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Factors Related to the Delivery Process in the Maternity Room of Bima Hospital

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Abstract

Based on a preliminary study in the Maternity Room of Bima Hospital, data was found from January to May 2025 on the number of maternity patients, namely 218 mothers, consisting of 92 mothers giving birth normally and 126 mothers giving birth by caesarean section (SC). The purpose of the study was to analyze factors related to the Childbirth Process at Bima Hospital. This type of research is quantitative research using secondary data. The sample was 141 people using the Slovin formula with a sampling technique, namely, simple random sampling. Data analysis techniques include univariate analysis and bivariate analysis with the chi-square test. The results of the research obtained were that there was a relationship between the age of the mother and the childbirth process. The results of statistical analysis obtained a value of p (0.019) < 0.05, an odd ratio (OR) value = 2.547, meaning that the age of the mother who is at risk of having the risk of experiencing the SC delivery process 2 times. There was no relationship between maternal parity and the labor process. The results of statistical analysis obtained a value of p (0.000) < 0.05, an odd ratio (OR) value = 1.021, meaning that the parity of women who are at risk of having a risk of experiencing the SC delivery process 1 time. There was no relationship between the gestation of the mother and the labor process. The results of statistical analysis obtained a value of p (0.384) >0.05, the odd ratio (OR) value = 0.734 means that the pregnancy distance of women who are at risk of having a risk of having a risk of experiencing the SC delivery process is 0.734 times.

Keywords: *Caesarean Section (CS), Childbirth Process, Gestational Interval, Maternal Age, Parity*

Introduction

Childbirth is a natural process and is an important process for a mother. In the childbirth process, naturally, the mother will expend a lot of energy and experience physiological and psychological changes. When the delivery process begins, the mother's role is to give birth to her baby, while the role of health workers is to monitor childbirth to detect complications early and, together with the family, provide assistance and support to the mother [1].

The childbirth process is a process of removing the results of conception (fetus and urine) that are at full maturity or can live outside the womb through the birth canal or other means, with or without help (using the mother's own strength). Meanwhile, the second period of labor is from the complete opening (10 cm) to the birth of the baby, during which the process lasts an average of 90 minutes, 50 minutes in mothers with primigravida, and an average of 30 minutes, while in multigravida, 20 minutes [2].

The second phase of labor is greatly influenced by three factors that play a role, namely the force of pushing the fetus out, or known as power, which includes the uterine strength, contractions in the muscles of the abdominal wall, contractions of the diaphragm, and ligaments. The second factor is the fetal factor (passenger), which includes the size of the fetus, the weight of the newborn, and so on. The third factor that affects the labor process is the pelvis, which includes pelvic bones, muscles, tissues, and ligaments. In this case, if these three factors are in good condition, healthy, and chatty, the delivery process that a mother goes through will run normally or spontaneously. However, if one of these factors does not go well or abnormalities, such as circumstances that cause the strength of the woman to be inadequate, abnormalities in the baby, or birth canal abnormalities, then the delivery process in phase II will be disrupted [3].

The World Health Organization (WHO) estimates that more than 585,000 mothers die each year during pregnancy or childbirth. Indonesia ranks 123rd out of 195 countries with the most AKI. The direct causes of maternal mortality globally are bleeding, sepsis, hypertension in pregnancy, stuck partus, unsafe complications, and other causes. Maternal Mortality Rate is caused by bleeding (28%), Eclampsia (24%), Infection (11%), Partus Abortion Old/Stuck (9%) [4].

Based on data from the 2022 Basic Health Research in West Nusa Tenggara about the types of childbirth complications are breech (2.41%), bleeding (2.45%), seizures (0.45%), premature rupture of the membranes (5.48%), long partus (4.48%), umbilical cord circumference (0.90%), placenta previa (0.48%), lagging placenta (0.44%), hypertension (2.19%), and others (4.43%) [5]. Based on a preliminary study in the Maternity Room of Bima Hospital, data were found from January to May 2025 on the number of maternity patients, namely 218 mothers, consisting of 92 mothers giving birth normally and 126 mothers giving birth by caesarean section (SC). There are two methods of delivery, namely vaginal delivery, which is better known as normal delivery, and per-abdominal delivery or caesarean section, which is a surgical procedure to remove the baby by inserting the abdominal wall and uterine wall on the condition that the uterus is intact and the fetus weighs more than 500 grams.

Age is one of the factors that affect the childbirth process. Childbirth risk increases in mothers < 20 and >35 years of age. This is because at the age of <20 years, the reproductive organs needed to get pregnant are immature, so that they can be detrimental to the health of the mother and also the development and growth of the fetus. The age of >35 years can also cause preterm labor because the ability of the reproductive system has declined [6].

Parity is also one of the factors that can increase the risk of risky labor. Mothers who have never been pregnant or given birth have a greater health risk than mothers who have given birth 1 or 2 times. This is because pregnancy is the first thing experienced by mothers. Pregnant women with their first pregnancy often experience a lot of fear during their pregnancy. This can increase the effect of stress on the mother so that it can trigger risky labor. On the other hand, if you give birth too often, the uterus will become weaker due to uterine scarring from repeated pregnancies. This scar tissue causes an inadequate supply of blood to the placenta, so the placenta does not get enough blood flow to deliver nutrients to the fetus [7], [8].

The handling or solution to the high number of maternal deaths is to strengthen the capacity and capabilities of health care facilities to be able to handle the problems faced by patients as soon as possible. First-level health service facilities are also encouraged to conduct early detection of potential disturbances or abnormalities in pregnant women's health, strengthen preventive and promotive efforts, and empower the community to handle maternal and child health.

Material and Methods

The type of research used is quantitative research using medical record data from January-May 2025. Observational analytical research, or research that explores how and why this health phenomenon occurs. Then conduct a correlation dynamics analysis between phenomena or between risk factors and effect factors [9], [10]. This study aims to explore the relationship between maternal factors and the normal or abnormal childbirth (SC) process at Bima Hospital

A variable is an attribute or trait or value of a person, object, or activity that has a certain variation that is determined by the researcher to be studied and drawn conclusions. The variables in this study are independent, namely age, parity, and pregnancy distance, and the dependent variable is the childbirth process. Univariate analysis was carried out on each variable from the research results. In general, this analysis only produces the distribution and percentage of each variable. This analysis is used qualitatively with an exploratory research design presented narratively. Bivariate analysis is data analysis that is carried out to look for correlations or influences between 2 or more variables being studied. In this study, before data analysis is carried out, a data normality test is first carried out to find out whether the existing data is normal or not [11].

Results

A. The Relationship of Mother's Age to the Childbirth Process

Table 1 shows the relationship between the age of the maternity mother and the delivery process at Bima Hospital is analyzed using *the chi square* test with a value of 0.031 *p-value* < 0.05 (at a significance level of 5%), then Ha is accepted and Ho is rejected, so it can be interpreted that there is a significant relationship between the age of the maternity mother and the delivery process at Bima Hospital. The odds ratio (OR) value = 2.547 means that the age of the mother who is at risk has the opportunity to have the risk of experiencing the SC delivery process 2 times.

Table 1. The Relationship of Mother's Age to the Childbirth Process.

No	Age	Childbirth Process.				Sum		P Value	OR
		Normal		SC					
		N	%	N	%	N	%		
1	Unrisk	47	33.3%	52	36.9%	99	70.2%		
2	Risk	11	7.8%	31	22.0%	42	29.8%	0.031	2.547
	Total	58	41.1%	83	58.9%	141	100%		

B. The Relationship of Parity with the Childbirth Process

Table 2 above shows the relationship between maternal parity and the delivery process at Bima Hospital, analyzed using *a chi square test* with a value of 0.304 *p-value < 0.05 (at a significance level of*

5%), then Ha was rejected and Ho was accepted, so it can be interpreted that there is no significant relationship between maternal parity and delivery at Bima Hospital. The odd ratio (OR) value = 3.212 means that the parity of women who are at risk of having a risk of experiencing SC childbirth 3 times.

Table 2. The Relationship of Parity with the Childbirth Process.

No	Parity	Childbirth Process				Sum		P Value	OR
		Normal		SC					
		N	%	N	%	N	%		
1	Primipara	3	2.1%	36	25.5%	39	27.7%		
2	Multipara	46	32.6%	27	19.1%	73	51.8%		
3	Grande Multipara	9	6.4%	20	14.2%	29	20.6%	0.304	3.212
	Total	58	41.1%	83	58.9%	141	100%		

C. The Relationship of Pregnancy Distance to the Childbirth Process

The relationship between the distance between the pregnancy of the maternity mother and the delivery process at Bima Hospital was analyzed using *the chi square* test with a value of 0.489 *p-value > 0.05 (at a significance level of 5%), then Ha was accepted and Ho was rejected, so it can be interpreted that there is no relationship between the pregnancy distance of the maternity mother and the delivery process at Bima Hospital*. The odds ratio (OR) value = 0.734 means that the risk of pregnancy in women who are at risk of having a 0.734 times higher risk of experiencing the SC delivery process.

Table 3. The Relationship of Pregnancy Distance with the Childbirth Process.

No	Pregnancy Distance	Childbirth Process				Sum		P Value	OR
		Normal		SC					
		N	%	N	%	N	%		
1	Unrisk	35	24.8%	56	39.7%	91	64.5%		
2	Risk	23	16.3%	27	19.1%	50	35.5%	0.489	0.734
	Sum	58	41.1%	83	58.9%	141	100%		

Discussion

A. The Relationship of Age with the Childbirth Process

Based on the results of the study, it was shown that most of the age of maternity mothers was not at risk, namely as many as 99 respondents (70.2%). The age of mothers who are not at risk is mostly experiencing a risky childbirth process, which is as many as 52 respondents (36.9%). The relationship between the age of the maternity mother and the delivery process at Bima Hospital was analyzed using *the chi square* test with a value of 0.031 *p-value < 0.05 (at a significance level of 5%), then Ha was accepted and Ho was rejected, so that it can be interpreted that there is a significant relationship between the age of the maternity mother and the delivery process at Bima Hospital*.

Age is the length of life calculated from birth to the present in units of years. The older a person is, the more mature he will be than someone who is not mature enough. The older a person gets, the more experience and knowledge he or she acquires, so that they will change their behavior for the better. The healthy reproductive age for pregnancy, childbirth, and breastfeeding is 20-35 years, during which time it is expected that mothers will be able to solve problems emotionally calmly, especially in dealing with

pregnancy, childbirth, postpartum, and caring for their babies. Age less than 20 years old is considered still immature physically, mentally, and psychologically in dealing with pregnancy, childbirth, and breastfeeding. Over 35 years old, the mother's reproductive and physical organs decrease and decrease, and there can be risks to the baby and increased difficulties in pregnancy, childbirth, and postpartum [12].

The results of this study are in accordance with the research of Rohani et al. [13], namely, of 86 respondents with at-risk age, as many as 25 respondents (8.2%) who experienced *a cesarean section,* and 61 respondents (20%) who experienced vaginal delivery. The results of the statistical test obtained a p-value = 0.00, so that p <α=0.05, then Ha was accepted and Ho was rejected, which means that there is an age relationship with the maternity mother who had a caesarean section at Pringsewu Hospital, Pringsewu Regency in 2017. Statistically, the OR value = 3.847 was obtained, which means that in maternity mothers who are < 20 years old/ > 35 years old, the chance of sectio caesarea is 3.847 times greater than in mothers aged 20-35 years. The results of this study are in line with the research conducted by Juliathi et al [14], namely, mothers who experience the most incidents of section caesarea at the age of 20-35 years. So it is not in accordance with the theory put forward by Izzah et al. [16], which states that during the period of healthy reproduction, it is known that the safe age for pregnancy and childbirth is 20-35 years. It can be concluded that the age factor in this study is not a determining factor for the incidence of sectio caesarea, but rather, there are other factors that are stronger in influencing the incidence of sectio caesarea. Mothers at the age of 20-35 years experience a cesarean section due to other factors, namely the mother's health condition that is not possible at that age, one of which is bleeding during pregnancy, and physical or mental stress that can make the mother finally give birth prematurely, and pregnancy complications that must be carried out with a cesarean section [13], [14], [15], [16].

B. The Relationship of Parity with the Childbirth Process at Bima Hospital

Based on the results of the above study, it shows that most of the mothers are multipara, namely as many as 73 respondents (51.8%). The multipara maternity mothers mostly experienced a normal delivery process, which was as many as 46 respondents (32.6%). The relationship between maternal parity and the delivery process at Bima Hospital was analyzed using a chi-square test with a value of 0.304, p-value > 0.05 (at a significance level of 5%), then Ha was rejected, and Ho was accepted, so it can be interpreted that there is no significant relationship between maternal parity and the delivery process at Bima Hospital.

Parity is one of the predisposing factors for the occurrence of risky childbirth in primigravida; the frequency of the risky childbirth process is higher than that of multigravida, especially young primigravida. Parity is said to be high when a woman gives birth to her fourth or more children. High parity has a higher maternal mortality rate. The higher the parity, the higher the maternal mortality. The risk of high parity can be reduced or prevented with family planning. Parity is a woman who has given birth to a baby that can live. In primipara, the frequency of childbirth is at a higher risk when compared to multipara, especially in young primipara. Women who have given birth to ≥ 3 people are prone to serious complications. One of the dangers during pregnancy is preeclampsia, where at high parity, blood

flow will decrease to the placenta, which causes placental disturbance so that there is a fetal growth disorder due to lack of oxygenation [17].

This study is in line with Cicih and Mursyid's [18] research, which is that of 140 respondents with risk parity. As many as 88 respondents (63 %) experienced cesarean section, and 52 respondents (37%) experienced vaginal delivery. The results of the statistical test obtained a p-value = 0.01, so that p <α=0.05, then Ha was accepted and Ho was rejected, which means that there is a parity relationship with the maternity section caesarean section [18]. Parity had a 1,813 times greater chance of a cesarean section than a mother with multigravida parity. The results of this study are in line with the research conducted by Juliathi et al. [14], namely, mothers who experience the most high-risk caesarean section events. The Institute of Medicine stated that mothers with high risk parity (the first pregnancy gave birth more than 5 times), so it can be concluded that the parity factor in this study is the determining factor for the incidence of sectio caesarea [14].

C. The Relationship between Pregnancy Distance and Childbirth Process at Bima Hospital

The results of the above study show that most of the pregnancy intervals of maternity mothers are not at risk, namely as many as 91 respondents (64.5%). The pregnancy distance of mothers who are not at risk is mostly experiencing a risky childbirth process, which is as many as 56 respondents (39.7%). The relationship between the distance between the pregnancy of the maternity mother and the delivery process at Bima Hospital was analyzed using *the chi square* test with a value of 0.489 *p-value > 0.05 (at a significance level of 5%) then Ha was rejected and Ho was accepted, so that it can be interpreted that there is no relationship between the pregnancy distance of the maternity mother and the delivery process at Bima Hospital*.

The placental vascularization theory states that in normal pregnancy, there is a trophoblast invasion into the muscular layer of the spiral artery, causing the lumen layer to distension and dilation. Distension and dilatation of the lumen of this artery increase blood flow to the placenta so that fetal blood flow is good. At the interval of <2 years of pregnancy, the mother's reproductive organs have not returned to their original state, which will affect the dilatation process of the muscles and lumen, so that fetal blood flow is reduced, causing hypoxia and placental ischemia and ending in the occurrence of preeclampsia. At a gestational interval of >5 years, the uterine and pelvic muscles undergo a degenerative process, so that the ability of the muscles to dilate is also weak, making the process of childbirth risky [19].

The results of a similar study are Desi and Izah's [20] study, which states that, based on the 2012 childbirth data, the number of normal births was 1,047 people, and the number of SC births was 864 people. In 2013, the number of normal births was 1,504, and 748 births with SC. Based on data from the maternity room register, there are 3 cases of multiple mothers with long partus cases where the average gap between the previous pregnancy is more than 5 years, so cesarean delivery must be carried out to prevent maternal death and fetal death [20].

The results of this study have similarities with the research of Rohani and Wahyuni [13], namely, it is known that of 94 respondents with a history of risk diseases, as many as 35 respondents (11.5%) experienced cesarean section, and 59 respondents (19.2%) experienced vaginal delivery. There was a relationship between the history of the disease and the mother who gave birth by caesarean section at

the Pringsewu Hospital, Pringsewu Regency, in 2017. In mothers with a history of disease, the risk of having *a caesarean section* procedure was 4.687 times greater than that of mothers with no history of disease. This research is in line with Fitri Handayani's research in 2020, with the conclusion that there is a relationship between the age of the mother and the childbirth process. There was no relationship between maternal parity and the delivery process. There is no relationship between the distance between the pregnancy of the maternity mother and the delivery process at Sardjito Hospital, Yogyakarta [13].

Conclusion

There is a relationship between the age of the mother and the delivery process at Bima Hospital. The results of statistical analysis obtained a value of p (0.031) < 0.05, an odd ratio (OR) value = 2.547, meaning that the age of the mother who is at risk of having a risk of experiencing the SC delivery process 2 times. There is no relationship between maternal parity and the delivery process at Bima Hospital. The results of statistical analysis obtained a value of p (0.304) > 0.05, an odd ratio (OR) value = 1.021, meaning that the parity of women who are at risk of having a risk of experiencing the SC delivery process 1 time. There is no relationship between the distance between the pregnancy of the mother giving birth and the delivery process at Bima Hospital. The results of statistical analysis obtained a value of p (0.489) >0.05, the value of the odds ratio (OR) = 0.734 means that the pregnancy distance of women who are at risk of having a 0.734 times higher risk of experiencing the SC delivery process.

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