

Analysis of the Relationship Between Adolescent Pregnancy and the Incidence of Preterm Labor at Kalirejo Health Center, Negeri Katon District, Pesawaran Regency

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Abstract: Preterm labor is defined as labor that occurs at a gestational age of less than 37 weeks, that is, between 20 weeks gestation to less than 37 weeks. Adolescent pregnancy is one of the risk factors for premature birth. The gestational age of adolescents <20 years is one of the predisposing factors for the birth of *preterm* babies. This study was conducted to find the relationship between adolescent pregnancy and the incidence of preterm labor in Negeri Katon District, Pesawaran Regency. The design of this study is analytic descriptive with a *cross sectional* approach. Sampling using total sampling technique. The data used in this study are secondary data. The research data was collected by collecting patient data in accordance with the purpose of the study. The results of this study are expected to provide information about the importance of analyzing the relationship between adolescent pregnancy and the incidence of preterm labor and become input for health agencies to pay more attention to pregnancy management education in adolescence.

1 INTRODUCTION

According to Indonesian Demographic and Health Survey Data, the maternal mortality rate (MMR) in Indonesia increased from 228 per 100,000 live births in 2002 – 2007 to 359 per 100,000 live births in 2007 – 2012. MMR decreased in 2012 – 2015 to 305 per 100,000 live births and the number of maternal deaths in Indonesia in 2019 was 4,221 cases (Dewi, 2020).

The prevalence of preterm labor in the world increased from 7.5 to 8.6%. Indonesia ranks 5th with the highest number of preterm labors, which is around 657,700 cases (Imron, 2012). The main causes of *preterm birth* include infections and the presence of sexually transmitted diseases and pregnancy in adolescents is quite high. Based on Riskesdas in 2018, the proportion of *preterm* deliveries in pregnancies aged 10-54 years reached 29.5%, with 26.8% occurring in urban areas and 32.7% occurring in people who have rural residences. Among the population, there are pregnancies at the age of <15 years by 35.8% and in the adolescent age group (10 – 19 years) by 19.8% (Dewi, 2020).

Preterm labor is defined as labor that occurs at a gestational age of less than 37 weeks, that is, between 20 weeks gestation to less than 37 weeks. Preterm childbirth complications are the leading cause of

death for children under 5 years of age and cause approximately 1 million deaths annually (Imron, 2012). Various risk factors for *preterm labor* are found, such as maternal diseases during pregnancy, multiple pregnancies, physical and mental stress, placental abnormalities, nutritional, medical, infections. Epidemiology, *preterm labor is associated with socioeconomic, uterine anomalies, previous preterm labor history, abortion history, smokers, race, and extreme maternal age, namely <20 years and >35 years* (Putri, 2016).

Teenage pregnancy negatively impacts the health of adolescents and their babies, it can also have social and economic impacts. Pregnancy at a young age or adolescence includes the risk of premature birth, low birth weight, labor bleeding, which can increase maternal and infant mortality. Teenage pregnancy is also linked to unwanted pregnancies and unsafe abortions (Dewi, 2020).

Young birthing mothers have a higher proportion of premature births at 27.7% compared to adult births at 13.1%. Young birthing mothers have a low birth weight (BBLR) of 38.9% compared to adult births of 30.4% (Setiyawan, 2020). Research conducted by Ondang *et al.* (2016) found that the percentage of diseases or complicating *adolescent preterm labor* at this age was the highest number of premature rupture

of membranes (12.90%), preeclampsia / eclampsia (6.45%), fluorine albus (3.22%), and anemia (3.22%). Based on the level of high school / vocational education, there were 20 cases (64.51%), junior high school as many as 8 cases (25.80%) and elementary school as many as 3 cases (9.67%).

One of the efforts to reduce cases of *preterm labor* in pregnant women is to pay attention to the mother's gestational age. Preterm labor can occur due to teenage pregnancy which can cause various complications in pregnancy and childbirth.

The purpose of this study is to determine the relationship between pregnancy in adolescence and the incidence of preterm labor at the Kalirejo Health Center, Negeri Katon District, Pesawaran Regency.

2 METHOD

This type of research is an analytical descriptive study with a *cross-sectional* research design. The population is mothers experiencing childbirth during the period of 2022. The population of preterm labor cases and the control population were mothers who did not experience preterm labor during the period of 2022, all case populations were sampled at a ratio of 1:1. The source of this research data came from a cohort of pregnant women in the working area of Kalirejo Health Center, Gedong Tataan District, Pesawaran Regency.

3 RESULTS AND DISCUSSION

Overview of the location of activities One of the community health center in Pesawaran Regency provides health services that include medical examinations, medical referrals, as well as the issuance of health certificates, and so on. This health center runs various health programs such as routine medical checks, making health certificates, outpatient services, postoperative wound care, and various other services, such as tooth extraction, blood pressure measurement, pregnancy tests, child examinations, as well as blood type, uric acid, and cholesterol tests. In addition, this Community health center also helps in providing referrals to BPJS patients who require follow-up care at the hospital. Community health center Kalirejo, Pesawaran Regency, offers good health services with qualified medical staff, including nurses and doctors, as well as providing complete medical equipment and medicines. As a result, this Community health center has become one of the main choices for the people of Pesawaran Regency in meeting their health needs.

Kalirejo Health Center, located in Kalirejo Village, Negeri Katon District with working areas covering health services in Keagungan Ratu Village, Kalirejo, Purworejo, Pujo Rahayu, Katon State, Tanjung Rejo, Karang Rejo, Halangan Ratu, Pejambon, Saka State and Ulangan Jaya State in Negeri Katon District and overseeing the Pejambon Assistant Health Center and Tanjung Rejo Auxiliary Health Center.

Table 1: Statistical Data

Description	n	%
Age Group		
14 – 17 years old	3	4,5
18 – 20 years	27	40,9
Over 20 years old	36	54,5
Age at Maternity		
Ever	33	50,0
Never	33	50,0
Age Class		
Adolescent	30	45,0
Non-Adolescent	36	55,0
Total	66	100

Based on Table 1, it can be seen that the interview results presented the percentage of age groups that the age group 14 - 17 years the percentage is 4.5%, meaning that of the entire population or sample measured, about 4.5% of individuals are in the age range of 14 to 17 years. Age Group 18 - 20 years the percentage is 40.9%, indicating that about 40.9% of the population or sample is in the age group of 18 to

20 years and the age group above 20 years the percentage is 54.5%, this indicates that about 54.5% of the entire population or sample has an age above 20 years. These data provide an overview of age distribution within the population or sample being measured and can be used for demographic analysis or planning specific programs related to specific age groups.

Table 2: Test results of pregnancy relationship in adolescence with the incidence of preterm labor at Kalirejo Health Center.

Age Class	Age at Maternity				Total	p-Value
	Preterm		Aterm			
	n	%	n	%		
Adolescent	25	83,3%	5	16,7%	33	0,001
Non-Adolescent	8	22,2%	28	77,8%	33	
Total	33	50,0%	33	50,0%	66	

In Table 2, this data is a contingency table that illustrates the relationship between maternal age class at childbirth (Adolescent and Non-Adolescent Adolescents) and infant birth status (Preterm and Aterm). There were 25 cases (83.3%) of preterm births and 5 cases (16.7%) of term births in the non-adolescent group. There were 8 cases (22.2%) of preterm births and 28 cases (77.8%) of term births and a total of 33 cases of preterm (50.0%) and 33 cases of term (50.0%) in this sample.

There is a p-value of 0.001 which is likely the result of a statistical test that measures the significance of the relationship between the age class of the mother at childbirth and the birth status of the baby. A very low p-value (0.001) indicates that there is a significant relationship between the mother's age class at delivery and the baby's birth status. From these data, we can conclude that the Adolescent group has a higher percentage of preterm births, while the Non-Adolescent group has a higher percentage of term births. These results may be relevant in the context of maternal and infant health and health care planning.

The ideal age for marriage for women is 21-25 years, while for men it is 25-28 years. This is recommended because at these ages, the female reproductive organs have achieved good physical development, are strong, and are ready to give birth. Similarly, in men in the age range of 25-28 years, they are expected to be financially and emotionally ready to support their family life. However, in reality, many women and men marry at a younger age, which is often referred to as early marriage. The incidence of early marriage is common in various parts of the world with diverse backgrounds (Dewi & Son, 2020).

So far, there is a mistaken view that acts of violence against women, especially wives, are often regarded as normal and treated as domestic conflicts only. This view becomes more serious with myths that degrade women, make them inferior objects, and at the same time, reinforce the dominant role of men, especially as powerful figures in the household. In this situation, there is an imbalance in the power relations between women and men in the household, which often tends to be unequal. The excessive power possessed by men in the household is the reason for acts of violence. Unfortunately, this is often accepted

as a true condition or as the norm, which ends up perpetuating domestic violence. It is important to realize that these views harm not only women, but also entire families and communities. Efforts to change this view and the rejection of acts of domestic violence are key to creating a healthy, safe, and fair home environment for all family members (Setiyawan, 2020).

Preterm events in pregnancy are often triggered by patient characteristics associated with poor socio-economic status, such as low income, limited level of education, which results in inadequate nutritional patterns. In addition, age also plays an important role, with the risk of preterm increased in pregnancy that occurs at the age of 16 years or in primigravida that is more than 30 years old (Wahyuni & Rohani, 2017).

The factors that cause the risk of preterm labor (less months) can be grouped based on the age of the mother. Mothers who become pregnant at a relatively young age, under 20 years old, may face the risk of prematurity because their reproductive organs have not reached optimal development and physiological function. Psychologically, they may also not have reached enough emotional maturity to understand and deal with pregnancy, which in turn affects preparation and care during pregnancy. This can have a negative impact on the development of the fetus conceived, and be one of the factors increasing the risk of preterm labor. Conversely, mothers who become pregnant at a later age, especially over 30 years, also have a high risk for preterm labor. This is due to a general decline in physiological and reproductive functions at that age. In addition, older mothers may have a history of obstetrics such as previous preterm labor, miscarriage, or being an older primiparous mother (giving birth to their first child after age 35). This obstetric history can also increase the risk of preterm labor. Too young or too old during pregnancy can affect the risk of preterm labor through various mechanisms that include physiological and psychological aspects. Therefore, it is important to give special attention and proper medical care during pregnancy in this age group to reduce the risk of preterm labor (Imron & Oktaviana, 2012).

Preterm labor can occur in teenage pregnancy or early age. Pregnancy in adolescence increases the risk

of illness and death for both mother and baby caused by preterm delivery. The mechanism of preterm labor is similar to term (full-month) labor, which involves uterine contraction, cervical maturation, and membrane rupture. The difference lies in the activation of the labor process. In term labor, this activation is part of normal physiological processes, while in preterm labor, such activation is pathological. The incidence of preterm labor in adolescent mothers can also be associated with a lack of blood circulation to the cervix and uterus. In adolescents, this circulation is often not fully developed, which can reduce the flow of nutrients to the fetus and increase the risk of infections that can lead to preterm labor. Sex hormones that are active during puberty can also contribute to menstrual irregularities in adolescents. Some teens who become pregnant may not be aware of their pregnancy because they experience bleeding that they mistake for irregular periods. This may result in delays in pregnancy checks. In addition, nutrition also plays an important role in teenage pregnancy. They still need adequate nutrition for their own growth, while also having to support fetal growth. Pregnancy in adolescence can require special attention related to nutrition and medical care to ensure optimal fetal development (Imron & Oktaviana, 2012).

The age of the mother during pregnancy affects the health of the mother and fetal development. Age Under 20 Years: At the age of under 20 years, reproductive organs, including the uterus, are not fully formed and developed properly. In addition, the uterus may still be relatively small because the formation process has not been completed, and the pelvic bones may not have reached a sufficient width. This can result in a high risk of pregnancy complications, such as preterm labor. In addition, mothers who are still in the growth stage may not get enough food intake for themselves and the fetus, which can adversely affect fetal growth. Age Over 35 Years: At the age of over 35 years, the risk of pregnancy complications increases. Older women tend to face a higher risk of problems such as hypertension, gestational diabetes, and other pregnancy complications. This can result in higher morbidity (disease) in both mother and baby, as well as a higher risk of death in the soon-to-be baby (Princess & Dew, 2016).

4 CONCLUSION

Preterm labor in adolescent pregnancy involves a variety of factors, including circulation, hormones, and nutrition, therefore, proper medical care and support are essential to reduce the risk of preterm

labor in the adolescent population. The age of the mother during pregnancy is an important factor that affects the development and health of the fetus as well as pregnancy complications. Therefore, proper prenatal care and medical monitoring are essential, regardless of the age of the mother, to reduce the risk and ensure the health of the mother and baby during the gestation period.

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REFERENCES

- Aras Y Radha. Is Maternal Age Risk Factor For Low Birth Weight. Archives of Medicine and Health Sciences. 2013;1.
- Bobak IM, Jensen MD, Lowdermilk DL. Maternity Nursing Textbook. Jakarta: EGC; 2012.
- Dewi, I. S., & Son, S. (2020). Public perception of early marriage is viewed from cultural background (Batak and Javanese). *BEST Journal (Biology Education, Science and Technology)*, 3(1), 112–119. <https://doi.org/10.30743/best.v3i1.2486>
- Endah N, Susanti S. Description of preterm partus risk factors at SMC Hospital Tasikmalaya Regency in 2016. *Journal of Health Bidkesmas Respati*. 2018; (9): 1-10.
- Fani K, Ahyani LN. The Relationship between Social Support and Adolescent Adjustment in Orphanages. *Journal of Pituitary Psychology*. 2012; 1(1):55-60.
- Iams JD, Creasy RK, Resnik R, Lockwood CJ, Moore TR, Greene M. Creasy and Resnik's maternal-fetal medicine: Principles and practice. Elsevier Health Sciences; 2014.
- Imron, R., & Oktaviana, A. (2012). Causes of preterm labor. *Health Works Media*, 8(2), 1–6. <https://ejurnal.poltekkes-tjk.ac.id/index.php/JKEP/article/view/159/151>
- Kurniawati A, Nurdianti D. Characteristics of pregnant women with knowledge and attitudes in recognizing the danger signs of pregnancy. *BIMTAS Journal: UMTAS Midwifery Journal*. 2019; 2(1): 32–41.
- Malka ST, Ridwan, Saifuddin S. 2013. Risk factor analysis of premature birth in BLUD RSU Tenriawaru class B Bone district in 2013. *Andalas Health Journal*. 3(1):102-9.
- Manuaba IBG. Obstetrics, Gynecology and Family Planning for Midwife Education. Second edition. Jakarta: EGC; 2010.
- Ministry of Health of the Republic of Indonesia. Basic Health Research. Jakarta: Research Agency and Health Development; 2018.

- Muench MV, Canterina JC. Trauma in Pregnancy. Obstetrics and Gynecology Clinic of North America.
- Ondang MC, Suparman E, Tendean HMM. Features of preterm labor in teenage pregnancy. *E-Journal Widya Health and Environment*. 2016; 2(2):109-15.
- Prawirohardjo S. Practical Handbook for Maternal and Neonatal Health Services. Jakarta: PT Bina Pustaka;2014.
- Purba EM, Rahayujati, TB, Hakimi M. Adolescent pregnancy and the incidence of low birth weight infants in Gunungkidul district Teenage pregnancy and low birth weight infants in Gunungkidul. *BKM Journal of Community Medicine and Public Health*. 2016; 32(1):13–20.
- Putri, M. S., & Dew, R. (2016). Early Rupture of Water in Preterm Pregnancy Premature Rupture of Membrane. *Medulaunila*, 5(1), 97–101.
- Rahmawati I, Mutiara VS, Absari N, Andini P. Factors Associated with Preterm Labor. *Professional Health Journal*. 2021; (2): 112–21.
- Rodiani, Setiawan S. Factors Associated with Postpartum Bleeding at Abdul Moeloek General Hospital Lampung. *Journal of Medicine, University of Lampung*. 2019; 3(1).
- Rohan HH, Siyoto S. Textbook of Reproductive Health. Yogyakarta: Nuha Medika;2015.
- Serri H. Antenatal Care. Jakarta: Salemba Medika;2013.
- Setiyawan. (2020). The Phenomenon of Domestic Violence in Early Marriage (Case Study) in Ilir Talo District, Seluma Regency in 2020. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.
- Syarif AB, Santoso S, Widyasih H. Maternal age and incidence of preterm labor. *Journal of Obstetric Involution*. 2017; 11(2): 20–4.
- Wahyuni, R., & Rohani, S. (2017). Factors Affecting Preterm Labor. *Aisyah Journal : Journal of Health Sciences*, 2(1), 61–68. <https://doi.org/10.30604/jika.v2i1.33>
- WHO. Preterm Birth. 2020. Available from: <https://www.who.int/news-room/fact-sheets/detail/preterm-birth>.
- WHO. WHO recommendations Intrapartum care for a positive childbirth experience. Geneva; World Health Organization; 2018.
- Winkjosastro H. Midwifery Science. 4th edition. Jakarta: Bina Pustaka Foundation; 2016.
- Zhang YP, Liu XH, Gao SH, Wang JM, Gu YS, Zhang JY, Xia Z, Li QX. Risk Factors for Preterm Birth in Five Maternal and Child Health Hospitals in Beijing. *International Journal of PLOS ONE*. 2012; (7)12:52-78.