

## MATERNAL AND PERINATAL OUTCOMES IN ADOLESCENT MOTHERS REFERRED TO A CENTRAL HOSPITAL IN WEST JAVA INDONESIA

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### ABSTRAK: LUARAN MATERNAL DAN PERINATAL PADA IBU REMAJA YANG DIRUJUK KE RUMAH SAKIT RUJUKAN DI JAWA BARAT

Latar Belakang: Angka persalinan remaja di dunia masih tinggi. Di Asia Tenggara, sekitar 6 juta remaja melahirkan setiap tahunnya, termasuk di Jawa Barat, Indonesia. Selain itu, beberapa kehamilan remaja dirujuk ke rumah sakit pusat untuk mendapatkan perawatan medis selama persalinan.

Tujuan: Penelitian ini bertujuan untuk menganalisis luaran maternal dan perinatal yang merugikan pada remaja yang dirujuk ke rumah sakit pusat di Jawa Barat.

Metode: Penelitian ini merupakan penelitian potong lintang dengan data sekunder, dikumpulkan dari remaja yang melahirkan di Rumah Sakit Hasan Sadikin Jawa Barat, Indonesia. Terdapat 517 ibu hamil yang dirujuk antara bulan Januari 2019 hingga Agustus 2020 untuk persalinan. Data dimasukkan, dibersihkan, dan dianalisis dengan menggunakan SPSS versi 27.

Hasil: Analisis Chi-square menunjukkan hubungan yang signifikan antara usia dengan preeklampsia, eklampsia, ketuban pecah dini (KPD), plasenta previa, dan komplikasi lainnya. Hasil yang paling umum menunjukkan hubungan yang signifikan pada masa remaja adalah eklampsia (5,15%); KPD (23,18%); kelahiran prematur (23,60%); solusio plasenta (0,34%), dengan metode persalinan pervaginam terbanyak (65,24%).

Kesimpulan: Prevalensi eklampsia, KPD, kelahiran prematur, dan solusio plasenta lebih tinggi pada kehamilan remaja. Persalinan remaja menimbulkan banyak risiko dibandingkan dengan wanita dewasa.

Saran: Peran berbagai pihak sangat diperlukan untuk mencegah persalinan remaja mulai dari pelayanan kesehatan primer.

Kata Kunci: persalinan remaja; luaran ibu dan perinatal

### ABSTRACT

Introduction: The number of adolescent birth in the world is still high. In South-East Asia, about 6 million adolescents give birth each year, including in West Java, Indonesia. Moreover, several adolescent pregnancies are referred to the central hospital to receive medical treatment during delivery.

Objective: This study aimed to analyze the adverse maternal and perinatal outcomes of adolescent mother referred to a central hospital in West Java.

Method: This study was a cross sectional study with secondary data, gathered from adolescent who gave birth at Hasan Sadikin Hospital in West Java, Indonesia. There were 517 pregnant women referred between January 2019 to August 2020 for delivery. Data were entered, cleaned, and analyzed by using SPSS version 27.

Result: The Chi-square analysis showed a significant relationship between age and preeclampsia, eclampsia, premature rupture of membranes (PROM), placenta previa, and other complications. The most common maternal outcomes showing a significant relationship in adolescence were eclampsia (5.15%); PROM (23.18%); preterm birth (23.60%); placental abruption (0.34%), with the most vaginal delivery method (65.24%).

Conclusion: Prevalence of eclampsia, PROM, preterm birth, and placenta abruption were higher in adolescent pregnancy. Adolescent childbirth poses many risks compared to adult women.

Suggestions: The role of various parties is needed to prevent adolescent childbirth start with primary healthcare.

Keyword: adolescent childbirth; maternal and perinatal outcomes

## INTRODUCTION

According to the World Health Organization (WHO), adolescents are people between the ages of 10 and 19 who are at a critical point in their human development. WHO has recently released the global report on health of adolescents, which clearly highlights the burden of adolescent sexual and reproductive health issues including adolescent pregnancy. Adolescent pregnancy is still a problem in both developing and developed country (UNFPA, 2015; Sedgh et al, 2015; Kassa et al, 2018; Montgomery et al, 2014). About 21 million girls were aged 15 to 19 years in developing countries become pregnant, and 12 million of them predicted gave birth (Darroch et al, 2016; Neal et al, 2011; WHO; UNICEF 2016). Meanwhile in Southeast Asia, a number of adolescents is 6 million giving birth each year (WHO, 2014). About 2 million adolescent (15-19 years) in Indonesia from 2005 to 2010 giving birth (WHO, 2014). The proportion of adolescents in West Java who giving birth is 8,9% (Ministry of Health, 2017).

Early pregnancies among adolescents have a major health and social consequences (Sedgh et al, 2015; Medhi et al, 2016; WHO, 2019). In many societies, girls who had early marriage generally leads to early child bearing, in accordance with social norms. Girls choose to become pregnant because they have limited educational and employment prospects and given that motherhood is valued, marriage and child bearing may be the best of the limited options they have (WHO, 2014; WHO, 2019; Nove et al, 2014). In other study, adolescents had significantly lower rates of prenatal class attendance and prenatal visits in the first trimester (Fleming et al, 2013). An approach to decrease the prevalence of adolescent deliveries should be investigated and implemented in view of attaining the sustainable development goals (Njim et al, 2017).

Adolescent pregnancy is a public health concern that affects both the adolescent mother, her child, and the broader community (Chandra et al, 2013). Previous studies have reported that adolescent pregnancy and delivery are associated with adverse maternal and neonatal outcomes, such as: maternal anemia, preterm birth, low birth weight and postpartum complication (Sedgh et al, 2015; Medhi et al, 2016; Fleming et al, 2013; Thaitae et al, 2011; Ganchimeg et al, 2014; Indarti et al, 2020; Al Haddabi, 2014; Kemenkes, 2017; Kawakita et al, 2016; Kingston et al, 2012; Zhang et al, 2020; Mombo Ngoma et al, 2016; Kayika et al, 2018). Adolescents are often noted to have an increased risk of death during pregnancy or childbirth compared with older women (Ganchimeg et al, 2014; WHO, 2016; Patton et al, 2009). However, many recent

studies have found that adolescent mothers were more likely to have vaginal delivery than section caesarean (Timoveef et al, 2013). In addition, higher maternal outcomes in adolescent pregnancy were PROM and placenta abruption. This study aimed to analyze adolescent pregnancy referred to a central hospital in West Java and the adverse maternal and perinatal outcomes.

## RESEARCH METHODOLOGY

This study was a cross sectional study. Secondary data were gathered from women who gave birth at Hasan Sadikin Hospital in West Java, Indonesia. There were 517 pregnant women referred between January 2019 to August 2020 for delivery. The study was conducted in accordance with the Declaration of Helsinki, and approved by Ethics Committee of Hasan Sadikin Hospital with ethical review committee number LB.02.01/X.6.5/274/2020. We had a permission to access the data used from medical record. All methods were carried out in accordance with relevant guidelines and regulations in ethics declaration section. Data on socio-demographic characteristics such as age, level of education, occupation, marital status, obstetric and neonatal outcomes, were collected from the medical records of Hasan Sadikin Hospital. These included, gravidity, parity, hemoglobin concentration at current visit and gestational age. The sample consisting of those with incomplete records was excluded from the study. The data taken included the number of adolescent and adult pregnancies. Data were entered, cleaned, and analysed by using SPSS version 27. Descriptive statistics was used to summarize data. We compared basic data using Chi-square test and Man Whitney to measure the strength of association between maternal and perinatal outcomes. Significance of statistical association were tested at  $p < 0.05$ .

## RESEARCH RESULT

Based on the study's results (Table 1), there were 517 mothers giving birth with the age group of 233 adolescents (14-19 years) and 284 adults (20-35 years). Characteristics of mothers are described in table 1. The most recent education was the tertiary level in adolescent mothers, as many as 101 and adults 189. Adolescents and adults mostly were unemployed. Residential places for both adolescent and adults mostly live in urban area. The data shows that the marital status of adolescent and adult mothers is only slightly divorced. In adolescents, 217 were first pregnancies, while for adults, 106 were second pregnancies.

**Table 1**  
**Maternal Demographic Characteristics**

Variable Name	Adolescent % (n=233)	Adult % (n=284)
Maternal Age*	18(14-19)	28(20-35)
Last Education Level		
Primary	60 (25.75)	24 (8.45)
Secondary	72 (30.90)	38 (13.38)
Tertiary	101 (43.35)	189 (66.55)
College and above	0	33 (11.62)
Occupation of Participant		
Unemployed	224 (96.14)	231 (81.34)
Employed	1 (0.43)	51 (17.96)
Others (Student)	8 (3.43)	2 (0.70)
Residence		
Rural	115 (49.36)	139 (48.94)
Urban	118 (50.64)	145 (51.06)
Marital Status		
Divorced	12 (5.15)	3 (1.06)
Married	221 (94.85)	281 (98.94)
Gravida		
1 <sup>st</sup> Pregnancy	217 (93.13)	103 (36.27)
2 <sup>nd</sup> Pregnancy	16 (6.87)	106 (37.32)
≥3 <sup>rd</sup> Pregnancy	0	75 (26.41)

\* Mann Whitney

Based on table 2. the maternal outcomes of mothers were anemia; preeclampsia; eclampsia; breech delivery; transverse lie; premature rupture of membranes (PROM); preterm birth; placenta abruption; placenta previa; low birth weight (LBW); fetal distress; intra uterine fetal death (IUFD), and other complications such as: urinary tract infections,

dengue fever, congenital abnormalities, umbilical cord prolapse, cephalo pelvic disproportion (CPD), and human immunodeficiency virus (HIV). On the other hand, the delivery methods for adolescents and adults are vaginal delivery, vaginal instrumental delivery, and cesarean section.

**Table 2**  
**Maternal and Perinatal Outcomes of Adolescent Pregnancy in West Java Indonesia**

Outcomes	10-19 years (n=233)	20-35 years (n=284)	p
Maternal Anemia*	107 (45.92)	107 (37.68)	0.058
Preeclampsia*	16 (6.87)	52 (18.31)	<0.001
Eclampsia*	12 (5.15)	5 (1.76)	0.032
Breech Presentation*	13 (5.58)	20 (7.04)	0.498
Tranverse Lie**	2 (0.86)	4 (1.41)	0.062
PROM*	54 (23.18)	34 (11.97)	0.001
Preterm Birth*	55 (23.60)	50 (17.61)	0.092
Placenta Abruption**	1 (0.43)	1 (0.35)	0.009
Placenta Previa*	4 (1.72)	18 (6.34)	0.010
Low Birth Weight (LBW)**	2490 (480-4720)	2540 (400-4200)	0.212
Fetal Distress*	10 (4.29)	13 (4.58)	0.875
IUFD*	5 (2.15)	8 (2.82)	0.628
Others*	14 (6.01)	65 (22.89)	<0.001
Vaginal Delivery**	152 (65.24)	133 (46.83)	<0.001
Vaginal Instrumental Delivery **	15 (6.44)	24 (8.45)	0.389
Sectio Caesarean**	66 (28.33)	127 (44.72)	<0.001

\*Chi Square

\*\*Mann Whitney

The table 2 analysis using Chi-square showed a significant relationship between age and preeclampsia, eclampsia, PROM, placenta previa, and other complications. Meanwhile, the significant relationship between age and placental abruption, vaginal delivery, and cesarean section was analyzed using Kolmogorov Smirnov. The most common maternal outcomes showing a significant relationship in adolescence were eclampsia at as much as 5.15%, PROM at 23.18% and preterm birth at 23.6%, placental abruption 0.34% with the most vaginal delivery method at 65.24%.

## DISCUSSION

This study obtained data that the most common maternal outcomes showing a significant relationship in adolescence were eclampsia, PROM, preterm birth, placenta abruption, and vaginal delivery. Maternal outcomes which have a higher value in adolescents, such as eclampsia following previous studies (Moraes, 2018). This could be due to limited access to antenatal care and lack of prevention and treatment interventions for preeclampsia and infections during pregnancy, thereby increasing eclampsia risk. If left untreated, eclampsia has a significant risk for both mother and baby and can lead to death. According to the findings of this study, adolescent mothers were forty times more likely to develop eclampsia than the reference group of mothers aged 20-24 years (Moraes, 2018).

Meanwhile, other higher maternal outcomes in adolescent pregnancy were PROM and placenta abruption. This finding supported by other research, that PROM is a complication that often occurs in adolescent mothers (Egbe et al, 2015; Subaedi et al, 2019). One of the main risk factors for PROM is the presence of bacterial, fungal, and vaginal mixed infections in the third trimester of pregnancy (Liu et al, 2021). A biologically immature uterus is another characteristic of extremely young women that makes ascending infections more likely to happen. Placenta abruption is also higher and more significant in adolescents, supported by research from Nefise; although the etiology is still unclear, the incidence is higher in the adolescent group, possibly due to an increased risk of preeclampsia and smoking.

PROM is closely related to preterm birth. In this study it appears that PROM in adolescent deliveries is higher than adult, therefore the rate of preterm labor is also high. This is in line with previous studies that immature biological conditions, low socioeconomic levels, and inadequate antenatal care are the causes of preterm labor. An important maternal complication on adolescent deliveries that

has an impact on both maternal and neonatal mortality and morbidity is placental abruption. Either complete or partial separation of a properly implanted placenta is what is meant by this term (Kyojuka et al, 2021). In addition, immature biological conditions, low socioeconomic levels, and also poor nutrition in correlation with placental abruption.

Moreover, cesarean section delivery in adolescent mothers was 28.33% lower; this refers to several studies conducted (Al Haddabi, 2014; Kawakita et al, 2016; Zhang et al, 2020). The relatively lower fetal weight and premature labor typically make it easier for adolescents to give birth. This finding is supported by others attributing this to more functional myometrium, excellent connective tissue elasticity, and lower cervical compliance, allowing for more spontaneous vaginal delivery in adolescent women (Al Haddabi, 2014). Other study found that adolescent had shorter duration of second stage of labor (Kawakita et al, 2016). In addition, older women were more likely to undergo cesarean sections than adolescent, which may be explained by the fact that older women delivered heavier infants than adolescent girls. Many risks occur in adolescent pregnancy and childbirth (Al Haddabi, 2014).

Perinatal outcomes between adolescent and adult pregnancies did not show a significant difference, both have the same risks (Zhang et al, 2020). Most perinatal outcomes depend on maternal health, because it is very important to do early detection of abnormalities in pregnancy as early as possible, so as to produce good maternal and perinatal outcomes. Therefore, coordination from various parties is needed to prevent pregnancy in adolescents. It is very important to provide continuous care, starting from the primary health care facility.

## CONCLUSION

In our study, prevalence of eclampsia, PROM, preterm birth, and placenta abruption were higher in adolescent pregnancy. Surprisingly, sectio caesarean in adolescent was lower than adult woman. Adolescent childbirth poses many risks compared to adult women.

## SUGGESTIONS

From our study, we concluded that very important to improve quality of care and health education to adolescent mother. The role of various parties is needed to prevent adolescent childbirth starting from primary healthcare.

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