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FACTORS ASSOCIATED WITH PREMATURE RUPTURE OF MEMBRANE

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ABSTRAK FAKTOR - FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN KETUBAN PECAH DINI

Latar Belakang Ketuban pecah dini adalah pecahnya ketuban sebelum terdapat tanda mulai persalinan dan ditunggu satu jam sebelum terjadi in partu.

Tujuan untuk mengetahui hubungan usia, paritas dan riwayat kehamilan ganda dengan kejadian Ketuban Pecah Dini di Puskemas Karya Mukti tahun 2021.

Metode penelitian survey analitik yang bersifat kuantitatif dengan pendekatan *cross sectional*. Populasi semua ibu bersalin yang berkunjung di Puskesmas Karya Mukti dengan sebanyak 84 responden yang diambil secara sistematis tekhnik random *Sampling.* Data diolah secara analisis univariat dan bivariat dari 85 responden yang mengalami KPD sebanyak (40,5 %).

Hasil Responden yang usianya resiko tinggi sebanyak (45,2%) dan usianya resiko rendah sebanyak (54,8%). Responden yang paritasnya resiko tinggi sebanyak (50 %) dan yang paritasnya resiko rendah sebanyak (50 %). Responden yang mengalami riwayat kehamilan ganda sebanyak (38,2%) dan responden tidak mengalami riwayat kehamilan ganda sebanyak (61,9 %).

Kesimpulan ada hubungan yang bermakna antara usia,paritas,dan riwayat kehamilan ganda dengan kejadian KPD.

Saran agar pihak Puskesmas Karya Mukti lebih aktif memberikan penyuluhan kepada ahli kebidanan yang berhubungan dengan KPD.

Kata kunci : Kehamilan Ganda, Ketuban Pecah Dini, Paritas, Usia

ABSTRACT

Background: premature rupture of membranes is the rupture of the membranes before the onset of labor and being waited for one hour before in partu occurs

Objective: to determine the relationship between age, parity, and history of multiple pregnancies with premature rupture of membranes at PONED Karya Mukti Public Health Center in 2020.

Methods: This study used a quantitative analytical survey research design with a cross-sectional approach. The population of this study was all mothers giving birth at PONED Karya Mukti Public Health Center in 2020. The sample in this study was 84 mothers who were chosen using a random sampling technique. The data collected were analyzed using univariate and bivariate data analysis.

Results: of the 84 respondents, 34 respondents (40.5%) experienced PROM. 45.2% of the respondents were categorized into an age group with a high risk of experiencing premature rupture of membranes and 54.8% of the respondents were categorized into an age group with a low risk of experiencing premature rupture of membranes. 50% of the respondents had high-risk parity and 50% of the respondents had low-risk parity. 38.2% of the respondents had a history of multiple pregnancies and 61.9% of the respondents had no history of multiple pregnancies.

Conclusion: there was a significant relationship between age, parity, and history of multiple pregnancies with premature rupture of membranes.

Suggestion: it is hoped that the officials of Karya Mukti Public Health Center actively provide counseling and training to midwives who directly deal with the occurrence of premature rupture of membranes.

Keywords: Multiple Pregnancy, Premature rupture of membranes, Parity, Age

INTRODUCTION

Premature rupture of membranes (PROM) is one of the problems in obstetrics related to birth complications in the form of prematurity and the occurrence of chorioamnionitis, asphyxia, and sepsis which increase maternal and neonatal

morbidity/mortality (Mochtar, 2012). The prevalence of PROM ranges from 3 - 18% of all pregnancies. At term, 8 -10% of pregnant women experience PROM, and 30-40% of PROM cases are preterm pregnancies, or approximately 1.7% of all pregnancies. PROM affects pregnancy and childbirth. The interval between the rupture of the membranes and the beginning of labor is called the latent phase (lag period = LP). If the latent phase is too long and the membranes have ruptured, an infection will occur and it can increase maternal and child mortality (Lowing Jga, 2015). A study carried out by Manuaba Ida Bagus Gde, (2015) revealed that women aged 20-35 years had optimal reproduction, and ages below and above the range increased the risk of pregnancy and childbirth. The discrepancy between the theory and the results obtained was due to several factors, namely that most births in the study setting occurred in women of healthy reproductive age, 20-35 years.

The results of studies conducted by Triana Indrayani (2017), Rahma Sri Dewi (2018), and Fitria Damayanti (2019) revealed that age, parity, and multiple pregnancies are factors related to premature rupture of membranes. Based on the results of the preliminary survey conducted at Karya Mukti public health center, of the 570 pregnant women in 2018, 93 pregnant women experienced premature rupture of membranes. In 2019, of the 571 pregnant women, 85 pregnant women experienced premature rupture of membranes, and in 2020, of the 523 pregnant women, 74 pregnant women experienced premature rupture of membranes. Based on the background above, the researchers are interested in conducting a study entitled "Factors Associated with Premature Rupture of Membrane at PONED Karya Mukti Public Health Center in 2020".

RESEARCH METHODS

This study used a quantitative analytical survey research design with a cross-sectional approach. The independent variables including age, parity, and history of multiple pregnancies, and the dependent variable consisting of the occurrence of premature rupture of membranes were collected at the same time (Notoadmodjo, 2010). This study was carried out in August 2021. The population of this study was all mothers giving birth at PONED Karya Mukti Public Health Center in 2020 as many as 523 people. The sample in this study was 84 mothers who were chosen using a random sampling technique. The data collected in this study are secondary. The secondary data were collected using a checklist by analyzing the medical records at PONED Karya Mukti Public Health Center in 2020. Univariate analysis was carried out to determine the frequency distribution and percentage of each variable, namely the independent variables (age, parity, and history of multiple pregnancies) and the dependent variable (premature rupture of membranes). Then, bivariate analysis used the chi-square test with a significance level of $\alpha = 0.05$.

RESULTS

Premature Rupture of Membranes

Table 1
Frequency Distribution and Percentage of Respondents Based on Premature Rupture of Membrane at PONED Karya Mukti Public Health Center in 2020

Premature Rupture of Membrane	Frequency (N)	Percentage (%)
Yes	34	40,5
No	50	59,5

Table 1 above shows that of the 84 respondents, 34 respondents (40.5%) experienced premature rupture of membranes, and 50 respondents (59.5%) did not experience premature rupture of membranes.

Age

Table 2
Frequency Distribution and Percentage of Respondents Based on Age at PONED Karya Mukti Public Health Center in 2020

Age	Frequency (N)	Percentage (%)
High Risk	38	45,2
Low Risk	46	54,8

Table 2 above shows that of the 84 respondents, 38 respondents (45.2%) were in the high-risk group, and 46 respondents (54.8%) were in the low-risk group.

Parity

Table 3
Frequency Distribution and Percentage of Respondents Based on Parity at PONED Karya Mukti Public Health Center in 2020

Parity	Frequency (N)	Percentage (%)
High Risk	42	50,0
Low Risk	42	50,0

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Table 3 above shows that of the 84 respondents, 42 respondents (50.0%) had high-risk parity, and 42 respondents (50.0%) had low-risk parity.

History of Multiple Pregnancy

Table 4 above shows that of the 84 respondents, 32 respondents (38.2%) experienced multiple pregnancies, and 52 respondents (61.9%) never experienced multiple pregnancies.

Table 4
Frequency Distribution and Percentage of Respondents Based on History of Multiple Pregnancy at PONED Karya Mukti Public Health Center in 2020

History of Multiple Pregnancy	Frequency (N)	Percentage (%)
Yes	32	38,2
No	52	61,9

Bivariate Analysis

The Relationship between Age and Premature Rupture of Membranes

Table 5
The Relationship between Age and Premature Rupture of Membranes at PONED Karya Mukti Public Health Center in 2020

Age	Premature Rupture of Membranes				Total		*p-value*	*OR*
	Yes		No					
	n	%	n	%	N	%		
High Risk	24	63,2	14	36,8	38	100	0,000	6.171
Low Risk	10	21,7	36	78,3	46	100		

The Relationship between Parity and Premature Rupture of Membranes

Table 6
The Relationship between Parity and Premature Rupture of Membranes at PONED Karya Mukti Public Health Center in 2020

Parity	Premature Rupture of Membranes				Total		*p-value*	*OR*
	Yes		No					
	n	%	n	%	n	%		
High Risk	25	59,5	17	40,5	42	100	0,000	5,392
Low Risk	9	21,4	33	78,6	42	100		

The Relationship Between History of Multiple Pregnancy and Premature Rupture of Membranes

Table 7
The Relationship Between History of Multiple Pregnancy and Premature Rupture of Membranes at PONED Karya Mukti Public Health Center in 2020

History of Multiple Pregnancy	Premature Rupture of Membranes				Total		*p-value*	*OR*
	Yes		No					
	n	%	n	%	n	%		
Yes	22	68,8	10	31,2	32	100	0,000	7,333
No	12	23,1	40	76,9	52	100		

DISCUSSION

The Relationship between Age and Premature Rupture of Membranes

Based on the results of this study, of the 38 respondents who were categorized into an age group with a high risk of experiencing premature rupture of membranes, 24 respondents (63.2%) experienced premature rupture of membranes, and 14 respondents (36.8%) did not experience premature rupture of membranes. Whilst, of the 46 respondents who were categorized into an age group with a low risk of experiencing premature rupture of membranes, 10 respondents (21.7%) experienced premature rupture of membranes, and 36 respondents (78.3%) did not experience premature rupture of membranes.

Based on the results of the chi-square statistical test carried out, a p-value of 0.000 (< α = 0.05) was obtained, meaning that there was a significant relationship between age and the occurrence of premature rupture of membranes at PONED Karya Mukti Public Health Center in 2020. Thus, the hypothesis stating that there is a relationship between age and the occurrence of premature rupture of membranes has statistically been proven. The Odds Ratio (OR) value obtained was 6,171, meaning that respondents who were in the age group with a high risk of experiencing PROM tend of 6.171 times experiencing premature rupture of membranes compared to respondents who were in the age group with a low risk of experiencing PROM.

This study is in line with a study carried out by Wira (2013) showing that of the 87 respondents, 61 respondents (70.1%) were in an age group that is not at risk (20-35 years) of experiencing PROM. Then, of the 87 respondents, 59 respondents (67.8%) had high-risk PROM (PROM > 12 hours). Of the 26 respondents with at-risk ages, 23 respondents (88.5%) had high-risk PROM. Meanwhile, of the 61 respondents who were not at risk, 36 respondents (9.0%) had high-risk PROM. Further, the results of the chi-square statistical test obtained a p-value of 0.015 (p <0.05), meaning that there was a relationship between the risk factors for maternal age and the occurrence of premature rupture of membranes in labor. In addition, the Odds Ratio (OR) value obtained was 5.324, meaning that mothers who were in the age group with a high risk of experiencing PROM tend of 5.324 times experiencing premature rupture of membranes compared to mothers who were in the age group with low-risk of experiencing PROM.

This study is also in line with a study conducted by Rosi (2013) showing that in the group of mothers aged ≤ 20 years and > 35 years, 12 people (20%) experienced PROM, and 6 people (10%) did not experience PROM. Then, in the group of mothers aged 21 – 35 years, 15 mothers (25%) experienced PROM and 27 people (45%) did not experience PROM. Based on the results of the Relative Risk test calculation, mothers aged ≤ 20 years & > 35 years were 4 times more likely to experience PROM than mothers aged 21 - 35 years.

In other words, mothers who are in a high-risk age group experience more premature rupture of membranes than mothers who are in a low-risk age group. This is because age influences the readiness of the mother during pregnancy and facing childbirth. The age for optimal reproduction for a mother is between 20-35 years. The age below or above that range will increase the risk of pregnancy and childbirth.

The Relationship between Parity and Premature Rupture of Membranes

Based on the results of this study, of the 42 respondents whose parity was at high risk of experiencing premature rupture of membranes, 25 respondents (59.5%) experienced premature rupture of membranes, and 17 respondents (40.5 %) did not experience premature rupture of membranes. Meanwhile, of the 42 respondents whose parity was at low risk of experiencing premature rupture of membranes, 9 respondents (21.4%) experienced premature rupture of membranes and 33 respondents (78.6%) did not experience premature rupture of membranes.

Based on the results of the chi-square statistical test, a p-value of 0.000 (< α = 0.05) was obtained, meaning that there was a significant relationship between parity and the occurrence of premature rupture of membranes at PONED Karya Mukti Public Health Center in 2020. Thus, the hypothesis stating that there is a relationship between parity and the occurrence of premature rupture of membranes has statistically been proven. The Odds Ratio (OR) value was 5.392, meaning that respondents whose parity was at high risk were 5.392 times more likely to experience premature rupture of membranes compared to respondents whose parity was at low risk.

This study is in line with a study carried out by Rosi (2013) showing that based on the distribution of parity, in the group of parity > 3, 7 respondents (12%) experienced PROM and 5 respondents (8%) did not experience PROM. Then, in the group of parity 1-3, 20 respondents (34%) experienced PROM and 28 respondents (46%) did not experience PROM. In addition, the results of the relative risk test

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calculations showed that mothers with parity > 3 were 2 times more likely to experience PROM than mothers with parity 1-3.

This study is also in line with a study carried out by Rahma Sri Dewi (2018) showing that of the 35 respondents in the control group, 9 respondents (25.7%) were with no-risk parity (primipara), 11 respondents 31, 4%) were with at-risk parity (multipara and grand multipara). The statistical tests obtained a p-value of 0.001 (p <0.05), with a level of significance α = 0.05, meaning that there was a relationship between parity and premature rupture of membranes.

In addition, the results of the study also showed the OR - value of 6.303, meaning that respondents with at-risk parity (primipara and grand multipara) were 6 times more likely to experience PROM. Nugroho (2011) in his study stated that at parity > 3, there was enlargement of the uterus and repeated stretching so that PROM easily occurred. Premature rupture of membranes is the rupture of the membranes before the time of giving birth, or at an opening < 4 cm (latent phase).

In other words, mothers with high-risk parity experience more premature rupture of membranes than mothers with low-risk parity. It is because women who have given birth several times and have experienced premature rupture of membranes in previous pregnancies and spacing of births that are too close are more at risk of experiencing premature rupture of membranes in the later pregnancy.

The Relationship Between History of Multiple Pregnancy and Premature Rupture of Membranes

The results of this study showed that of the 32 respondents who experienced multiple pregnancies, 22 respondents (68.8%) experienced premature rupture of membranes, and 10 respondents (31.2 %) did not experience premature rupture of membranes. Meanwhile, of the 52 respondents who did not experience multiple pregnancies, 12 respondents (23.1%) experienced premature rupture of membranes and 40 respondents (76.9%) did not experience premature rupture of membranes.

Then, the results of the chi-square statistical test obtained a p-value of 0.000 (< α = 0.05), meaning that there was a significant relationship between a history of multiple pregnancies and the occurrence of premature rupture of membranes a PONED Karya Mukti Public Health Center in 2020. Thus, the hypothesis stating that there is a relationship between multiple pregnancies with the occurrence of premature rupture of membranes has been proven statistically. The Odds Ratio (OR) value was 7,333, meaning that respondents who had given birth to twins were 7,333 times more likely to experience premature rupture of membranes compared to respondents who had never given birth to twins.

This study is also in line with a study carried out by Ridwan (2014) showing that the statistical test obtained a p-value of 0.001 (p-value = 0.005 <α), meaning that there was a relationship between multiple pregnancies and premature rupture of membranes. The results of the study showed that the value of OR = 4.1 which means that mothers with multiple pregnancies are 4 times more likely to experience premature rupture of membranes during childbirth compared to mothers who do not experience multiple pregnancies.

However, a study conducted by Fitria Damayanti (2019) showed that regarding twin pregnancies with premature rupture of membranes, 114 mothers (75.5%) experienced PROM at term with non-twin pregnancies. The results of the chi-square test obtained a p-value of 0.549, meaning that Ha was rejected and Ho was accepted. It means that there was no significant relationship between twin pregnancies and premature rupture of membranes at Panembahan Senopati Hospital, Bantul.

This present study indicates that mothers who have given birth to twins are more at risk of experiencing premature rupture of membranes compared to mothers who have not given birth to twins. There are two types of pregnancy, namely single pregnancy in which a woman conceives only one fetus, and twin pregnancy in which a woman conceives two fetuses. Women with a history of twin pregnancies, women with large or tall bodies and multiparas, and women who are taking medication or undergoing fertility procedures have a higher tendency to experience multiple pregnancies.

CONCLUSION

There was a significant relationship between age, parity, and history of multiple pregnancies simultaneously with premature rupture of membranes at PONED Karya Mukti Public Health Center in 2020.

SUGGESTION

It is hoped that this study can provide suggestions for the officials of the Public Health Center to be more active in providing training for midwives and health workers especially those who are directly related to the occurrence of premature rupture of membranes to carry out every health treatment based on SOP (Standard Operating

Procedures) which aims to reduce morbidity and mortality rate.

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