

# Pregnancy Outcomes In Adolescent Pregnancies; Risks And Solution Suggestions; A Retrospective Analysis Of The Region With The Highest Crude Birth Rate In Turkey

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## Abstract

**Introduction:** Pregnancies in the adolescent age group have shown an increasing trend in Türkiye, particularly with the rising issue of migration, constituting a significant public health concern. Factors such as lack of knowledge, social stigma, and financial constraints lead to delayed initiation of antenatal care and lack of follow-up. This study aims to examine the outcomes of adolescent pregnancies.

**Methods:** The pregnancy outcomes of 74 adolescents who presented to the obstetrics and gynecology clinic of a rural district state hospital for delivery between 2020 and 2021 were retrospectively analyzed.

**Results:** In this study, gravida, parity numbers, comorbidities, and maternal and neonatal outcomes of adolescents under 18 were examined. The mean age was  $17.4 \pm 1$  years, the mean gravida was  $1.3 \pm 0.6$ , parity was  $0.3 \pm 0.6$ , and the mean number of abortions was  $0.01 \pm 0.1$ . Normal spontaneous vaginal delivery was observed in 67 participants (90.5%), with episiotomy performed in 54 (73.0%) of these cases. The mean gestational age was  $38.5 \pm 1.5$  weeks, with a mean fetal weight of  $3008 \pm 481$  g and a mean fetal length of  $49.7 \pm 3.2$  cm. The mean 1-minute Apgar score was  $7.8 \pm 1.3$ , and the 5-minute score was  $8.9 \pm 1.1$ . Only one delivery occurred at 29 weeks of gestation, with all others classified as term deliveries.

**Discussion and Conclusion:** To prevent adolescent pregnancies, which constitute a societal issue, comprehensive education programs should be provided to both adolescents and their families. Adequate medical support must also be ensured for adolescent mothers.

**Key words:** Adolescent; pregnancy; apgar score ; neonatal; maternal.

## Introduction

Adolescence is a transitional phase of physical and psychological development between childhood and adulthood (1,2). The World Health Organization (WHO) defines this period as encompassing individuals aged 10 to 19 years. Adolescents constitute approximately one-third of the global population, with the majority residing in developing countries (3). Between 2015 and 2021, it was reported that 14% of adolescent girls worldwide gave birth during adolescence (4). This rate is higher in underdeveloped and developing countries compared to developed ones. According to WHO, approximately 21 million adolescent girls become pregnant each year, of which 12 million result in childbirth, and 5.6 million undergo abortions (5). This issue represents a significant global health concern, particularly for adolescents (6). In developed countries, adolescent pregnancies are often unintended, occur outside of marriage, and are accompanied

by social stigma (7). Conversely, in developing countries, these pregnancies are frequently planned and occur within marriage (5). This discrepancy is directly linked to cultural norms and societal expectations. For example, in many developing countries, early marriage and childbearing among young girls are culturally accepted traditions (8). Within this context, adolescent pregnancies are socially normalized for young women. However, the planning of adolescent pregnancies in developing countries highlights differences in access to healthcare services and sexual education. Young women often have limited knowledge about family planning and contraceptive methods, making it difficult to prevent unintended pregnancies (9). In some regions, societal norms and family structures even encourage young women to prepare for parenting roles. Adolescent pregnancies pose additional risks to both the mother and the baby, as individuals in this age group may not have completed the physical development necessary for

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a healthy pregnancy and childbirth (10). Some of these risks include preeclampsia, premature rupture of membranes, sexually transmitted infections, anemia, operative vaginal deliveries, and postpartum depression (11,12). Adolescents who become pregnant face higher rates of pregnancy complications and maternal-fetal morbidity and mortality compared to pregnant individuals in other age groups (5). In low- and middle-income countries, maternal mortality rates for those under 15 years of age are significantly higher compared to mothers in their twenties (8). Additionally, beyond the age-related risks, adolescent pregnancies are also associated with socioeconomic factors (13). These young individuals often leave school due to their pregnancies, negatively impacting their education and income potential, and jeopardizing future educational opportunities and economic stability (8). The aim of this study was to examine the obstetric and neonatal outcomes of adolescent pregnant women who gave birth in a district state hospital with the highest crude birth rate in the region.

## Materials and Methods

Between March 2020 and July 2021, the records of 5,142 pregnant women who presented for delivery at the Obstetrics and Gynecology Clinic of

Siverek District State Hospital in Sanliurfa one of the provinces with the highest crude birth rates in Türkiye, were reviewed. A total of 74 adolescent pregnancies were included in the study. Patient data were retrospectively examined and recorded from the hospital's digital record system and patient files. Pregnancies in women over 18 years of age, pregnancies below the viability threshold (<23 weeks), and pregnancies complicated by maternal diabetes mellitus, hypertension, or chronic heart disease were excluded from the study. Obstetric histories, neonatal outcomes, and hemogram results of the included patients were noted. This study was conducted in accordance with the Declaration of Helsinki approved by the Ethics Committee of Istanbul Esenyurt University (protocol no: 07.09.2023 /2023/08-16).

**Statistical analysis:** Statistical analyses were performed using SPSS version 27. Descriptive statistics included means and standard deviations for continuous variables, and frequencies and percentages for categorical variables.

**Power analysis:** As a result of the power analysis using the G\*Power 3.0.10 program, the power of the study was found to be 98.8% for a sample size of 74 (N: 74).

**Table 1:** Distribution of general characteristics of the study

| Variable (N=74)         | $\bar{X} \pm S.S.$ | Median (Min-Max) |
|-------------------------|--------------------|------------------|
| Age                     | 17.44±1.09         | 18.0 [12.0-18.0] |
| Gravida                 | 1.35±0.63          | 1.0 [1.0-4.0]    |
| Parity                  | 0.34±0.62          | 0.0 [0.0-3.0]    |
| Abortion                | 0.01±0.12          | 0.0 [0.0-1.0]    |
|                         | <b>n</b>           | <b>%</b>         |
| Mode of delivery        |                    |                  |
| Normal vaginal delivery | 67                 | 90.5             |
| Caesarean section       | 7                  | 9.5              |
| Episiotomy              |                    |                  |
| Yes                     | 54                 | 73.0             |
| None                    | 20                 | 27.0             |

## Results

The ages, obstetric histories, and delivery methods of the pregnant adolescents included in the study are presented in Table 1. The mean age of the adolescents was determined to be 17.4±1 years, with a mean gravida of 1.3±0.6, mean parity of 0.3±0.6, and a mean number of abortions of 0.01±0.1. It was found that 67 participants (90.5%) had vaginal deliveries, and 54 participants

(73.0%) underwent episiotomies (Table 1). The mean gestational age of the adolescents was 38.5±1.5 weeks. The mean fetal weight was 3008±481 grams, and the mean fetal length was 49.7±3.2 cm. The mean head circumference was 33.8±2.3 cm, while the mean Apgar scores were 7.8±1.3 at 1 minute and 8.9±1.1 at 5 minutes

**Table 2:** Distribution of pregnancy and infant characteristics related to the study

| Variable (N=74)    | $\bar{X} \pm S.S.$   | Median (Min-Max)      |
|--------------------|----------------------|-----------------------|
| Gestational Age    | 38.59 $\pm$ 1.57     | 39.0 (29.0-40.0)      |
| Weight             | 3008.85 $\pm$ 481.66 | 3040.0 (750.0-3800.0) |
| Height             | 49.71 $\pm$ 3.23     | 50.0 (28.0-55.0)      |
| Head circumference | 33.89 $\pm$ 2.38     | 34.0 (17.0-39.0)      |
| 1st Apgar score    | 7.87 $\pm$ 1.35      | 8.0 (1.0-9.0)         |
| 5th Apgar score    | 8.95 $\pm$ 1.17      | 9.0 (1.0-10.0)        |

**Table 3:** Distribution of biochemical characteristics related to the study

| Variable (N=74)  | $\bar{X} \pm S.S.$ | Median (Min-Max)   |
|------------------|--------------------|--------------------|
| Hemoglobin(Hgb)  | 11.71 $\pm$ 1.66   | 11.9 (6.8-14.8)    |
| Hematocrit (Hct) | 34.59 $\pm$ 4.42   | 34.6 (20.3-43.7)   |
| Platelet(PLT)    | 248.04 $\pm$ 58.59 | 254.0 (62.0-389.0) |
| Leukocyte (WBC)  | 16.94 $\pm$ 4.94   | 16.6 (7.1-31.6)    |

(Table 2). The mean hemoglobin (Hgb) level of the adolescents was 11.7 $\pm$ 1.6, the mean hematocrit (Hct) level was 34.5 $\pm$ 4.4, the mean platelet (PLT) count was 248 $\pm$ 58, and the mean white blood cell (WBC) count was 16.9 $\pm$ 4.9 (Table 3). Additionally, of the pregnant adolescents included in the study, 10 had completed primary school, 33 had completed middle school, and 31 had completed high school. When questioned about their educational status, it was found that none of the participants were continuing their education at the time of the study. Among the participants, only one had given birth at 29 weeks of gestation, while the others delivered within the gestational age range referred to as term. The newborn of the adolescent who delivered at 29 weeks was found to have anencephaly, a congenital anomaly.

## Discussion

Adolescent pregnancy rates vary worldwide due to social, cultural, and economic factors. While the rate is 11.5% in Africa, 10.1% in Latin America, 2.6% in the United Kingdom, 1.7% in Ireland, and 6.3% in the United States, the latter stands out as having the highest rate of adolescent pregnancies among developed countries despite its developed status(14). In Turkey, this rate is around 1.2%(15). In our study, adolescent pregnancies accounted for 1.4% of all deliveries during the study period, which is above the national average. We attribute this discrepancy not to the socioeconomic development level of Sanliurfa but rather to its status as the province with the highest crude birth rate(15). Additionally, it was found that not all adolescents presenting to the hospital delivered there, with many pregnancies being under-monitored or not monitored at all. This may be

attributed to factors such as home births and delayed registration of births, which are common in the region. Despite these limitations, the adolescent pregnancy rate appears to be above the national average. In some regions, the prevalence of religious marriages without official registration contributes to a lower average age at pregnancy and increased rates of adolescent pregnancies(16). A study by Melekoğlu et al.(17) in Adana, Türkiye, reported that 52.5% of adolescent pregnancies occurred without official marriage. However, no data regarding the marital status of the participants in our study were available. Adolescents are not physically developed enough to meet the conditions necessary for a healthy pregnancy. Therefore, studies have shown a strong association between adolescent births and increased maternal and neonatal mortality, morbidity, and stillbirth rates (18,19). Infants born to adolescent mothers have a higher likelihood of preterm birth, intrauterine growth restriction, and small-for-gestational-age (SGA) births (20). In our study, only one case of low birth weight was identified, which was due to anencephaly in a preterm infant. The remaining pregnancies had an average gestational age of 38.59  $\pm$  1.57 weeks, and the average neonatal weight was 3008.85  $\pm$  481.66 grams. Adverse obstetric outcomes such as premature rupture of membranes and preterm births were not observed in this cohort, and only 3 (4%) cases of intrauterine growth restriction were identified. The literature also highlights that the incidence of anemia is higher in adolescent pregnancies compared to reproductive-age pregnancies (21-23). In our study, the average hemoglobin level of the adolescents was 11.71  $\pm$  1.66 g/dL, hematocrit was 34.59  $\pm$  4.42%, platelet count was 248.04  $\pm$  58.59  $\times 10^9$ /L, and white

blood cell count was  $16.94 \pm 4.95 \times 10^9/L$ . Despite the general need for greater nutritional support in adolescents, no significant issues with hemoglobin levels were observed. This could be attributed to the positive effects of living in an agricultural and livestock-based region, as well as the participants' relatively young age. The immature development of the pelvic bone structure in adolescents can increase the risk of cephalopelvic disproportion, potentially leading to higher cesarean delivery rates. The anatomical immaturity of the pelvis may complicate the passage of the fetus through the birth canal, resulting in obstetric complications. Studies suggest that such anatomical incompatibilities are more common in adolescent deliveries and impact cesarean rates (24). Conversely, some studies report that cesarean rates in adolescents are lower compared to adult pregnancies, with a higher likelihood of vaginal delivery (25). Despite the immaturity of the pelvis, adolescents have been found to have significantly higher vaginal delivery rates than older age groups. This may be related to socioeconomic factors and access to healthcare. However, it is essential to note that adolescents still face higher risks of obstetric complications, such as preeclampsia and low birth weight (25). In underdeveloped societies, a significant proportion of adolescent pregnancies are linked to early marriages. These marriages are shaped by sociocultural factors such as traditions, gender roles, lack of education, and family pressures. In patriarchal systems, early marriages often interrupt young girls' education, undermine their economic independence, and result in health problems (26). Children married under the age of 18 are more likely to experience physical, sexual, and economic abuse (5, 27). These marriages are often not voluntary, and most girls are removed from the education system, leaving them with limited social support and fewer employment opportunities (28). As a result, these individuals are at greater risk of poor mental health (29), depression, and anxiety disorders (30), as well as higher rates of substance abuse (29). In our study, none of the adolescents resumed their education after pregnancy. Although the sample size of 74 adolescent pregnancies may appear modest, it was adequate for the primary aim of this study, which was to descriptively evaluate maternal and neonatal outcomes in this population. A power analysis conducted using G\*Power software revealed a statistical power of 98.8%, supporting the reliability of the descriptive results. Furthermore, the homogeneity of the study group and the consistency of the data collection process

strengthened the internal validity of the findings. Nevertheless, caution should be exercised in generalizing the results to wider populations, and future research with larger, multicenter cohorts is warranted to confirm and expand upon these observations.

**Study limitations:** A limitation of this study is that it included only hospital-based adolescent births between 2020 and 2021, and data on participants' marital and educational status were not available. In addition, home-based or unmonitored pregnancies were not recorded and their impact on outcomes is unknown.

## Conclusion

Adolescent pregnancy remains a global issue. Although no significant adverse outcomes were identified in this study, addressing adolescent pregnancy as a societal problem necessitates comprehensive education for both young individuals and their families across all age groups. Expanding sexual education programs for adolescents, improving access to healthcare services, strengthening social support mechanisms, and organizing awareness campaigns aimed at educating the community are believed to minimize the negative consequences associated with adolescent pregnancies.

**Ethics committee approval:** This study was approved by the Ethics Committee of Istanbul Esenyurt University (protocol no: 07.09.2023 /2023/08-16 ).

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