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ANALYSIS OF RISK FACTORS FOR LABOR WITH PREMATURE RUPTURE OF MEMBRANES (PROM) AT KOTA PINANG REGENCY SOUTH LABUHAN REGENCY NORTH SUMATRA PROVINCE IN 2025

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ABSTRACT

Background *Premature Rupture of Membranes (PROM) is a pregnancy complication that can increase maternal and infant morbidity and mortality. PROM occurs when the amniotic sac ruptures before labor begins. This condition can potentially lead to infection, premature labor, and even maternal and infant death if not managed appropriately. Several factors suspected of being associated with PROM include antenatal care (ANC) visits, maternal employment status, and fetal malpresentation.****Objective*** *This study aimed to analyze risk factors associated with the incidence of PROM at Kota Pinang Regional General Hospital, South Labuhanbatu Regency in 2025.* ***Methods*** *This study used an analytical design with an observational approach. The study was conducted at Kota Pinang Regional General Hospital, South Labuhanbatu Regency in 2025. The variables studied included antenatal care visits, maternal employment status, and fetal malpresentation. Data were obtained from patient medical records and analyzed to determine the association between risk factors and the incidence of PROM.* ***Results*** *The study showed that substandard antenatal care visits, maternal employment status with heavy physical activity, and fetal malpresentation were factors associated with an increased risk of PROM. Mothers who do not attend regular antenatal care have a higher risk of delayed detection of pregnancy complications. Work requiring excessive physical activity can increase fatigue, triggering uterine contractions and weakening the amniotic sac. Furthermore, fetal malpresentation causes increased pressure on the amniotic sac, potentially accelerating the development of PROM.* ***Conclusion*** *ANC visits, maternal employment status, and fetal malpresentation are contributing factors to the incidence of PROM. Preventive measures can be implemented through improving the quality of antenatal care services, education regarding work activities during pregnancy, and early detection of fetal presentation abnormalities.*

Keywords: *Premature Rupture of Membranes, ANC, Employment Status, Malpresentation*

Introduction

The maternal mortality rate (MMR) remains a serious health problem in Indonesia. One indirect cause of the high maternal mortality rate is complications of pregnancy and childbirth, including premature rupture of membranes (PROM). PROM is the rupture of the amniotic sac before signs of labor begin. (Bancin et al., 2023) This condition can increase the risk of infection, premature birth, neonatal asphyxia, and even maternal and infant death.Premature rupture of membranes (PROM) is the rupture of the amniotic sac before labor begins. PROM is a significant obstetric problem because it can lead to infection, premature labor, neo(Wardani, 2024)natal asphyxia, and even maternal and infant death. According to the Indonesian Ministry of Health, the prevalence of PROM in Indonesia reaches 14.6% of all deliveries and is a contributing factor to the high maternal mortality rate due to infection.(Hutabarat, 2025) PROM It occurs in approximately 8% of term pregnancies and 2–3% of preterm pregnancies. Various risk factors are known to be associated with the occurrence of PROM, such as maternal age, parity, infection, nutritional status, history of PROM, occupation, and fetal malpresentation.(Hartono, 2016) In addition to ANC, the mother's employment status also influences the condition of the pregnancy.Jobs that require heavy physical activity and long working hours can cause fatigue in pregnant women, increasing the risk of premature rupture of membranes. Fetal malpresentation is a condition in which the fetal part is at the (Lindo & Wildan, 2023)pelvic inlet rather than cephalic. This condition can increase pressure on the membranes, increasing the risk of preterm labor.Based on medical records from the Kota Pinang Regional Hospital for the period January–April 2025, 13 cases of PROM were found. Therefore, this study was conducted to analyze the risk factors for premature rupture of membranes in labor at the Kota Pinang Regional Hospital, South Labuhanbatu Regency, North Sumatra Province in 2025.(Yusri et al., 2024)

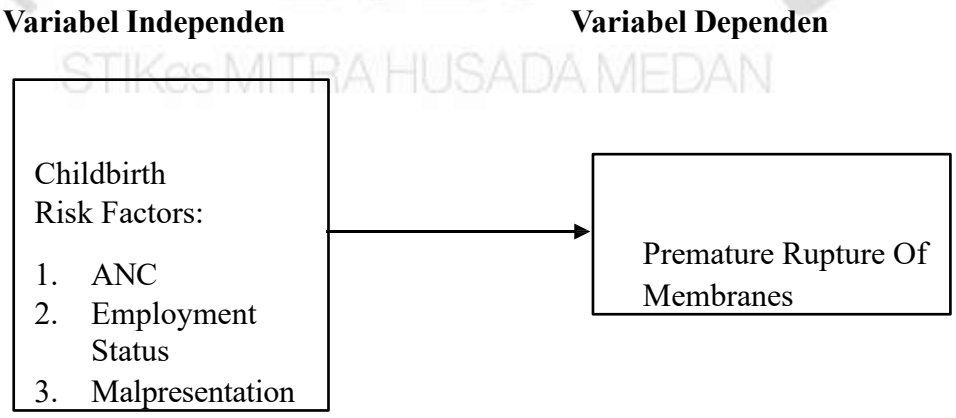
Research Method

This study used an observational analytical design with a quantitative approach to analyze the relationship between risk factors and the incidence of Premature Rupture of Membranes (PROM). (Hernariyanti, 2024) The study was conducted at the Kota Pinang Regional General Hospital, South Labuhanbatu Regency, North Sumatra Province in 2025.The study population consisted of all mothers who received delivery services at the Kota Pinang Regional General Hospital during the study period.(Safitri et al., 2025) The sample was selected based on predetermined inclusion and exclusion criteria. The independent variables in this study included antenatal care (ANC) visits, maternal employment status, and fetal malpresentation. The dependent variable was the incidence of Premature Rupture of Membranes (PROM). (Rika Erwinda et al., 2025) The research data was obtained from patient medical records and other supporting documents. Data collection was conducted using an observation sheet prepared in accordance with the research objectives. The data were then statistically analyzed to determine the relationship between the independent variables and the incidence of PROM. The results of the analysis are presented in the form of a scientific

Result

The mother's employment status has also been found to be associated with the incidence of PROM. Mothers who engage in jobs involving heavy physical activity or work more than eight hours per day have a higher risk of premature rupture of membranes.(Hosny et al., 2024) Excessive physical activity can cause fatigue and stress, which trigger increased production of the hormone oxytocin. These conditions can increaseuterine contractions and put pressure on the membranes, increasing the likelihood of rupture before labor begins.Furthermore, fetal malpresentation is a contributing factor to the incidence of PROM.(Ika Damayanti Sipayung1, Ridesman2, Riska Susanti Pasaribu3, Lasria Yolivia Aruan4, 2022) Abnormal fetal positions, such as breech or transverse presentation, can increase tension on the amniotic membranes due to uneven pressure distribution. (Anggriani, 2022)This condition makes the membranes more susceptible to damage and premature rupture. This finding aligns with the theory that fetal malpresentation can increase intrauterine pressure and accelerate the occurrence of PROM.(Shikanova et al., 2025)

Overall, the study results indicate that maternal and fetal factors contribute to the incidence of PROM. Inadequate antenatal care (ANC) visits, strenuous work activities, and fetal malpresentation are factors that can increase the risk of PROM.(Nuswantoro et al., 2025) Therefore, promotive and preventive efforts are needed through improving the quality of ANC services, educating pregnant women about safe work activities during pregnancy, and conducting routine examinations to detect fetal position abnormalities early.(Amelia Sari et al., 2024)



Picture 3.1. Conceptual Framework

Independent variables are variables that influence or act as risk factors for preature rupture of membranes (PROM). In this study, there are three independent variables:ANC visits are routine prenatal checkups received by mothers during pregnancy.(Sinaga, 2024) ANC visits aim to monitor the health of the mother and fetus and detect early pregnancy risk factors.

Maternal employment status refers to whether the mother was working or not during pregnancy. Jobs involving heavy physical activity can increase the risk of pregnancy complications, including PROM.(Armita et al., 2023) Fetal malpresentation is an abnormal fetal position prior to delivery, such as breech or transverse presentation, which can increase the risk of premature rupture of membranes.Dependent Variable (Dependent Variable)Incidence of Premature Rupture of Membranes (PROM) Premature Rupture of Membranes (PROM) is the rupture of the amniotic sac before the onset of labor. This variable is the outcome or consequence influenced by the risk factors studied.(Handiani & Shariff, 2025)

Discussion

Based on research conducted at the Kota Pinang Regional General Hospital in South Labuhanbatu Regency in 2025, it was found that antenatal care (ANC) visits, maternal employment status, and fetal malpresentation are factors associated with the occurrence of premature rupture of membranes (PROM). These three factors increase the risk of premature rupture of membranes before labor begins, which can impact the health of both the mother and

the fetus.Antenatal care (ANC) visits are one factor associated with the occurrence of PROM. Pregnant women who do not undergo regular prenatal care have a higher risk of PROM compared to those who attend standard ANC visits. Routine ANC checkups enable health workers to detect various pregnancy complications early, such as infection, anemia, malnutrition, and fetal malposition, which can increase the risk of PROM. Furthermore, (Elok Dwi Cahyani et al., 2024)

through ANC, mothers receive education about healthy lifestyles during pregnancy and warning signs to watch out for.The results of this study indicate that a lack of ANC visits can lead to various pregnancy risk factors not being identified early. As a result, conditions that can cause weakening of the amniotic membranes are not properly treated, increasing the risk of premature rupture of membranes. Therefore, maternal compliance with standard ANC visits is crucial for maintaining the health of both mother and fetus during pregnancy.A mother's employment status has also been found to be associated with the incidence of PROM. Mothers who engage in jobs involving heavy physical activity or have long working hours tend to be at higher risk of PROM than mothers who do not work or engage in lighter activities. Excessive physical activity during pregnancy can cause fatigue, increase pressure on the abdominal

cavity, and affect the mother's physical (World Health Organization, 2025)condition, increasing the risk of pregnancy complications.Fatigue from heavy work can trigger increased uterine contractions and put greater pressure on the amniotic sac. This condition can make the amniotic sac more susceptible to damage and ultimately rupture prematurely. Furthermore, mothers who work high-intensity jobs often have insufficient rest time, which can affect their immune system and health during pregnancy. Therefore, pregnant women are advised to adjust their work activities to their pregnancy conditions to minimize the risk of complications.(Rika Erwinda et al., 2025)

Fetal malpresentation is also a factor associated with the incidence of PROM. Malpresentation is a condition in which the fetus is not in the normal position prior to delivery, such as breech presentation, transverse lie, or face presentation. This condition can cause uneven pressure distribution within the uterine cavity, placing greater pressure on the amniotic sac.In a pregnancy with malpresentation, the presenting part of the fetus cannot optimally cover the pelvic inlet. As a result, the pressure of amniotic fluid on the membranes increases and persists, increasing the risk of rupture of the membranes before labor begins. In addition to increasing the risk of premature rupture of membranes (PROM)(World Health Organization, 2023), malpresentation can also lead to various labor complications that require special treatment by healthcare professionals.Overall, the results of this study indicate that suboptimal ANC visits, strenuous work activities during pregnancy, and fetal malpresentation are factors that can increase the risk of premature rupture of membranes. Therefore, preventive measures are needed through improving the quality of ANC services, educating pregnant women about the importance of maintaining activity during pregnancy, and early detection of fetal position abnormalities. This way, the incidence of PROM can be minimized, thereby improving the health of both mother and baby.(Anggriani, 2022)

Conclusion and Suggestion

Based on research results, the incidence of Premature Rupture of Membranes (PROM) at Kota Pinang Regional General Hospital, South Labuhanbatu Regency, in 2025 was influenced by several risk factors, namely antenatal care (ANC) visits, maternal employment status, and

d fetal malpresentation. Substandard ANC visits, strenuous work activities during pregnancy, and fetal malpresentation can increase the risk of PROM. These factors contribute to weakening or increasing pressure on the membranes, potentially leading to rupture of the membranes before labor begins.

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