



**ANALYSIS OF RISK FACTORS POSTPARTUM HEMORRHAGE
AMONG MOTHERS IN THE DELIVERY ROOM OF RSUD dr.
ZAINOEL ABIDIN
BANDA ACEH IN 2023**

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ABSTRACT

Globally, efforts to reduce the Maternal Mortality Rate (MMR) are a top health priority. It is estimated that around 70% of maternal deaths are due to bleeding. *Hemorrhage* happened in time *postpartum*. Obstetric complications in Aceh Province were 20.3% and 32 cases were due to bleeding. This study aims to analyze risk factors for incidents *Postpartum Hemorrhage* to the mother in the delivery room at RSUD dr. Zainoel Abidin (RSUDZA) Banda Aceh in 2023. Research design used correlational, using quantitative methods, with approach *cross-sectional*. Located in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023. The population and sample in the study were all maternal data *postpartum* in January - June 2023 there will be 138 people in the maternity ward at RSUDZA Banda Aceh. Random sampling technique *total population*. Data collection tools use sheets *checklist* patient medical record data. Data analysis using *logistic regression test* to calculate the Odds Ratio with a 95% confidence level, using the STATA 13 program. The results showed that there was a significant relationship between: maternal age ($p=0.000$; OR=11.00), parity ($p=0.000$; OR=7.72), pregnancy interval ($p=0.001$; OR=3.2), type of delivery ($p=0.000$; OR=42.6), birth canal injury ($p=0.036$; OR=2.2), birth weight ($p=0.000$; OR=23.51) with the incidence *postpartum hemorrhage* to mothers in the delivery room at RSUDZA Banda Aceh in 2023. This study identified a number of risk factors for postpartum hemorrhage. Optimizing activities *screening* These factors can reduce the incidence *postpartum hemorrhage*. To prevent this from happening *postpartum hemorrhage* It is

hoped that health workers in the RSUDZA maternity room can improve the quality of health services and the community must be more cooperative in carrying out early detection of bleeding during pregnancy.

Keywords: *bleeding, postpartum hemorrhage, risk factors*

INTRODUCTION

World Health Organization (WHO) estimates that the maternal mortality rate worldwide is 440 per 100,000 live births and 98% occurs in developing countries, while in Southeast Asia maternal mortality is 210 per 100,000 births. The lives of 8 million women around the world are at risk and every year an estimated 529,000 women die as a result of obstetric complications. Most of these deaths could have been prevented by providing quality pregnancy care (Essa, Kovell, & Wilkie, 2023).

Postpartum hemorrhage is one of the most frequent causes of maternal death throughout the world. One of the main causes of maternal death is bleeding, it is estimated that around 70% of maternal deaths are due to bleeding *haemoragik* occurs in the postpartum period. (Ramadhani & Luqmanasari, 2022). *Postpartum Hemorrhage* (PPH) or postpartum hemorrhage is a condition that occurs when a woman experiences blood loss of more than 500 ml after giving birth to a baby normally, or more than 1000 ml after surgery. *Caesar* (Wiknjosastro & Prawirohardjo, 2017).

Data from the Indonesian Ministry of Health for 2020 shows that the Maternal Mortality Rate (MMR) in Indonesia has increased from previous years, reaching 305 per 100,000 live births. This figure is still quite high compared to other countries. The five biggest direct causes of maternal death are bleeding 30.3%, *preeclampsia* 27.1%, infection 7.3%, prolonged labor 1.8%, abortion 1.6% and others 40.8%. Maternal deaths in Indonesia are still dominated by three main causes, namely bleeding, *preeclampsia* and infection. Postpartum hemorrhage can be caused by: *atonia* uterus, placental remains, birth canal lacerations, blood disorders, *retention placenta* and *rupture perineum* (Ministry of Health, 2020).

The maternal mortality rate in Aceh province in 2021 experienced a very significant increase from the previous year, namely 223 per 100,000 live births. This was caused by obstetric complications in Aceh Province amounting to 20.3%, which caused maternal deaths due to bleeding in 32 cases, hypertension in pregnancy in 16 cases, blood circulation disorders in 5 cases, infections in 4 cases and metabolic disorders in 2 cases. Initial treatment of obstetric complications is very limited due to limited ability to provide services to pregnant women who are at high risk (*resti*). The trend in coverage of treatment of obstetric complications in Aceh province over the last four

years has tended to increase from 71% in 2018 to 82% in 2021, but is still below the national target (Aceh Health Office, 2021).

Several factors that are thought to cause postpartum hemorrhage include: birth spacing of less than 2 years, surgical delivery, *grandemultipara*, mother's age is more than 35 years and parity. Women with high parity are at risk *uterine atony*, which can result in postpartum hemorrhage. Having more than one pregnancy or multiparity has a higher risk of postpartum hemorrhage compared to primigravida mothers (Ende et al., 2021). *Grandemultipara* namely, mothers with 5 or more pregnancies and births have a risk of maternal death 8 times higher than individuals with lower parity rates. The problem of age, parity and spacing of pregnancies or what is known as the "4Ts" namely too old, too young, too many and too close (Apriani, 2020).

Previous research states that the greater the birth weight of the baby, the higher the risk of birth canal lacerations. The birth of a baby weighing more than 4000 grams results in perineal tears. This will increase the risk of birth canal lacerations because the perineum is not strong enough to withstand the stretch of the baby's head. Birth canal lacerations can occur due to *precipitous parturition* and macrosomia babies, resulting in postpartum bleeding (Kristianningsih, Mukhlis, & Ermawati, 2019).

Dr. Hospital Zainoel Abidin is a Type A hospital which is a referral center throughout Aceh. In 2022, 43% of bleeding cases will be found *postpartum* in the delivery room. Hospital Zainoel Abidin. Even though there are many health workers on duty, cases are still high. Currently, most services focus on disease management, even though by knowing the risk factors, bleeding can be prevented. This study aims to analyze risk factors bleeding *postpartum* on the mother in the delivery room. Hospital Zainoel Abidin in 2023.

METHODS

This research uses quantitative methods, a correlational research design with an approach *cross-sectional*. This research was carried out in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023. The population and sample in this study are all maternal data *postpartum* from January to June 2023 in the delivery room at RSUD dr. Zainoel Abidin Banda Aceh numbered 138 people. Random sampling technique *total population*. Data collection tools use sheets *checklist* from patient medical record data.

Variables *depend* in this research is an event *Postpartum Hemorrhage*. And variable *independent* in this study are maternal age, family income, parity, pregnancy spacing, frequency of ANC visits, type of delivery, birth weight, birth canal injuries, uterine contractions.

In this study, univariate analysis uses frequency distribution tables and bivariate analysis uses cross tables. This research uses a logistic regression test, this is because the dependent variable is in the form of a categorical variable

using a confidence level of 95% to see whether there is a relationship between the two variables. Logistic regression analysis is used because in this analysis the dependent variable is dichotomous. Apart from that, logistic regression is also able to calculate how much the independent variable will influence the dependent variable with value *Odds Ratio* (OR) generated. To test the hypothesis using STATA 13 at a confidence level of $\alpha = 0.05$.

RESULTS AND DISCUSSION

A. Univariate Analysis Results

Table 1. Frequency Distribution of Independent Variables in the delivery room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

No	Variable	Frequency (F)	Percentage (%)
Age			
1	Not high risk	52	37,68
2	High risk	86	62,32
Parity			
1	Primipara	56	40,58
2	Multiparous	32	23,19
3	Grande is multiparous	50	36,23
Pregnancy Distance			
1	No risk	70	50,72
2	At risk (< 2 years)	68	49,28
Types of Childbirth			
1	Normal	71	51,45
2	Caesarean section	67	48,55
Birth canal injuries			
1	No	90	65,22
2	Of	48	34,78
Birth weight			
1	Normal	72	52,17
2	Abnormal	66	47,83
Bleeding			
1	No	60	43,48
2	Of	78	56,52
Total		100	

Source:(RSUZA Secondary Data for 2023)

Based on the table above, it is known that of the 138 respondents in the Age category, 62.32% were dominated by those at high risk, in the parity category, primiparas were dominated by 40.58%, in the pregnancy spacing category, those who were not at higher risk were dominated by 50.72%, in the the type of delivery was dominated by normal birth 51.45%, in the category of birth canal injuries, those who did not experience birth canal injuries were dominated by 65.22%, in the birth weight category it was dominated by normal birth weight 52.17% and in the bleeding category it was dominated by bleeding 56, 52%.

B. Bivariate Analysis Results

Table 2. Relationship between risk factors and events *Postpartum Hemorrhage* on Mother in the Maternity Room at RSUDZA Banda Aceh in 2023

Independent Variable	Bleeding (Postpartum Hemorrhage)				Total		OR	THERE 95%	P-Value
	No		Can		n	%			
	n	%	n	%					
<i>Age</i>									
Not high risk	40	66,67	12	15,38	52	37,68		4,86-24,88	0,000
High risk	20	33,33	66	84,62	86	62,32	11		
<i>Parity</i>									
Primipara	44	73,33	12	15,38	56	40,58		4,17-14,29	0,000
Multiparous	14	23,33	18	23,08	32	23,19			
Grandemultipara	2	3,33	48	61,54	50	36,23	7,72		
<i>Pregnancy Distance</i>									
No risk	40	66,67	30	38,46	70	50,72		1,58-6,47	0,001
Risky	20	33,33	48	61,54	68	49,28	3,2		
<i>Types of Childbirth</i>									
Normal	55	91,67	16	20,51	71	51,45		14,65–123,9	0,000
Caesarean section	5	8,33	62	79,49	67	48,55	42,62		
<i>Birth canal injuries</i>									
No	45	75,00	45	57,69	90	65,22		1,05 – 4,59	0,036
Can	15	25,00	33	42,31	48	34,78	2,2		
<i>Birth weight</i>									
Normal	53	88,33	19	24,36	72	52,17		9,16 – 60,34	0,000
Abnormal	7	11,67	59	75,64	66	47,83	23,5		
Total	60	100	78	100	138	100			

Source:(RSZA secondary data in 2023)

Based on the table above, it shows that the proportion of respondents of high-risk age (risti) who experienced postpartum bleeding was 84.62% higher, compared to 15.38% of those who were not at high risk who experienced postpartum bleeding. The results of statistical tests showed that respondents with high risk age (risti) had 11 times the risk of experiencing postpartum bleeding compared to respondents who were not at high risk with a p value of 0.000, meaning that there was a significant relationship between age and the incidence of postpartum bleeding.

The proportion of respondents with Grande multipara parity who experienced postpartum bleeding was higher at 61.54%, compared to Multipara

23.68%, and Primipara 15.38% who experienced postpartum bleeding. The results of statistical tests showed that respondents with a parity level of Grandemultipara had a 7.72 times risk of experiencing postpartum bleeding compared to Multipara and Primipara respondents with a p value of 0.000, meaning that there was a significant relationship between Parity and the incidence of postpartum bleeding.

The proportion of respondents with high-risk pregnancies (resti) who experienced postpartum bleeding was 61.54% higher, compared to 38.46% of those who were not at risk who experienced bleeding. The statistical test results showed that respondents with a high risk pregnancy distance (risti) had a 3.2 times risk of experiencing bleeding compared to respondents who were not at high risk with a p value of 0.001, meaning that there was a significant relationship between pregnancy distance and the incidence of postpartum bleeding.

Proportion of respondents by type of delivery *Section Caesaria* Those who experienced postpartum bleeding were 79.49% higher, compared to 20.51% of those who gave birth naturally, who experienced bleeding. The statistical test results showed that respondents with Cesarean section had a 42.62 times risk of experiencing bleeding compared to respondents with normal deliveries, and the p value was 0.000, meaning there was a significant relationship between the type of delivery and the incidence of postpartum bleeding.

The proportion of respondents with birth canal injuries who experienced bleeding was higher among those who did not experience birth canal injuries at 57.69% compared to those who experienced birth canal injuries 42.31%. The results of statistical tests showed that respondents with birth canal injuries had a 2.2 times risk of experiencing bleeding compared to respondents who did not experience birth canal injuries with a p value of 0.036, meaning that there was a relationship between birth canal injuries and the incidence of postpartum bleeding.

The proportion of respondents with abnormal birth weight who experienced bleeding was higher at 75.64%, compared to 24.36% of respondents with normal birth weight who experienced bleeding. The results of statistical tests showed that respondents with abnormal birth weight had a 23.5 times risk of experiencing bleeding compared to respondents with normal birth weight with a p value of 0.000, meaning that there was a significant relationship between birth weight and the incidence of postpartum bleeding.

DISCUSSION

a. The relationship between maternal age and incidence *Postpartum Hemorrhage* to Mothers in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

In this study, respondents of high risk age had a higher risk of bleeding.

The results of statistical tests showed that respondents with high risk age had 11 times the risk of experiencing bleeding compared to respondents who were not at high risk with a p value of 0.000, meaning that there was a significant relationship between age and the incidence of postpartum bleeding.

This is in line with research (Rifdiani, 2016) shows that there is a relationship between maternal age and postpartum hemorrhage, Pvalue 0.004. Pregnant women aged < 20 years and > 35 years are more at risk of experiencing postpartum hemorrhage. Pregnant women aged less than 20 years are more at risk because the mother's uterus and pelvis are not yet ready to reproduce properly, so you need to be aware of the possibility of experiencing a difficult birth and a pregnancy that could result in birth complications. On the other hand, if pregnancy occurs at the age of more than 35 years, less prepared to face pregnancy and childbirth tends to experience bleeding, hypertension, obesity, diabetes, uterine myoma, long labor. Other research states that the mother's relatively old age is at high risk, which can cause incoordination of uterine muscle contractions, which can disrupt the process of releasing the placenta from the uterine wall. The safe age for pregnancy and childbirth is between 20-35 years (Hayati & Amelia, 2019).

This is in line with the theory discovered (Manuaba, 2013), several factors are thought to cause bleeding *postpartum* includes: short birth interval of less than two years, births carried out by action, parity *grandemultipara*, the mother's age is more than 35 years.

According to incident researchers *Postpartum Hemorrhage* can be caused by the risk factor of age. This is because at the age of less than 20 years the female reproductive organs are not yet mature so the uterus is still weak and unable to accommodate pregnancy and is susceptible to bleeding. At the age of over 35 years the function of the reproductive organs has decreased which can cause *incoordination* uterine muscle contractions resulting in inadequate contractions of the uterus. As you get older, the quality of the uterus' performance decreases, and the risk of abnormalities and complications increases. As the mother ages, she becomes more anxious and affects the work of hormones and triggers bleeding after childbirth.

b. Relationship between parity factors and events *Postpartum Hemorrhage* to Mothers in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

In this study, respondents were at parity level *Grandemultipara* more likely to experience postpartum bleeding. The results of statistical tests showed that respondents with a parity level of *Grandemultipara* had a 7.72 times risk of experiencing bleeding compared to *Multipara* and *Primipara* respondents with a p value of 0.000, meaning that there was a significant

relationship between parity and the incidence of bleeding.

This is in line with research by Apriani (2020), women with high parity are at risk of experiencing uterine atony, which if not treated properly will result in postpartum bleeding. *Grandemultipara* namely, mothers with 5 or more pregnancies and births have a risk of maternal death 8 times higher than individuals with lower parity rates.

High parity is one of the risk factors for postpartum hemorrhage caused by *uterine atony*, due to conditions *myometrium* and the muscle tone is no longer good, causing failure to compress the blood vessels at the placental implantation site, resulting in bleeding *postpartum* (Hayati & Amelia, 2019). Frequent childbearing results in weakened uterine muscles, poor uterine contractions, failure to attach the placenta in an adequate place, resulting in bleeding *postpartum* Good bleeding *postpartum* primary or bleeding *postpartum second* (Rifdiani, 2016).

According to the researchers' assumptions about the incident *Postpartum Hemorrhage* caused by respondents who have parity *Grandemultipara*. This is because in mothers who have had 5 or more pregnancies and births, the nutrition in the uterus for attachment of the placenta is increasingly reduced so that failure of placental attachment often occurs, uterine muscles weaken, uterine contractions are poor, resulting in bleeding *postpartum*. Mothers with more than 5 children are at particular risk of bleeding after delivery, because the uterus is very vulnerable.

c. Relationship between maternal pregnancy distance and incidence *Postpartum Hemorrhage* to Mothers in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

In this study, respondents with high-risk pregnancies (resti) had the potential to experience postpartum bleeding. The results of statistical tests showed that respondents with a high-risk pregnancy distance (risti) had a 3.2 times risk of experiencing bleeding compared to respondents who were not at high risk with a p value of 0.001, meaning that there was a significant relationship between pregnancy distance and the incidence of bleeding.

This is in line with research by Rifdiani (2016), there is a significant relationship between the distance between pregnancies and the incidence of postpartum hemorrhage (*P value* 0.000). Giving birth with a pregnancy gap of <2 years has a higher risk than a pregnancy gap of ≥ 2 years. Between pregnancies and children < 2 years, the uterus and mother's health have not recovered optimally or completely.

In line with the theory that says too close a distance between a pregnancy and a previous child causes the mother's reproductive organs to not recover completely. After giving birth, women need 2-3 years for their reproductive organs to recover and prepare the uterus for the next pregnancy and childbirth. (Apriani, 2020).

According to researchers' assumptions, pregnancies that are too close together can cause the patient to experience an incident *Postpartum Hemorrhage*. This is because the reproductive organs have not fully recovered from the previous birth process. Delivery distance that is too close causes the mother to have a short time to restore the condition of her uterus so that it returns to its pre-pregnancy condition. Pregnancy can be prevented by advising mothers to breastfeed exclusively and providing contraceptive education to mothers, so that mothers space their pregnancies.

d. Relationship between type of delivery and incidence *Postpartum Hemorrhage* to Mothers in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

In this study, respondents varied by type of delivery *Section Caesaria* potential for bleeding. The results of statistical tests showed that respondents with *Section Caesaria* had a 42.62 times risk of bleeding compared to respondents who gave birth normally, and the p value was 0.000, meaning that there was a significant relationship between the type of delivery and the incidence of postpartum bleeding.

This is in line with research conducted by Fitria Ariyani (2013) at Jendral Ahmad Yani Hospital, Metro City, there was a relationship between caesarean section and the incidence of postpartum hemorrhage, with a p-value of $0.024 \leq \alpha 0.05$ and OR= 2.84, which means that there is a relationship between caesarean section and the incidence of postpartum hemorrhage. Postpartum hemorrhage related to surgery or cesarean section can occur, because before the mother enters labor the uterus is forced to expel the baby immediately. So, the uterus is weak to contract (Firdawanti & Herlina, 2016).

In SC delivery, the amount of bleeding is twice as high as in vaginal delivery. In normal delivery bleeding can be caused by lacerations in the perineum, vagina and cervix during vaginal delivery (Julieta & Giri, 2021). Another trauma is uterine rupture which usually occurs in mothers with a history of previous abdominal delivery. Pregnant women who have undergone abdominal surgery are at risk of uterine rupture. There is an increased risk of up to 40 times compared to patients giving birth vaginally.

The researcher's assumption that the type of delivery could result in the patient experiencing an incident *Postpartum Hemorrhage*. This is caused by trauma and can have an impact *uterine rupture*. Efforts that can be made to reduce the incidence of postpartum hemorrhage in mothers are by carrying out strict monitoring of pregnancy, childbirth and postpartum.

e. Relationship between birth canal injury factors and events *Postpartum Hemorrhage* to Mothers in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

In this study, respondents with birth canal injuries had the potential to experience *Postpartum Hemorrhage*. The results of statistical tests showed that respondents with birth canal injuries had a 2.2 times risk of experiencing bleeding compared to respondents who did not experience birth canal injuries with a p value of 0.036, meaning that there was a relationship between birth canal injuries and the incidence of postpartum bleeding.

This is in line with research by Stella Pasiowan, et al., which states that there is a significant relationship between birth canal injuries and incidence *Postpartum Hemorrhage* (*P value* 0.006). Perineal tears generally occur in the midline and can become extensive if the fetal head is born too early. Perineal tears occur in almost all primiparas. Tearing can occur along with uterine atony. Postpartum bleeding with a well-contracted uterus is usually caused by a tear in the cervix or vagina (Supiana & Adawiyah, 2018).

Tearing of the birth canal results in varying amounts of bleeding. Sources of bleeding can come from the perineum, vagina, cervix, and uterine rupture (uterine rupture). The causes of tearing of the birth canal are partus precipitatus with: large fetal head, deflected presentation (forehead, face), primipara, breech position, wrong direction of delivery, in obstetrics and embryotomy: vacuum extraction, forceps extraction, and embryotomy. The occurrence of perineal rupture is caused by maternal factors (parity, birth spacing and baby's weight), improper delivery, birth history. forceps extraction, vacuum extraction, instrument trauma and episiotomy.

The researcher's assumption that birth canal injuries could result in the patient experiencing an incident *Postpartum Hemorrhage*. Birth canal injuries usually occur in mothers with a history of previous abdominal delivery. Precipitatus delivery, delivery with a large baby and inadequate stenosis have a risk of injury to the birth canal. Bleeding due to tearing of the birth canal is often found during birth assistance by traditional birth attendants because there are no stitches.

f. Relationship between factors such as birth weight and incidence *Postpartum Hemorrhage* to Mothers in the Maternity Room at RSUD dr. Zainoel Abidin Banda Aceh in 2023

In this study, respondents with abnormal birth weight had the potential to experience *Postpartum Hemorrhage*. The results of statistical tests showed that respondents with abnormal birth weight had a 23.5 times risk of experiencing bleeding compared to respondents with normal birth weight with a p value of 0.000, meaning that there was a significant relationship between birth weight and the incidence of postpartum bleeding.

This is in line with research Kristingsih et al., shows that there is a relationship between birth weight and postpartum hemorrhage (*P value* 0.000). A big baby is a baby that weighs more than 4000 grams when it is born. The greater the birth weight of the baby, the greater the risk of perineal tearing causing postpartum bleeding (Kristensih et al., 2019).

On the other hand, babies born less than 2500 grams, due to prematurity or maternal illness, and the mother's weak condition are also at risk of bleeding *postpartum*. So are babies' *macrosomia* increases the risk of bleeding due to laceration of the birth canal. Both of these baby conditions have the potential for postpartum complications (Hayati & Amelia, 2019).

According to researchers' assumptions, respondents who have abnormal birth weight babies tend to experience incidents *Postpartum Hemorrhage*, due to the fetus *maksrosomia*, the pressure of the baby's head will be greater on the birth canal, so this strong pressure causes injury to the birth canal which causes bleeding. On the other hand, the fetus is small but is delivered by labor *precipitated* also result in incidents *Postpartum Hemorrhage*, because the process occurs very quickly and the condition of the uterus is not controlled, inadequate contractions can cause *rupture of the perineum, rupture of the uterus* resulting in bleeding *postpartum*.

CONCLUSION

Based on the results of this study, it can be concluded that: There is a relationship between maternal age, parity, pregnancy spacing, type of delivery, birth canal injuries, birth weight, and the incidence of *Postpartum Hemorrhage* to the mother in the delivery room at RSUD dr. Zainoel Abidin Banda Aceh in 2023.

To reduce problems *Postpartum Hemorrhage* on the mother, for It is hoped that health workers in the delivery room at RSUD dr. Zainoel Abidin can improve the quality of performance of health workers to be able to provide services according to SOP (*Standard Operating Procedures*) in efforts to prevent and treat cases of postpartum hemorrhage (*Postpartum Hemorrhage*). The community is also expected to make efforts to improve prevent cases of postpartum hemorrhage (*Postpartum Hemorrhage*) so that the public can be more cooperative and aware in carrying out early detection of risk factors for bleeding during pregnancy through routine pregnancy checks.

CONFESSION

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