FACTORS RELATED TO THE INCIDENCE OF ABORTION AT THE HARAPAN AND DOA GENERAL HOSPITAL IN BENGKULU CITY

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Abstract

Abortion is the termination of pregnancy before 20 weeks of gestation or with a fetal weight of <500 grams, either spontaneous or induced. This condition is one of the serious pregnancy complications as it can lead to bleeding, infection, and even maternal death. Objective: This study aimed to determine the factors associated with the incidence of abortion among pregnant women at Harapan dan Doa Regional Public Hospital, Bengkulu City. This research used a case-control design with a 1:1 ratio. The sample consisted of 252 respondents, including 126 abortion cases obtained through total sampling and 126 controls selected using simple random sampling. Bivariate analysis showed a significant association between age (p=0.00), history of abortion (p=0.046), and the incidence of abortion, whereas parity was not associated (p=1.000). The most dominant factor associated with abortion was age, with a p-value of 0.001 and an Odds Ratio (OR) of 3.265. Age and history of abortion are associated with the incidence of abortion, with age being the most dominant factor. Health workers are expected to increase education and monitoring for high-risk pregnant women, particularly those under 20 year, over 35 years, and with a history of abortion womwn, particularly those under 20 year, over 35 years, and with a history of abortion.

Keywords: Abortion, Age, Parity, History of Abortion

INTRODUCTION

An abortion is any pregnancy that ends before the fetus can survive.,The World Health Organization defines it as an embryo or fetus weighing 500 grams or less, which usually corresponds to the age of the fetus (gestational age) of 20 to 22 weeks or less (Daisy, 2020) The most commonly known causes of abortion are chromosomal abnormalities, vascular collagen diseases (such as lurest), diabetes, other hormonal problems, infections and congenital abnormalities (birth defects) uterine abnormalities (Wulansari et al, 2024)

According to the World Health Organization (World Health Organization (WHO), 2023), it is estimated that there are around 23 million cases of abortion that occur every year worldwide. This figure reflects that about 15–16% of clinically recognized pregnancies end in miscarriage, or the equivalent of 150–160 abortions per 1,000 pregnancies. When compared to WHO data in 2019, the number of global abortion incidents is still in the range of 20-21 million cases per year, so there is an increase of around 2 million cases in just four years. This increase shows that abortion is still a global reproductive health problem that has not shown a significant decrease, and is even likely to increase

Meanwhile, WHO through the *Sustainable Development Goals* (SDGs) program targets to reduce the maternal mortality rate to less than 70 per 100,000 live births by 2030. However, as of 2023, the global maternal mortality rate is still around 197 per 100,000 live births, which shows that the global target has not been achieved. Abortion is one of the factors that contribute to the high maternal mortality rate, especially in developing countries (BR Sebayang et al., 2023)

The estimated number of abortion incidents in Indonesia reached around 2.3 million cases per year during the 2014-2023 period, which reflects a consistent trend and needs serious attention. Meanwhile, data from various health facilities show that the frequency of abortion ranges from 10–15% of total pregnancies, equivalent to 500,000-750,000 cases per year if it is assumed that there are 5-6 million annual pregnancies in Indonesia (Septia Wulansari *et al*, 2024).

Physically, abortion is at risk of causing severe bleeding (hemorrhage), especially if the abortion occurs spontaneously that is not handled properly, or is performed unsafely without medical supervision. In addition, a severe uterine infection (endometritis) can develop into sepsis, which is a generalized infection that can be life-threatening. Abortion also has the potential to cause perforation or tearing of the uterine wall, especially if the curettage procedure is performed roughly or not sterilely, Long-term complications such as fertility disorders can also occur, caused by damage to the fallopian tubes, uterus, or due to post-infection tissue adhesion (Kementerian Kesehatan, 2020).

Abortion is triggered by a variety of complex factors, The main causes of abortion include advanced maternal age, previous abortion history, uterine anatomy abnormalities, obesity, and smoking habits. The age of > 35 years increases the risk of miscarriage significantly, a history of previous abortion is also an important factor for mothers with such a history to have a higher chance of having a reabortion. Abnormalities in the structure of the uterus such as the uterine septum or fibroids can interfere with fetal implantation. All of these factors, when present at the same time, greatly increase the likelihood of abortion (Scielo Brasil, 2023)

Research conducted by (Asiyah Wardah, 2025) at Sleman Hospital Yogyakarta found that the highest proportion of mothers who had abortions was in the age group of 20-35 years, which was 41 people (61.2%), while the rest were < 20 or > 35 years old. Then, in terms of parity, the majority are multipara, as many as 58 people (86.6%), and in terms of previous abortion history, as many as 44 people (65.7%) have had a previous miscarriage. A study at the Heritage Health Center, (Friza Novita Sari Situmorang et al., 2025) confirmed a significant relationship between at-risk age (< 20 & > 35 years) and the incidence of abortion in 28 people (33.2%), as well as that 31 people (40.1%) of them had a history of abortion, with a $p < 0.05$. These results reinforce the finding that age, parity and abortion history have important contributions to abortion risk.

Based on medical record data from the Harapan and Doa Regional General Hospital in Bengkulu province in 2022, out of 845 pregnant women who were treated, there were 58 people with abortion incidence, in 2023 out of 879 pregnant women there were 61 people with abortion incidence, in 2024 out of 900 pregnant women there were 65 people who had abortions. Therefore, this study was conducted to find out what factors are related to the incidence of abortion at the Hope and Prayer Hospital in the city of Bengkulu.

MATERIALS AND METHODS

This study used a quantitative method with a case-control design aimed at analyzing the factors associated with the incidence of abortion at Harapan dan Doa Hospital in Bengkulu City in 2025. The population in this study consisted of all pregnant women hospitalized at Harapan dan Doa Hospital in 2023 and 2024, totaling 1,779 people. The research sample consisted of two groups, namely the case group and the control group with a ratio of 1:1. The case group included all pregnant women who experienced abortion, with a total population of 126 people. All members of the case group were taken using the total sampling method, so the number of case samples was 126 people. This study has obtained Ethical Exemption approval from the Health Polytechnic of the Ministry of Health Bengkulu, with letter number No. KEPK.BKL/647/07/2025.

RESULTS AND DISCUSSION

Result

1. Univariate Analysis

   Table 1. Distribution of Respondent Frequency Based on Maternal Age, Parity, History of Abortion and Abortion at Harapan and Doa Hospital in Bengkulu City in 2025

No	Variable	Frequency (n =252)	Percentage (100%)
1	**Abortion**		
	Abortion	126	50
	No Abortion	126	50
2	**Age**		
	<20 years and > 35 years old	48	19,0
	20 – 35 years	204	81,0
3	**Parity**		
	Primitive and Largemultipara	157	62,3
	Multipara	95	37,7
4	**History of abortion**		
	Have a history of abortion	54	21,4
	No history of abortion	198	78,6

Source : Secondary Data

Based on table 1, it can be seen that almost all of the incidents (81%) of the respondents were in the age group of 20-35 years. Most of the incidence (62.3%) of respondents were in the risk parity group, namely primipara and grandemultipara. In addition, almost all of the incidents (78.6%) of respondents had no previous history of abortion.

2. Bivariate Analysis

Table 2 Age Relationship with the incidence of abortion at Harapan and Doa Hospital in Bengkulu City in 2025.

Variable	ABORTION				$\chi 2$	*P*	*OR (CI 95%)*
	Yes		No				
	f	%	f	%			
Mother's Age							
< 20 and >35 years old	35	27,8	13	10,3	11,349	0,001	3,343 (1,670-6,691)
20 – 35 years old	91	72,2	133	89,7			
Total	**126**	**100**	**126**	**100**			

Source : Chi-Square Test

Based on Table 4.2, it is known that in the group of mothers with the age of <20 years and >35 years, almost some have had abortions (27.8%), while in the group of mothers aged 20-35 years, a small number have had abortions (10.3%).

Table 3 Parity Relationship with the Incidence of Abortion at Harapan and Doa Hospital in Bengkulu City in 2025.

	ABORTION	*OR*

Variable	Yes		No		χ2	p	(CI 95%)
	f	%	f	%			
Parity							
Primitive and Largemulpara	78	61,9	79	62,5	000	1,000	0,967 (0,581-1.609)
Multipara	48	38,1	47	37,3			
Total	**126**	**100**	**126**	**100**			

Source : Chi-Square Test

Based on Table 4.3, it can be seen that in the group of mothers with primipara and grandemultipara parity, most (61.9%) have had abortions. Meanwhile, in the multipara group, almost a part (38.1%) experienced an abortion.

Table 4 Relationship between Abortion History and Abortion Incidence at Harapan and Doa Hospital in Bengkulu City in 2025

Variable	ABORTION				χ2	p	OR (CI 95%)
	Yes		No				
	f	%	f	%			
History of Abortion							
Have a history of abortion	34	27,0	20	15,9	3,620	0,046	1,959 (1.055-3,363)
No History of Abortion	92	73,0	106	84,1			
Total	**162**	**100**	**162**	**100**			

Source : Chi-Square Test

Based on Table 4.4, it can be seen that in the group of mothers who have a history of abortion, almost half (27.0%) have had an abortion and in the group of mothers who do not have a history of abortion, most (73.0%) have had an abortion. The results of statistical analysis showed a value of p = 0.046 (p < 0.05), which means that there is a significant relationship between abortion history and abortion incidence. Value (OR) = 1.959 with a 95% Confidence Interval (CI): 1.055–3.363 indicates that pregnant women who have a history of abortion have almost 2 times greater risk of having an abortion compared to mothers who have no history of abortion.

3. Multivariate Analysis

Multivariate analysis was used to determine the independent variables that had the greatest influence on the dependent variables using a simple logistic regression test. The variables included in the multivariate analysis were those

that had a value of p>0.25, namely the mother's age (p=0.001) and abortion history (p=0.046).

Variable	*P*	OR *(CI (95%)*
Age	0,001	3.265(1.623-6.564)
History of Abortion	0,050	1.883(0.999-3.459)

The results of the analysis in table 5 show that the most dominant factor is age with OR=3,265 which means that mothers with the age of <20 and >35 years are 3,265 times more at risk of having an abortion compared to mothers with the age of 20-35 years.

Discussion

Age Relationship with Abortion Incidence at Harapan and Doa Hospital in Bengkulu City in 2025

The results of the univariate analysis showed that most of the respondents (81%) were aged 20-35 years, where of the 126 abortion respondents there were a small percentage (19%) with the age of <20 and >35 years. These results show that the incidence of abortion mostly occurs in the age of the mother <20 and > 35 years.

The results of the bivariate analysis showed that there was a relationship between age and the incidence of abortions at the Harapan and Doa hospitals in the city of Bengkulu in 2025. The results of *the Chi-square statistical test* were obtained with a value of p=0.001 (p < 0.05), Value of OR=3.343 with a 95% CI: 0.581–1.609 which means that mothers aged <20 years or >35 years with a total of 11 pregnant women with an age of <20 years and 38 pregnant women with an age of >35 years have a 3.3 times greater risk of having an abortion compared to mothers aged 20–35 years.

The results of this study are in line with previous studies, one of which is a study conducted (Hikmah, 2017) at dr. Loekmono Hadi Kudus Hospital which shows that there is a significant relationship between the age of the mother and the incidence of abortion so that the age of the mother at risk (<20 and >35 years) is a risk factor for abortion.

The results of this study are in line with research conducted by (Susanti & Rosida, 2024) at the Piyungan Health Center, Bantul Regency, which shows a significant relationship between maternal age and the incidence of abortion. This indicates that mothers of at-risk age (<20 years and >35 years) have a 2.72 times greater chance of having an abortion compared to mothers of healthy reproductive age (20–35 years).

Pregnant women at a young age (<20 years) biologically the development of their reproductive organs is not fully optimal. In terms of psychologically, he is still labile and not able to take responsibility for himself, let alone for the fetus he is carrying, so he often gets disturbed. Meanwhile, at the age of more than 35 years, the elasticity of the pelvic muscles and surrounding areas as well as reproductive organs in general decline. This can lead to abortion. The older the woman, the more the risk of abortion also increases due to the decrease in the quality of the egg, as well as the increased risk of chromosomal abnormalities(Ertiana et al., 2024)

Parity Relationship with Abortion Incidence at Harapan and Doa Hospital in Bengkulu City in 2025

The results of the univariate analysis showed that most of the incidence (62.3%) of respondents were in the risk parity group, namely primipara and grandemultipara. Where of the 162 abortion respondents, there was a small percentage (37.7%) with Multipara parity.

The results of the bivariate analysis showed that there was no relationship between parity and the incidence of abortions at the Harapan and Doa Bengkulu City Hospital in 2025. The results of the statistical test showed a value of p=1.000 (p > 0.05), OR value = 0.967 with a 95% CI: 0.581–1.609 indicating that there was no statistically significant difference in risk between the multipara group and the primipara and grandemultipara groups against the incidence of abortion.

The results of this study are in line with the results of research by (Rinawati *et al.*, 2024) The results of statistical analysis showed that there was no relationship between parity and abortion incidence means that mothers with primipara or grandemultipara and multipara parity have almost the same probability of having an abortion, so parity is not a factor that significantly affects the incidence of abortion in the study.

These findings are in line with the theory (Cunningham *et al.*, 2018) which explains that abortion is more caused by biological factors such as chromosomal abnormalities, hormonal disorders, infections, or anatomical abnormalities of the uterus that are random and not affected by the number of previous births.

Based on the journal (Yland *et al.,* 2024), parity has not been proven to be related to the incidence of abortion. This can be explained by the fact that the risk of abortion is more determined by stronger biological and reproductive factors, such as maternal age and previous abortion history, while parity is only an indicator of the number of pregnancies that do not directly affect the mechanism of abortion.

Parity Relationship with Abortion Incidence at Harapan and Doa Hospital in Bengkulu City in 2025

Hasil analisis univariat menunjukkan bahwa hampir seluruh (78,6%) responden tidak memiliki Riwayat abortus ,dimana 126 responden abortus Sebagian kecil (21,4) memiliki Riwayat abortus.

Hasil analisis bivariat menunjukkan bahwa ada hubungan antara Riwayat abortus dengan kejadian abortus di RSUD Harapan dan Doa Kota Bengkulu Tahun 2025. Hasil analisis statistik menunjukkan nilai p = 0,046 (p < 0,05), Nilai (OR) = 1,959 dengan 95% Confidence Interval (CI): 1,055–3,363 menunjukkan bahwa ibu hamil yang memiliki riwayat abortus memiliki risiko hampir 2 kali lebih besar untuk mengalami abortus dibandingkan dengan ibu yang tidak memiliki riwayat abortus.

Penelitian ini sejalan dengan penelitian-penelitian sebelumnya, Penelitian yang di lakukan oleh (Pujiningsih & S., 2023) Hasil analisis menunjukkan bahwa terdapat hubungan antara riwayat abortus dengan kejadian abortus spontan. Ibu yang memiliki riwayat abortus memiliki risiko 2,0 kali lebih besar untuk mengalami abortus dibandingkan dengan ibu yang tidak memiliki riwayat abortus.

Abortus yang terjadi sebelumnya bisa disebabkan oleh faktor biologis seperti kelainan kromosom, gangguan hormonal, kelainan anatomi uterus, atau infeksi. Faktor-faktor ini dapat berulang pada kehamilan berikutnya, sehingga wanita dengan riwayat abortus memiliki risiko lebih tinggi mengalami abortus kembali (Williams Obstetrics, 2018).

Hasil penelitian ini sejalan dengan temuan (Yang et al., 2024) yang menegaskan bahwa riwayat aborts berhubungan dengan meningkatnya risiko aborts pada kehamilan berikutnya. Riwayat aborts sering kali berkaitan dengan adanya kondisi patologis yang menetap, seperti kelainan anatomi rahim, gangguan hormonal, maupun faktor genetik yang dapat berulang pada kehamilan selanjutnya.

The most dominant factor is related to the incidence of Abortion at the Harapan and Doa Hospital in Bengkulu City in 2025

Based on the results of the analysis of table 4.5, the most dominant variable in this study is age with the OR test results at a value of 3.264 which means that the age of 3.264 times greater is experienced in the incidence of abortion compared to parity and abortion history.
The results of this study are also confirmed by research (Farawansya et al., 2022) stating that there is a relationship between maternal age and abortion incidence so that the hypothesis that there is a relationship between age and abortion incidence is statistically proven. OR: 0.224 means that there is a relationship between age and the incidence of abortion in pregnant women, stating that the mother's age is a risk factor for abortion.

Pregnancy at the age of less than 20 years or over 35 years is categorized as a high-risk pregnancy. In women who are too young, the body condition is not physically ready, including the unpreparedness of reproductive organs, as well as emotional and mental unpreparedness, so that there is a risk of complications such as pregnancy-induced hypertension, anemia, hemorrhage, placenta previa, premature delivery, and birth with low body weight.

Based on the results of the study (Magnus et al., 2019)can be concluded that there is a significant relationship between age and the incidence of abortion. This analysis reinforces the understanding that maternal age is one of the strongest risk factors for abortion. At a young age (<20 years), the increased risk of abortion can be caused by the immaturity of the reproductive system and the possibility of social or environmental factors affecting the continuity of the pregnancy.

Meanwhile, at older ages, the increased risk of abortion is mainly related to biological changes, such as decreased quality and oocyte count, increased chromosomal aneuploidies rates, as well as hormonal disorders that contribute to implantation failure and embryo development. Thus, the

results of this study confirm that both too young and too old play a role in increasing the likelihood of abortion.

CONCLUSION

The results of the study on factors related to the incidence of abortion at the Harapan and Doa Hospital in Bengkulu City in 2025 showed that most of the respondents were in the non-risk age group (20-35 years) which was 81%, in the risk parity group (primipara and grandemultipara) of 62.3%, and had no previous abortion history as much as 78.6%. Statistical analysis found a significant relationship between maternal age and abortion incidence, where mothers aged <20 years or >35 years had a 3.3 times greater risk compared to mothers aged 20–35 years. In contrast, parity was not significantly related to the incidence of abortion because the likelihood of occurrence was almost the same in all parity groups. History of abortion shows a significant relationship, with almost double the risk of having a reabortion. The most influential dominant factor was age, with the highest odds ratio (OR) value of 3.264.

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