent years. However, local data specifically identifying risk factors contributing to abortion in this area remains very limited. Information on locallevel risk factors is essential for designing more effective, evidence-based prevention strategies. Based on an initial survey conducted through registration data in the VK Room, it was found that there were 15 pregnant women who experienced spontaneous abortions during the period from January to March 2025. The results of interviews with obstetric medical personnel in the VK Emergency Room showed that spontaneous abortions were more common in mothers aged less than 20 years and over 35 years and also in those who experienced anemia during pregnancy.(Siti NurmawanMurni *et al.*, 2024)

METHOD

This quantitative study adopted an observational analytical approach and employed a case-control study design. This design was used to evaluate the association between various risk factors, such as maternal age, number of previous births, nutritional status, anemia, history of miscarriage, and interpregnancy spacing, with the occurrence of miscarriage. The casecontrol method was chosen because it is suitable for analyzing relatively rare diseases or conditions, such as miscarriage, and provides an opportunity to identify causal factors based on accumulated data. In this study, the case group consisted of pregnant women who experienced miscarriage, while the control group consisted of pregnant women who did not experience miscarriage.(Sinaga, 2025)

Data were obtained retrospectively from medical records using a structured questionnaire, which compared characteristics between the case and control groups. Analysis was conducted to identify any significant associations between the independent variables and the occurrence of miscarriage, the dependent variable.(Purba, Dewi and Azizah, 2021)

RESULT

This study involved 60 participants divided into two groups: 30 cases (who experienced abortions) and 30 controls (who did not experience abortions). variables examined were maternal age, parity, nutritional status (BMI), history of abortion, anemia (based on hemoglobin), and pregnancy spacing. The following table summarizes the respondent variables:

Univariate Analysis :

Variables	**Abortion**		**Not Abortion**		**In Total**
	f	**%**	**f**	**%**	
Mothers Age (years)					
High Risk	16	72,7%	6	27,3%	22
Healthy Reproduction	14	36,8%	24	63,2%	38
In Total	30	50%	30	50%	60
Parity					
Primipara	17	53,1%	15	46,9%	32
Multiparous	13	46,4%	15	53,6%	28
In Total	30	50%	30	50%	60
History of Abortion					
Ever	9	60%	6	40%	15
Never	21	46,7%	24	53,3%	45
Total	30	50%	30	50%	60
Anemia					
Anemia	22	62,9%	13	37,1%	35
Not Anemia	8	32,0	17	67,0	25
In Total	30	50%	30	50%	60

The data presented shows that the majority of respondents were in the healthy reproductive age group, totaling 38 individuals, of whom 24 had never experienced an abortion.Regarding parity, the majority of respondents were primiparous, a total of 32 individuals, and of these, 17, or 53.1%, had experienced an abortion.Regarding abortion history, the majority of respondents, 45 individuals, had never experienced an abortion, while 21 individuals, or 46.7%, had experienced an abortion.Regarding anemia, the majority of respondents, 35 individuals, had anemia, of which 22 individuals, or 62.9%, had experienced an abortion.(Bernolian *et al.*, no date),(Jenina and Susilani, 2019)

Bivariate Analysis :

Variables	Abortion		Not abortion		In Total	P Value	OR
	f	%	f	%			
Mothers Age (years)						0,007	1,45 - 14,38
High Risk	16	72,7	6	27,3	22		
Healthy Reproduction	14	36,8	24	63,2	38		
In Total	30	50	30	50	60		
Parity						0,605	0,47 - 3,61
Primipara	17	53,1	15	46,9	32		
Multiparous	13	46,4	15	53,6	28		
In Total	30	50	30	50	60		
History of Abortion						0,371	0,52 - 5,62
Ever	9	60%	6	40%	15		
Never	21	46,7%	24	53,3%	45		
In Total	30	50%	30	50%	60		
Anemia's						0,018	1,21 – 10,63
Anemia's	22	62,9%	13	37,1%	35		
Not Anemia's	8	32,0	17	67,0	25		
In Total	30	50%	30	50%	60		

From the table above, it is known that the variables of age and anemia have a p-value <0.05, indicating a significant relationship; while parity and history of abortion have a p-value >0.05, indicating no relationship with the incidence of abortion at Keliat Hospital.

DISCUSSION

Abortion, or miscarriage, is a reproductive health issue that remains a challenge both in Indonesia and worldwide. According to the World Health Organization (WHO), abortion is defined as the expulsion of the products of conception before 20 weeks of gestation or a fetal weight of less than 500 grams. One of the main factors associated with abortion is the mother's age at the time of conception.(Blystad *et al.*, 2020)

Women who become pregnant outside the healthy reproductive age range, namely 35 years, are considered a high-risk group for pregnancy complications, including miscarriage.Physiological and psychological conditions at this extreme age play a significant role in determining the success of a pregnancy.(Lokubal *et al.*, 2022)

In a study conducted at Keliat General Hospital in Deli Serdang Regency in 2025, it was revealed that of the 60 respondents involved, there were 22 individuals in the high-risk age category (35 years), with 72.7% of them experiencing abortion cases. On the other hand, the healthy reproductive age group (20–35 years) consisted of 38 people, and only 36.8% of them experienced abortions. Statistical analysis showed a significant relationship between maternal age and the incidence of abortion (p = 0.007; OR = 4.571), indicating that mothers in the highrisk age category were 4.5 times more likely to experience abortion when compared to those in the healthy reproductive age range.(Dastgiri *et al.*, 2017),(Jannah *et al.*, 2026)

Abortion at a very young age is triggered by various physiological factors. Among teenagers, the main causes are immaturity of the reproductive organs and hormonal imbalance. In the puberty phase which has not yet fully developed endocrineally, this can cause insufficiency in the corpus luteum, which functions to produce progesterone to support pregnancy. Low progesterone levels cause the endometrium to reject the embryo implant, thus causing abortion.(Jayaweera *et al.*, 2021)

This decline in quality often results in chromosomal abnormalities in the embryo, which is the leading cause of first-trimester miscarriage. Research conducted by the March of Dimes indicates that nearly 50% of early miscarriages are caused by chromosomal abnormalities, and this risk increases with maternal age.(Analisis, 2024)

Based on the explanation above, the author argues that maternal age significantly influences the occurrence of miscarriage. Pregnancy at an extreme age (35 years) increases the risk of miscarriage due to biological unpreparedness, decreased egg quality, hormonal imbalances, and psychosocial factors. Therefore, it is crucial for medical professionals to pay closer attention to this age group in providing antenatal care and pregnancy planning.(Hinson *et al.*, 2022)

CONCLUSIONS

Based on the research results and discussion regarding factors related to abortion incidence at Keliat General Hospital, Deli Serdang Regency in 2025, the following conclusions can be drawn:

1) Maternal Age

There is a significant relationship between maternal age and abortion incidence. Mothers with high-risk ages (<20 years and >35 years) are 4.5 times more likely to experience abortion than mothers of healthy reproductive age (20–35 years).(Erdman, 2023)

2) Parity

No significant relationship was found between parity and abortion incidence in this study. However, parity still needs to be considered, especially in grandemultiparous mothers who are at risk of pregnancy complications.('Editorial Team Jurnal JKFT', 2023)

3) Abortion History

A history of previous abortions did not show a significant relationship with abortion incidence in this study. However, a history of abortion remains a factor that should be monitored clinically as it can potentially increase the risk of recurrent miscarriage.(Usia *et al.*, 2024)

4) Anemia

Anemia has a significant relationship with abortion incidence. Pregnant women with anemia are at higher risk of miscarriage than those without anemia, with a p-value of 0.018 and an odds ratio of 1.21–10.63. Anemia disrupts fetal oxygenation, which can trigger miscarriage.(Azzahra *et al.*, 2025)

RECOMMENDATION :

Based on the conclusions above, the authors offer the following recommendations:

1. For Keliat General Hospital (RSU)

Optimization of Early Screening in the Emergency Department and Obstetrics Polyclinic: Considering that high-risk mothers are 4.5 times more likely to experience miscarriage, the

hospital is advised to create a special triage process to detect pregnant women at extreme ages (<20 years and >35 years) from the first visit to ensure prompt preventive care.

2. For Health Workers (Midwives and Obstetricians)

Improving the Quality of Antenatal Care (ANC) Services: Health workers must be more stringent in monitoring pregnant women's compliance with iron and folic acid supplements, and conduct regular evaluations of maternal nutritional status.

3. For Pregnant Women and the Community/Family

Compliance with Routine Pregnancy Check-ups: Pregnant women are expected to immediately have their pregnancy checked at a health facility upon noticing presumptive signs (a missed period) so that risk conditions such as anemia can be detected early.

4. For Future Researchers

Expansion of Research Variables: It is recommended that future researchers examine other abortion risk factors that have not been fully tested or not yet included in this research model, such as body mass index (BMI) nutritional status, pregnancy spacing, psychosocial factors (work stress), chronic diseases (diabetes/hypertension), and exposure to environmental toxic substances.

5. For Educational Institutions (STIKes Mitra Husada Medan)

Development of Fostered Villages Based on Maternal Education: Institutions are advised to carry out community service in the Deli Serdang area in the form of reproductive education posts for adolescents and pregnant women to reduce the prevalence of anemia and local abortion.

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