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Risk factors for premature delivery, literature review

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ABSTRACT

Preterm birth is a birth that occurs at 20 to 37 weeks gestation, the main difficulty in preterm labor is the care of premature babies, the younger the gestational age the greater the risk of morbidity and mortality. This study is a literature study by examining 20 journals with the same topic and theme related to risk factors for preterm labor. After analysis, there are 5 relevant journals. Literature review shows that factors that influence prematurity refer to. history of gynecological diseases, disruption of the uterus due to too high parity, the influence of education, lack of awareness and unplanned mindset, as well as irregular eating patterns and unhealthy lifestyles, malnutrition and anemia and neonatal infections.

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1. INTRODUCTION

Premature birth, namely babies born alive at less than 37 weeks of gestation, is a cause of perinatal morbidity and mortality. Babies born prematurely have a higher risk of death, risk of disease, disabilities in terms of long-term motor, cognitive, visual, hearing, attitudes, social emotions, health and growth problems when compared to babies. (Maqfiro and Fajrin 2020)

Babies with low birth weight (LBW), namely babies born weighing less than 2,500 grams and born before 37 weeks of gestation. Babies with low birth weight (birth weight < 2,500 grams) are associated with an increased risk of morbidity and mortality, stunted growth and cognitive development, and suffer from chronic diseases later in life. LBW babies have a risk of neonatal death almost 40 times greater than babies with normal birth weight, decreased duration of breastfeeding and the risk of being stunted in childhood. (Usman, Rosdiana, and Misnawati 2021)

Approximately 56% of infant deaths in Indonesia occur in the very early period, namely the neonatal period or newborns. Most neonatal deaths occur at the age of 0-6 days (78.5%) and pretermity is the main cause of neonatal death (Kemenkes RI, 2011). The incidence of preterm labor is different in each country, in developed countries, for example in Europe, the rate ranges from 5-11%. In the USA, in 2000 around one in nine babies was born preterm (11.9%), and in Australia the incidence was around 7%. (Apriliani et al. 2021)

Premature babies are more prone to complications because premature babies' organs don't function like mature babies. Therefore, premature babies have more difficulties to live outside the uterus. The shorter the gestation period, the less perfect the growth of organs in the body, with the result that complications are easier and the death rate is higher. (Rachmantiawan and Rodiani 2022)

Neonatal mortality due to premature birth is very high at around 80%, and it is estimated that about 10% of babies who survive have long-term problems or complications. Preterm birth directly contributes to the risk of maternal, fetal and neonatal morbidity and mortality. (Rakhmawati and Pangesti 2017).

Premature labor is labor that occurs between 20 weeks of pregnancy to less than 37 weeks of gestation. Premature birth is a very important problem because with low fetal weight and not old enough, the vital organs are not perfect so they have difficulty growing and developing properly. well, this will also affect children's intelligence. (Panada Sedianing Drastita et al. 2022)

According to Abraham M. Rudolf, et al (2006), Premature / Preterm labor is defined as the start of regular uterine contractions that cause cervical changes before 37 weeks' gestation, which indicates a risk in a delivery. Hypoxia is often found in premature babies. This event has generally started since the fetus was in the womb, in the form of fetal distress or the occurrence of fetal stress during the birth process. In addition to this, the lungs of premature babies experience a lack of surfactant material. This causes premature babies to have difficulty adjusting to life outside the womb, so they experience many health problems (Musbikin, 2005).

As a result, premature babies experience neonatal asphyxia, which is a neonatal emergency and is very at risk for death. Neonatal asphyxia occurs because the baby cannot breathe spontaneously and regularly immediately after birth, this condition can be accompanied by hypoxia, hypercapnia and acidosis (Hidayat, 2005). Neonatal asphyxia is determined by the APGAR value which is calculated at the 1st and 5th minute after birth. The Apgar score is used to assess clinical criteria for newborns which indicate the severity of asphyxia suffered and is very good as a guideline for determining further treatment. (Diana, Widyawaty, and Kholidah 2021)

The neonatal mortality rate in Indonesia in 1991 was 32/1000 live births, in 2007 it was 19/1000 live births, and the fourth Millennium Development Goals (MDGs) target for 2015, the neonatal mortality rate can be reduced again (Ministry of National Development Planning, 2010). The causes of death were respiratory disorders/abnormalities (Respiratory Disorders) of 35.9% and premature infants of 32.4% (Health research and development agency, 2008). Data obtained from the Medical Records of Arifin Achmad Pekanbaru Hospital, obtained data in 2010 obtained data on the number of deliveries of 2400 cases, with premature deliveries of 190 cases (7.91%),

More premature babies were born to anemic mothers (70.8%) compared to mothers who were not anemic (29.2%). Blood pressure is too high can cause premature birth. Because, in pregnant women with high blood pressure, the blood vessels will narrow. So that the supply of oxygen to the fetus is also reduced. Maternal age is a risk factor and has a 2.606 times greater chance of experiencing preterm labor. (Zulaikha and Minata 2021) In addition, mothers with parity 1 or ≥ 4 are at risk of experiencing preterm labor 1.934 times greater. women who have given birth more than once or who are included in high parity (Multipara and Grandemultipara) have a higher risk of experiencing premature labor due to decreased function of the reproductive organs and an increased risk of antepartum bleeding. (Riyanti and Sipayung 2018).

Perinatal deaths due to premature birth are generally caused by immature thermoregulation, respiratory system, digestive organs, liver and kidneys as well as bleeding in the brain, which can lead to infections and complications. (Sulistyorini and Ratmawati 2020) Based on the background above, the authors are interested in analyzing related factors that influence the occurrence of preterm labor.

2. RESEARCH METHOD

This research is a literature study by examining 20 journals with research criteria for the last 5 years related to the theme of Premature which specifically discusses the risk factors for preterm labor.

3. RESULTS AND DISCUSSIONS

This literature review was compiled through a process of reviewing selected articles and referring to the literature review. The keywords entered were: premature labor, the author searched for articles using the Google Chrome database and managed to identify 22 articles, then did a similarity selection

to get 20, then filtered titles and abstracts to get 10 relevant articles, after being assessed for feasibility, 5 articles were obtained. . In accordance with inclusion, namely to determine the factors that influence preterm labor and those related to its management in ART according to the inclusion criteria combined in a table which includes the name and year of research, journal name, research title, variables studied, study design, study sample, statistical methods, statistical analysis results, research results,

Table 1. Summary Of Research Articles On Risk Factors Affecting Premature Labor In Women

Name and Year of Research	Name Journal	Types of research	Researched Variables	Study Design	Research Sample	Research Conclusion
Nanik Zulaikha, Fika Minata 2020	Prime Saelmakers Health Journal	Literature Review	Age Mother	Cross-sectional	Scientific articles	Has a significant relationship with preterm birth. From the results of multivariate analysis using logistic regression
Dewie Sulistyorini 2020	Journal of Medicine	Literature Review	Maternal Age, Parity, Premature	Cross-sectional	Scientific articles	Mothers who gave birth prematurely most of the respondents 90.3% (37 people) were in the low risk age category (20-35 years), and there were 9.7% (4 people) in the high risk age category (35 years) that the majority were 66, 7% (46 people) of pregnant women aged 16-35 years had preterm labor and 33.3% (23 people) of pregnant women aged 35 had preterm labor
Alis Nur Diana Eka Deviany Widyawaty, Lis Nur Kholidah 2022	Scientific Journal of Obstetrics and Gynecology	Literature Review	Cogenital Abnormalities	Cross-sectional	Scientific articles	There is no effect between premature babies and the incidence of asphyxia in the Perinatology Room of Bangil Hospital, Pasuruan Regency with the Asimp value. Sig of 0.874. 2. There is no effect between congenital abnormalities and the incidence of asphyxia in the Perinatology Room of Bangil Hospital, Pasuruan Regency with the Asimp value. Sig of 0.583. 3. There is an influence between meconium mixed amniotic fluid and the incidence of asphyxia in the Perinatology Room of Bangil Hospital, Pasuruan Regency with an Asimp.Sig value of 0.005.
Panada Sedianing Drastita, Gatut Hardianto, Farida Fitriana, Martono Tri Utomo, 2022	Midwifery Scientific Journal	Literature Review	Anemia	Cross-sectional	Scientific articles	Based on the results of the study, a small proportion (9.41% or 16 people) had anemia and almost had anemia (90.59% or 154 respondents) did not have anemia. So that premature birth is very vulnerable to occur
Rosdiana, Andi	Mppk	Literature Review	Risk Factor	Cross-sectional	Scientific articles	There is a relationship between the age of the respondent and the

Misnawati, 2023	incidence of premature birth. And exposure to cigarette smoke remains a risk factor for premature babies, although there are several studies that show insignificant results.

Based on the results of research conducted by Nanik et al., the results of the Chi Square statistical test obtained p = 0.001, it can be concluded that there is a relationship between maternal age and premature birth. The value of OR = 2.781 was obtained, this indicated that respondents who were at risk had 2.781 times the chance of experiencing premature birth compared to those who did not have a risky age. It was concluded that maternal age, parity, history of preterm birth and the short distance between 2 pregnancies had a significant relationship to premature birth.

Research conducted by Rusmiati shows that most of the mothers who experience preterm labor are at an age that is not at risk, it is possible that the age at risk can contribute to both perinatal and maternal mortality and morbidity. Ages that are not at risk can experience preterm labor, this can be caused by other factors not examined in this study. Preterm labor is strongly influenced by the age of the mother during pregnancy. Physically the reproductive organs at the age of <20 years are not yet fully formed, in general the uterus is still relatively small because the formation is not perfect and the growth of the pelvic bones is not yet wide enough. At the age of <20 years, the mother's condition is also still in the growth stage so that food intake is widely used for the mother, resulting in impaired fetal growth. Whereas at the age of > 35 years the risk of pregnancy complications also increases which has an impact on the morbidity and mortality of the baby to be born. Pregnant women over the age of 35 are also at risk due to decreased organ function due to the aging process (Sari 2018).

The analysis in the journal Alis nur Diana et al that the authors did shows that anemia during pregnancy has a risk of giving birth to premature babies, low birth weight, miscarriage, bleeding both before and after delivery, labor that is not smooth, fetal death in Gynecology, death of pregnant/delivery women. n premature birth is higher in young mothers aged less than 20 years, this occurs because young mothers aged less than 20 years are immature and do not have a placenta transfer system as efficiently as adult women. (Andalas et al. 2018).

The journal from Panada found that a history of preterm labor was statistically unrelated to the occurrence of preterm labor in subsequent pregnancies. The cause of preterm labor is not only caused by one factor alone so that mothers who have a history of preterm labor before are not necessarily going to experience preterm labor in their next pregnancy. Anemia causes a decrease in the number of red blood cells which reduces the ability of the mother's metabolism and interferes with the growth of the fetus in the uterus which can have an impact on premature labor so that additional iron is needed which is important for forming red blood cells of the fetus and the placenta. (Kuslimawati, Wathan, and Anggraini 2020).

Furthermore, the journal analysis from Rosdiana et al that pregnancy at the age of less than 20 years, the pelvis and uterus are still small and the reproductive organs are immature. At the age of 35 years the maturity of the reproductive organs has decreased compared to the age of 20-35 years. This results in the emergence of health problems during delivery and the risk of preterm delivery. When a pregnant woman smokes, the existing chemicals will move from the mother to the blood of the fetus she contains. Infants of women who smoke are likely to be born malnourished or underweight, premature or even die. (Riyanti and Sipayung 2018).

Air pollution in the household that is closely related to the incidence of preterm labor, one of which is cigarette smoke. Cigarette smoke contains approximately 4000 chemicals of which 200 are toxic and 43 other types can cause cancer in the body. (Sumarah 2009) Some very dangerous substances, namely tar, nicotine, carbon monoxide and so on are contained therein. Cigarette smoke that has just died in an ashtray contains three times as much cancer-causing substances in the air and 50 times as much as eye and respiratory irritants. (Kuslimawati et al. 2020) The shorter the cigarette,

the higher the level of poison that is ready to fly into the air. A place filled with cigarette smoke pollution is a more dangerous place than pollution on a congested highway (Usman et al. 2021).

4. CONCLUSION

Based on the results and discussion, it can be concluded that the risk factors for preterm labor for a person to be diagnosed include a history of gynecological disease, disruption of the uterus due to parity that is too high, presence of infection, influence of education, lack of awareness and unplanned mindset and irregular eating patterns and unhealthy lifestyle, malnutrition and anemia. There is a significant relationship between premature babies and neonatorum infections with the possibility of a greater risk of neonatal infections than babies born at term. As well as in terms of the mother's occupation and history of preterm birth the mother has no relationship with the incidence of preterm delivery.

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