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Article

# Correlation Between Adolescent Pregnancy With Labor Complication in Puskesmas Galis Bangkalan Regency

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**A B S T R A C T**

Adolescent pregnancy is a major health issue, leading to an increase in maternal and infant mortality due to complications in delivery. The purpose of this study was to analyze the correlation between adolescent pregnancy and delivery complications at the Puskesmas Galis, Bangkalan Regency. This research method was quantitative observational with a case control design. The population of mothers who gave birth in the working area of Puskesmas Galis, Bangkalan Regency in January - December 2022. The study used samples of 20 adolescent pregnancies with the number of controls was adjusting the amount of samples as many as 20. Case sampling was carried out by consecutive sampling with inclusion criteria for giving birth aged ≤ 35 years, primiparous, and exclusion criteria for incomplete medical record data, multiple pregnancies, pregnancies with heart disease, pregnancies with respiratory tract diseases, pregnancies with kidney disease, pregnancies with diabetes mellitus, pregnancies with tumors. Adolescent mothers were more likely to have preterm labor (20%), premature rupture of membranes (20%), prolonged labor with stage 1 abnormalities (5%), CPD (5%), and SC delivery methods (5%), and have a higher risk of labor complications (45%) (P-value 0.034, OR 7.364, 95% CI: 1.337 – 40,548). Adolescent age increases the risk of labor complications.

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## I. INTRODUCTION

Adolescent pregnancy is defined as pregnancies that occur in women before the age of 20 or that refer to women aged 10-19 years. Adolescent pregnancy is one of the major health problems and is a concern worldwide. According to data from UNICEF (2021), about 15% of young women worldwide have experienced childbirth before the age of 18 between 2015 and 2020. An estimated 14 million women get pregnant each year and more than 90% of cases occur in developing countries.

As one of the developing countries, Indonesia also has a problem with adolescent pregnancy. According to SDKI data 2017, the birth rate in the 15-19-year-old group in Indonesia reached 36 per 1000 women. The adolescent fertility rate reaches 7% or approximately 7,500 women aged 15-19 have either given birth or are pregnant. (Badan Kependudukan dan Keluarga Berencana Nasional et al., 2018). In developing countries such as Indonesia, adolescent pregnancies are often caused by early marriage and sexual activity. According to the World Health Organization (WHO), adolescent pregnancies account for 23% of the total burden of pregnancy and childbirth in women of all ages and are the second most common cause of death among adolescent aged 15-19.

In women who experience their first pregnancy at the age of less than 20 years often their uterus and pelvis have not grown to reach adult size, so it can jeopardize the safety and health of the fetus inside. One study found that even 2 years after a girl has had her first menstrual period, pelvic growth is still about 2–9 percent less. This causes an imbalance between the baby's head size and the mother's pelvis and leads to complications in pregnancy and childbirth (Royston & Amstrong, 1989). As a result of adolescent body dysfunction, adolescent pregnancies are often at greater risk for complications such as long-term labor, impaired labor, eclampsia, placenta rupture, obstructions during labor, obstetric fistulas, respiratory endometritis, systemic infections, and even death (Cherry & Dillon (2014); UNFPA (2015); UNICEF (2021)). Furthermore, studies have shown that adolescent primigravid mothers significantly experience adverse perinatal outcomes compared to older primigravid mothers (Mukhopadhyay et al., (2010); Lewis et al., (2009)).

Based on the above description, the author is interested in conducting research on the relationship between adolescent pregnancy and childbirth complications in Puskesmas Galis located in the Bangkalan district. This study was conducted in order to be able to determine the correlation between adolescent pregnancy with the occurrence of birth complications in the Puskesmas Galis district of Bangkalan. The results of this study are expected to be one of the references for improving reproductive health services in adolescents as well as preventing adolescent pregnancies and reducing maternal mortality to improve the health and well-being of mothers and children.

## II. METHODS

This research method was quantitative observational with a case control design. The population of mothers who gave birth in the working area of Puskesmas Galis, Bangkalan Regency in January - December 2022. The study used samples of 20 adolescent pregnancies with the number of controls was adjusting the amount of samples as many as 20. Case sampling was carried out by consecutive sampling with inclusion criteria for giving birth aged ≤ 35 years, primiparous, and exclusion criteria for incomplete medical record data, multiple pregnancies, pregnancies with heart disease, pregnancies with respiratory tract diseases, pregnancies with kidney disease, pregnancies with diabetes mellitus, pregnancies with tumors. The independent variable in this study was the age of the mother. Dependent variables was birth complications that are defined when there is one or more birth complicators. The instruments used were medical records. Data analysis using the Chi Square test.

## III. RESULT

**Table 1. Distribution of frequency samples of mothers giving birth in the region of Puskesmas Galis Kabupaten *Bangkalan***

| Characteristic | Category of age | | | |
|---|---|---|---|---|
| | Adolescent | | Reproductive | |
| | **N** | **%** | **n** | **%** |
| **BMI** | | | | |
| <18,5 (underweight) | 3 | 15 | 0 | 0 |
| 18,5 – 24,9 (normal) | 11 | 55 | 4 | 20 |
| 25 – 29,9 (overweight) | 1 | 5 | 11 | 55 |
| 30 – 34,9 (obesitas I) | 5 | 25 | 5 | 25 |
| **Total** | 20 | 100 | 20 | 100 |
| **Medical Facility** | | | | |
| Polindes/PMB | 18 | 90 | 18 | 90 |
| RSIA | 2 | 10 | 1 | 5 |
| RSUD Bangkalan | 0 | 0 | 1 | 5 |
| **Total** | 20 | 100 | 20 | 100 |
| **Childbirth Assistant** | | | | |
| Midwife | 18 | 90 | 18 | 90 |
| General Practioner | 0 | 0 | 1 | 5 |
| Medical Specialist | 2 | 10 | 1 | 5 |
| **Total** | 20 | 100 | 20 | 100 |
| **Preterm Labor** | | | | |
| Preterm | 4 | 20 | 0 | 0 |
| Not Preterm | 16 | 80 | 20 | 100 |
| **Total** | 20 | 100 | 20 | 100 |
| **Premature Rupture of Membrane (PROM)** | | | | |
| PROM | 4 | 20 | 1 | 5 |
| Not PROM | 16 | 80 | 19 | 95 |
| **Total** | 20 | 100 | 20 | 100 |
| **Prolonged Labor** | | | | |
| 1st stage abnormality | 1 | 5 | 0 | 0 |
| 2nd stage abnormality | 0 | 0 | 1 | 0 |
| Not prolonged labor | 19 | 95 | 19 | 90 |
| **Total** | 20 | 100 | 20 | 100 |
| **Cephalopelvic Disproportion (CPD)** | | | | |
| CPD | 1 | 5 | 0 | 0 |
| Not CPD | 19 | 95 | 20 | 100 |
| **Total** | 20 | 100 | 20 | 100 |
| **Delivery Method** | | | | |
| SC | 1 | 5 | 1 | 5 |
| Normal vaginal | 19 | 95 | 19 | 95 |
| **Total** | 20 | 100 | 20 | 100 |

Based on Table 1., it was found that adolescent mothers in this study mostly had a normal BMI (18,5–24,9) of 55%, while reproductive mothers were mostly overweight BMI (25–29,9) of 55%. In both age groups the majority of pregnant women in the work area Puskesmas Galis gave birth in Polindes/PMB (90%) with the help of a midwife (90%). The table also found cases of premature birth occurring in adolescent mothers (20%). Premature rupture of membrane (PROM) is more common in adolescent mothers (20%) than reproductive mothers (5%). Prolonged birth with cases of 1st stage abnormality was occurred in adolescent mothers (5%) and did not occur in mothers of reproductive age, while in reproductive mothers, 2nd stage abnormality cases were obtained (5%). CPD occurs in adolescent mothers (5%) and does not occur in mothers of reproductive age. SC delivery method has been found to occur in adolescent mothers and mothers of reproductive age (5%).

**Table 2. Bivariate analysis of mother's age with birth complications**

| Variable | Category of age | | | | P-value | OR (95% CI) |
|---|---|---|---|---|---|---|
| | Adolescent | | Reproductive | | | |
| | **N** | **%** | **n** | **%** | | |
| **Birth complications** | | | | | | |
| Complicated | 9 | 45 | 2 | 10 | 0,034 | 7,364(1,337– 40,548) |
| Not complicated | 11 | 55 | 18 | 90 | | |
| **Total** | 20 | 100 | 20 | 100 | | |

Based on Table 2., out of 20 respondents with the adolescent age category, 9 respondents experiencing childbirth complications (45%), while out of the 20 respondants with the reproductive age category there were 2 respondents experiencing childbirth complications (10%). The results of analysis using the Chi Square test showed correlation between adolescent pregnancy and childbirth complications (P-value 0,034). The results of the OR calculation showed that mothers with a adolescent category have 7.364 times higher risk of developing childbirth complications compared to mothers of reproductive age. Adolescent pregnancy is a risk factor for birth complications (OR>1) (95% CI: 1,337–40,548).

## IV. DISCUSSION

Labor complications in this study were determined if there were one or more labor complications. The results showed that there was a relationship between teenage pregnancy and delivery complications (P-value 0.034). The OR calculation results show that mothers in the adolescent age category have a 7,364 times the risk of experiencing delivery complications, compared to mothers of reproductive age.

The results of this study are consistent with a study conducted by Cavazos-Rehg et al. (2015), that childbirth complications have the highest prevalence in adolescent age, compared to women of reproductive age. However, the results of this study are inconsistent with the study conducted by Putri and Winarni (2017), which stated that adolescent mothers were less likely to experience childbirth complications (15.6%) and the study carried out by Husna et al. (2019), which said adolescent pregnancies were not related to childbird complications.

In this study, the most common complications of childbirth were premature birth (20%) and premature rupture of membrane (PROM) (20%). This is consistent with the theory that biological immaturity starting from cervical or uterine circulation disorders can affect subclinical infections, increased production of interleukin and prostaglandins, as well as coroid amniotitis resulting in

increased incidence of premature rupture of membrane (PROM) and preterm birth (Marković et al., 2020).

Preterm birth is the birth that lasts between 20 and 37 weeks of pregnancy counted from the first day of the last menstrual cycle (Prawirohardjo & Viknjosastro, 2010). According to (Cunningham et al., 2010), preterm birth is caused by many often inter-related factors, such as spontaneous premature birth, the result of premature rupture of membrane (PROM), twin or multiple pregnancies, as a result of obstetric and other medical indications such as preeclampsia, fetal distress, small for gestational age, and solusio placenta, or as a consequence of infection during pregnancy (Schlomer, 2018). Preterm birth is also associated with socio-economic factors and lifestyle problems such as smoking and the use of illegal drugs that can lead to low birth weight. (Ekawati et al., 2022). According to Perez et al. (2020), pregnancy at a very young age is a risk factor for preterm birth.

Premature rupture of membrane (PROM) is defined as the rupture of the membranes before the onset of labor, regardless of the gestational age. The incidence of premature rupture of membrane (PROM) can be caused by several factors such as incompetent cervix, polihidramnion, fetal malpresentation, multiple pregnancies, or vaginal/servical infections (e.g., bacterial vaginosis, trichomonas, chlamydia, gonorrhea, group B Streptococcus) (Varney et.al., 2004). Theoretically, adolescents (<20 years) are considered not to have reached the physical maturity, mental maturity and function of the expectant mother. This leads to a higher prevalence of PROM in adolescent pregnancies compared to reproductive pregnancy. The occurrence of premature rupture of membrane (PROM) in adolescent pregnancy can be caused by the incompetent cervix and CPD (the fetal head has not yet entered the pelvic, malpresentation of the fetus) so that the membrane as the lowest part directly receives the dominant intrauterine pressure (Tarsikah et al., 2020).

Adolescent pregnancies are a high-risk pregnancy that needs to be prevented. Adolescence mother is associated with immature reproductive organs which can affect the health of the mother and the fetal growth and development (Cavazos-Rehg et al., 2015). In addition, the theory states that, at the age of less than 20 years, psychologically and physically is still lacking for pregnancy due to the need to fulfill nutritional needs, so that adolescent pregnancies often experience pregnancy complications such as anemia and chronic energy deficiency which can cause complications during the delivery process (Tarsikah et al., 2020).

Adolescent pregnancies cause many adolescent to drop out of school and have low levels of education and knowledge. The level of knowledge of the mother can affects the mentality that will keep her pregnancy in line with the standards for early protection of abnormalities in the content so that appropriate treatment can be given earlier (Wall-Wieler et al., 2016). Adolescent pregnancies also increase physical and psychological risks for the mother and her baby during pregnancy and childbirth. Pregnancy and childbirth at an early age are believed to be one of the causes of postpartum blues (Kusmiyati, et.al., 2018).

Limitations in this study are demographic characteristics such as educational level and economic status which are not studied in this study. Data collection was carried out at the Polindes in the working area of the Puskesmas Galis, Kabupaten Bangkalan, with data sourced from midwives documentation and no medical records of respondents or partograph records were available. This condition has an impact on limited and incomplete data so that all the planned variables cannot be found. The characteristics of the population in Kecamatan Galis who often migrate causes the data to be less well documented. In addition, in cases of adolescent pregnancies, referrals to hospitals are often made without return referrals, this also causes patient data to become undocumented at the local Puskesmas and Polindes

## V. CONCLUSION

There is a correlation between adolescent pregnancy and labor complications. Labor complications found in this study of adolescent pregnancies included preterm labor (20%), premature rupture of membranes (PROM) (20%), prolonged labor (5%), CPD (5%), and SC delivery method (5%). It is hoped that this research will be carried out by adding socio-demographic variables such as economic status and education level and conducting further research at secondary or tertiary health facilities that receive referrals for adolescent pregnancy with a span of more than 1 year, so that the sample used can be larger.

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