

Pregnancy and childbirth characteristics description in teenagers Aged 15 to 19 years old in dr. Zainoel Abidin general hospital Banda Aceh in January 2020 to December 2022

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ABSTRACT

Introduction: The occurrence of teenage pregnancy and childbirth carries notable social and health implications, prompting concerns within public health domains. Given the ongoing development of reproductive organs during adolescence, early pregnancy poses considerable medical risks. Such risks encompass maternal and newborn mortality, fetal or infant abnormalities, conditions like preeclampsia and eclampsia, premature delivery, low birth weight, sexually transmitted disease (STDs), and postpartum depression.

Objective: This study aims to delineate the characteristics of pregnancy and childbirth among individuals aged 15 to 19 years.

Methods: This observational descriptive study employed retrospective medical records of pregnant adolescents who met the inclusion and exclusion criteria and delivered babies between January 2020 and December 2022 at Dr. Zainoel Abidin General Hospital, Banda Aceh, Indonesia.

Results: The research analyzed data from 55 pregnant adolescents who delivered babies at Dr. Zainoel Abidin Hospital in Banda Aceh between January 2020 and December 2022. Among these individuals, 41.80% were 19 years old when pregnant, 49.1% originated from Aceh Besar, 49.1% had completed junior high school, 76.4% were married, 58.2% experienced pregnancies with complications, 27.3% faced premature membrane rupture, 56.4% encountered no labor complications, and 20.0% had preterm labor.

Conclusion: This research offers a comprehensive insight into teenage pregnancy dynamics in Banda Aceh, underscoring age as a pivotal determinant and the impact of educational and societal factors. It underscores the necessity for targeted interventions to address these factors and alleviate the detrimental effects of early childbirth on adolescent health and well-being.

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INTRODUCTION

According to United Nations Children Fund (UNICEF), teenage pregnancy refers to pregnancies occurring in women between the ages of 13 and 19. Data from the World Health Organization (WHO) indicates that there are approximately 21 million teenage pregnancies annually among those aged 15 to 19, predominantly in lower-middle-income countries, with 50% of cases being unintended pregnancies resulting in 12 million unintended births. (Cunningham et al., 2022). The Centers for Disease Control and Prevention (CDC) reported that 3.4% of labor cases in the United States in 2010 involved women aged 15 to 19. An international study found that 11.9% of labor

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cases worldwide occur in this age group. In Indonesia, 47 out of 100 pregnancies in 2019 were among women aged 15 to 19, and 1 in 9 teenagers in Indonesia were married at these ages. Data from Indonesia in 2007 revealed that 45% of teenage pregnancies were unexpected, 12.9% were consensual, 3.2% were due to rape, and 22.6% were a result of teenage promiscuity (Aguí'a- Rojas et al., 2020). In Aceh, a study conducted at Dr. Zainoel Abidin General Hospital found 187 cases of teenage pregnancy between January 2010 and December 2015 (Rohmah et al., 2020).

Teenage pregnancy rates serve as an indicator of a country's health development, alongside maternal mortality rates, skilled birth attendance, contraceptive prevalence, and antenatal care (Rohmah et al., 2020). Teenage pregnancy has significant health and social consequences, including physical, psychological, and socio-economic impacts on teenage mothers, their children, families, and society as a whole, posing a public health concern (Kaphagawani & Kalipeni, 2017). This study provides a descriptive analysis of pregnancy and childbirth characteristics among teenagers aged 15 to 19 at Dr. Zainoel Abidin General Hospital in Banda Aceh, a referral hospital in Aceh.

METHODS & MATERIALS

This descriptive observational study examined teenage pregnancies' distribution by various factors such as age, place of residence, education level, marital status, pregnancy complications, and delivery complications at Dr. Zainoel Abidin General Hospital in Banda Aceh. It was conducted in the Obstetrics and Gynecology Department using retrospective medical records from January 2020 to December 2022. The study included pregnant and labor patients aged 10 to 19 who met specific criteria. All eligible patients during this period were included, utilizing a total sampling method. Data were extracted from comprehensive medical records, including patient identification, medical history, physical examination, supporting tests, and delivery reports. Analysis was conducted using SPSS 25.0.

RESULTS

From a comprehensive examination of secondary data sourced from medical records using the total sampling method, encompassing all pregnant and laboring patients aged 15 to 19 years between January 2020 and December 2022, 55 patients adhered to the inclusion and exclusion criteria. These records, sourced from Dr. Zainoel Abidin General Hospital in Banda Aceh, were then categorized and analyzed according to age, place of residence, educational attainment, marital status, pregnancy complications, and labor complications, unveiling the distribution of teenage pregnancy and childbirth characteristics.

Table 1. Characteristic distribution based on age

Age	Frequency (n)	Percentage (%)
15 years old	6	10,9
16 years old	3	5,5
17 years old	14	25,5
18 years old	9	16,4
19 years old	23	41,8

Table 2. Characteristic distribution based on level of education

Education	Frequency (n)	Percentage (%)
Elementary School	10	18,2%
Junior High School	27	49,1%
Senior High School	18	32,7%

Table 3. Characteristic distribution based on marital status

Marital Status	Frequency (n)	Percentage (%)
Unmarried	13	23,6
Married	42	76,4

Table 4. Characteristic distribution based on pregnancy complications

Pregnancy complications	Frequency (n)	Percentage (%)
Premature rupture of membranes	15	27,3
Spontaneous Abortion	3	5,5
Eclampsia	2	3,6
Hyperemesis Gravidarum	2	3,6
Urinary Tract Infection	3	5,5
Ectopic Pregnancy	2	3,6
Pre-eclampsia	5	9,1
Without Complication	23	41,8

Table 5. Characteristic distribution based on labor complications

Labor complications	Frequency (n)	Percentage (%)
Dystocia	5	9,1
Postpartum hemorrhage	2	3,6
Peripartum Cardiomyopathy	1	1,8
Preterm Labor	11	20,0
Stillbirth	5	9,1
Without Complication	31	56,4

Table 1 shows that among the 55 pregnant and laboring patients aged 15 to 19 at Dr. Zainoel Abidin general hospital in Banda Aceh from January 2020 to December 2022, most were 19 years old (41.8%), followed by 17-year-olds (25.5%), and the least were 16-year-olds (5.5%). Table 2 indicates that the majority of these patients had a Junior High School education (49.1%), followed

by Senior High School (32.7%), and the fewest had completed Elementary School (18.2%). In Table 3, it's noted that most patients were married (76.4%), with the rest being unmarried (23.6%). Table 4 reveals that the highest proportion of patients had no pregnancy complications (41.8%), followed by premature rupture of membranes (27.3%), and pre-eclampsia (9.1%). Less common complications included spontaneous abortion and urinary tract infection (5.5% each), while complications like eclampsia, hyperemesis gravidarum, and ectopic pregnancy were observed in 3.6% of patients each. Lastly, Table 5 shows that most patients had labor without complications (56.4%). The second most common complication was preterm labor (20.0%), while peripartum cardiomyopathy was the least common (1.8%).

DISCUSSION

This study revealed that most teenage pregnancies occurred among 19-year-olds. Age is closely linked to a person's physical and cognitive development (Rohmah et al., 2020). According to experts, the optimal age range for pregnancy is typically between 20 to 30 years. Women in this age group are usually physically and mentally prepared for pregnancy. For women under 20, maternal health and physical development may not be as robust, increasing the risk of complications like hypertension, anemia, premature birth, and low birth weight. During puberty (below 20 years old), reproductive organs like the ovaries and endometrium are not fully developed. This immaturity can lead to complications such as bleeding during pregnancy and ectopic pregnancy, where the fetus implants outside the uterus (Prawirohardjo, 2011).

Most patients in this study had completed Junior High School (49.1%). Similar findings were reported by Muliani Ratnaningsih's study in 2020, which found that Junior High School students had the highest rates of teenage pregnancy (33.7%), while Senior High School students had the lowest (9.9%) (Ratnaningsih et al., 2020). Another study by Groggers and Bronars suggests that a woman's educational level is associated with the age at which she gets married. Those who marry at a younger age tend to have lower levels of education (Grogger J, 1993). Rohmah's study supports this, indicating that less educated girls are more likely to marry during their teens compared to those with higher education (Rohmah et al., 2020). According to Hutagalung, education plays a crucial role in providing access to information about reproductive health, enabling individuals to make informed decisions (Ratnaningsih et al., 2020). Higher education levels facilitate better absorption and implementation of health-related information into daily behaviors and lifestyles, shaping individuals' values and aspirations (Latifah & Anggraeni, 2013). Educational opportunities also help young people identify their career goals and provide a supportive environment for achieving them (Maravilla et al., 2017). Limited educational opportunities for women can affect their sexual behavior, reducing their ambition and motivation to pursue education and career plans in the future (Aguí'a-Rojas et al., 2020). Therefore, higher education levels are associated with a lower likelihood of early pregnancy (Rohmah et al., 2020). This study reveals that the majority of pregnant and laboring teenagers were married, accounting for 76.4% of the cases. Early marriage is common in Indonesia, with findings from the SKDI (Survei Data Kependudukan Indonesia) survey indicating that in some areas, up to one-third of registered marriages involve partners under the age of 16 (Anwar & Ernawati, 2017). In Aceh, the rate of early marriage has soared to 80%, with hundreds of couples marrying minors each year (Aceh, 2022; Ningrum, 2021). Marital status is considered to be significantly related to teenage pregnancy, married girls or women who marry in their teens era are more likely to get pregnant than those who do not marry in their teens era (Chung et al., 2018). Another research suggests

that unmarried teenagers or those in unstable relationships are at higher risk to get pregnant. Being married and having a stable partner are seen as protective factors against teenage pregnancy. However, younger mothers are more likely to be single or lack marital stability (Agúá-Rojas et al., 2020).

The study revealed that most teenage pregnancies (58.2%) at Dr. Zainoel Abidin General Hospital, in the 15 to 19 age group, experienced complications. These included premature rupture of membranes (27.3%), pre-eclampsia (9.1%), spontaneous abortion, and urinary tract infections, each occurring in 5.5% of cases.

Less common complications were eclampsia, hyperemesis gravidarum, and ectopic pregnancy, each reported at 3.6%. Teenage pregnancies carry greater risks for both mother and fetus compared to pregnancies in older women, including anemia, miscarriage, preeclampsia, premature birth, premature rupture of membranes, low birth weight, fetal growth retardation, congenital malformations, and fetal and perinatal death. (de la Calle et al., 2021; Markovic' et al., 2020). Studies have shown that teenage pregnancies exhibit a higher risk of complications, with maternal mortality rates being twice as high in the 13 to 19 age group compared to the 20 to 34 age group (de la Calle et al., 2021). In a study conducted by Calle et al., they demonstrated the correlation between maternal and pregnancy complications in teenage mothers, focusing on issues like hyperemesis, low back pain, anemia, and gestational diabetes, as well as the heightened risk of preterm labor and premature rupture of membranes (de la Calle et al., 2021). They found that teenage pregnancies have a higher prevalence of premature rupture of membranes compared to the general pregnancy population. The risk of premature rupture of membranes during teenage labor is significantly elevated, with the cervical mucosa being immature, rendering the amniotic membranes unprepared for external stimulation (Rachmantiawan & Rodiani, 2022). This immaturity of the uterus in mothers under the age of 20 contributes to the increased risk of premature rupture of membranes. Additionally, the presence of an immature uterocervical blood supply increases the likelihood of subclinical infections, leading to elevated interleukin and prostaglandin production, amnio-chorioiddecidual inflammation, and ultimately premature rupture of the amniotic membranes, thereby increasing the occurrence of preterm labor (Markovic' et al., 2020). Research has demonstrated that teenage pregnancy, particularly within the first five years after menarche, poses a higher risk of complications for both mothers and infants. Menarche, marking reproductive system maturation, typically occurs around age 12-13. During the initial two to three years post-menarche, irregular menstrual cycles and lack of ovulation are common due to the immature HPO (Hypothalamus, Pituitary, Ovarian) -axis. As the uterus and endometrium gradually develop during adolescence, pregnancy during this period increases the likelihood of pregnancy and childbirth disorders, including premature birth and intrauterine fetal growth disorders, due to their unreadiness. Additionally, the transition from progesterone resistance to responsiveness affects placental development, further raising the risk of adverse obstetric outcomes like premature birth and preeclampsia (Aslan ÇetI'n et al., 2020).

This study found that most labor cases (56.4%) had no complications, while preterm labor was the second most common complication at 20.0%, followed by peripartum cardiomyopathy at 1.8%. One key reason for preterm birth in teenage pregnancies is the frequent occurrence of urogenital infections, which elevate local prostaglandin levels and trigger early labor (Ergen et al., 2017). The process of preterm labor mirrors that of full-term labor, involving uterine contractions, cervical ripening, and amniotic membrane rupture. However, in preterm labor, this process is pathologically activated rather than physiologically. The mode of delivery is influenced

by various factors such as anatomy, biochemistry, and clinical signs. Activation of uterine components can occur synchronously or asynchronously. Synchronous activation leads to spontaneous preterm birth, while asynchronous activation can result in different labor complications (Rachmantiawan & Rodiani, 2022). Teenage pregnancies are often associated with complications like obstructed labor, operative delivery, and post-partum endometritis due to the pelvic bones and birth canal still being underdeveloped (Ergen et al., 2017).

Apart from our study's findings, we recognize that numerous other factors can impact teenage pregnancy, although we haven't discussed them here. As Chung noted in a previous study, the social environment significantly influences the likelihood of teenage pregnancy. Adolescence is a crucial period marked by social and environmental changes that can contribute to teenage pregnancy (Chung et al., 2018). Factors like optimal living conditions and women's education are negatively associated with teenage pregnancy (Nguyen et al., 2019). Teenage pregnancy is influenced by both micro and macro environments and various determinants, which are categorized into self-status, self-behavior, family, friends, school/community, and macro-social, economic, and political factors (Chung et al., 2018).

The factors discussed can either protect against or contribute to teenage pregnancy and childbirth, depending on how they're addressed. Teenage pregnancy can lead to long-term poverty cycles, as early motherhood often leads to school dropout and reduced income potential. Interventions aimed at raising the age of marriage, delaying the age of first childbirth, and enhancing girls' education show promise in enhancing maternal and child nutrition. Research conducted by Nguyen and colleagues on preventing child marriage in lower-middle-income countries revealed that six out of eleven studies demonstrated a positive impact on reducing early marriage rates (under 18 years old). These interventions included financial aid, educational support, life skills training, and livelihood programs. Therefore, additional investment is warranted in suitable interventions targeting young individuals, including males, to decrease early marriage and childbirth rates. (Chung et al., 2018).

CONCLUSION

The research thoroughly examines teenage pregnancy and childbirth in Banda Aceh, analyzing factors like age, domicile, education, and marital status. It identifies age, particularly 19-year-olds, as significant, and emphasizes the impact of social and cultural factors, especially in rural areas. Education is highlighted as crucial, with lower levels correlating with higher rates of early childbearing, advocating for educational and parental interventions. The study delves into the complex interaction of social, behavioral, and environmental factors driving teenage pregnancy, stressing the need for targeted interventions considering individual behaviors, family dynamics, and peer influences. It also underscores the health risks associated with teenage pregnancy, emphasizing tailored healthcare and support services. The research advocates for comprehensive interventions to delay marriage and childbirth, improve education, and challenge socio-cultural norms, aiming to enhance adolescent and child well-being. Future research should explore additional risk factors, aiding health agencies and policymakers in reducing teenage pregnancy rates effectively through targeted promotional activities.

REFERENCES

- Aguí'a-Rojas, K., Gallego-Ardila, A. D., Estrada Bonilla, M. V., & Rodríguez-Niño, J. N. (2020). Individual and Contextual Factors Associated with Teenage Pregnancy in Colombia: A Multilevel Analysis. *Maternal and Child Health Journal*, 24(11), 1376–1386. <https://doi.org/10.1007/s10995-020-02997-1>
- Anwar, C., & Ernawati, E. (2017). Faktor-Faktor yang Mempengaruhi Remaja Putri Melakukan Pernikahan Dini di Kemukiman Lambaro Angan Kabupaten Aceh Besar tahun 2017. *Journal of Healthcare Technology and Medicine*, 3(2), 140. <https://doi.org/10.33143/jhtm.v3i2.266>
- Aslan Çetlin, B., Aydogan Mathyk, B., Turan, G., Güralp, O., & Gedikbaşı, A. (2020). A comparison of obstetric outcomes in adolescent pregnancies and adult pregnancies. *Journal of Maternal-Fetal and Neonatal Medicine*, 33(24), 4037–4042. <https://doi.org/10.1080/14767058.2019.1594192>
- Chung, H. W., Kim, E. M., & Lee, J. E. (2018). Comprehensive understanding of risk and protective factors related to adolescent pregnancy in low- and middle-income countries: A systematic review. *Journal of Adolescence*, 69(October), 180–188. <https://doi.org/10.1016/j.adolescence.2018.10.007>
- Cunningham, Leveno, Dashe, Hoffman, Spong, & Casey. (2022). *Williams Obstetrics*. In Mc Graw Hill (26th editi, Vol. 4, Issue 1).
- de la Calle, M., Bartha, J. L., Lopez, C. M., Turiel, M., Martinez, N., Arribas, S. M., & Ramiro-Cortijo, D. (2021). Younger age in adolescent pregnancies is associated with higher risk of adverse outcomes. *International Journal of Environmental Research and Public Health*, 18(16). <https://doi.org/10.3390/ijerph18168514>
- Ergen, E. B., Yayla, C. A., Ozkaya, E., Kilicci, C., Sanverdi, I., & Kocakusak, C. K. (2017). Maternal-fetal outcome associated with adolescent pregnancy in a tertiary referral center: A cross-sectional study. *Ginekologia Polska*, 88(12), 674–678. <https://doi.org/10.5603/GPa.2017.0120>
- Grogger J, B. S. (1993). The socioeconomic consequences of teenage childbearing: findings from a natural experiment. *Fam Plann Perspect.*, Jul-Aug;25(4):156-61, 174.
- Kaphagawani, N. C., & Kalipeni, E. (2017). Sociocultural factors contributing to teenage pregnancy in Zomba district, Malawi. *Global Public Health*, 12(6), 694–710. <https://doi.org/10.1080/17441692.2016.1229354>
- Latifah, L., & Anggraeni, M. D. (2013). Hubungan Kehamilan Pada Usia Remaja Dengan Kejadian Prematuritas, Berat Bayi Lahir Rendah Dan Asfiksia. *Jurnal Kesmasindo*, 6(1), 26–34.
- Maravilla, J. C., Betts, K. S., Couto e Cruz, C., & Alati, R. (2017). Factors influencing repeated teenage pregnancy: a review and meta-analysis. *American Journal of Obstetrics and Gynecology*, 217(5), 527–545.e31. <https://doi.org/10.1016/j.ajog.2017.04.021>
- Markovic, S., Bogdanovic, G., & Cerovac, A. (2020). Premature and preterm premature rupture of membranes in adolescent compared to adult pregnancy. *Medicinski Glasnik*, 17(1), 136–140. <https://doi.org/10.17392/1052-20>
- Nguyen, P. H., Scott, S., Neupane, S., Tran, L. M., & Menon, P. (2019). Social, biological, and programmatic factors linking adolescent pregnancy and early childhood undernutrition: a path analysis of India's 2016 National Family and Health Survey. *The Lancet Child and Adolescent Health*, 3(7), 463–473. [https://doi.org/10.1016/S2352-4642\(19\)30110-5](https://doi.org/10.1016/S2352-4642(19)30110-5)
- Ningrum, D. (2021). Faktor Kehamilan Remaja. *Media Kesehatan Politeknik Kesehatan Makassar*, XVI(2), 362–368.

Prawirohardjo, S. (2011). Ilmu kandungan. PT Bina Pustaka Sarwono Prawirohardjo.

Rachmantiawan, A., & Rodiani, R. (2022). Persalinan Preterm Pada Kehamilan Remaja. 4(November), 1135–1142. <http://jurnal.globalhealthsciencegroup.com/index.php/JPPP>

Ratnaningsih, M., Utami, R., & Waksi, F. (2020). Status Kesehatan Remaja Perempuan yang Mengalami Perkawinan Anak. *Jurnal Kesehatan Reproduksi*, 7(1), 26. <https://doi.org/10.22146/jkr.48889>

Rohmah, N., Yusuf, A., Hargono, R., Laksono, A. D., Masruroh, Ibrahim, I., & Walid, S. (2020). Determinants of teenage pregnancy in Indonesia. *Indian Journal of Forensic Medicine and Toxicology*, 14(3), 2080–2085. <https://doi.org/10.37506/ijfmt.v14i3.107>