



CLINICAL ARTICLE

Trends, characteristics, and outcomes of adolescent pregnancy in eastern Turkey

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ABSTRACT

Objective: To determine the proportion of adolescent births in Van, Turkey, and to identify characteristics and related outcomes. **Methods:** Mothers who gave birth at three maternity centers in Van, Turkey, were chosen randomly and were invited to complete a face-to-face questionnaire. Participants were asked for demographic information and pregnancy history. Pregnancy outcomes were obtained from the birth records. **Results:** Of 1872 mothers who completed the questionnaires, 211 (11.3%) were younger than 19 years. Adolescent mothers showed significantly more inappropriate education for age (82.5% vs 70.1%; $P<0.001$) and were married to less educated partners (76.3% vs 59.4%; $P<0.001$) following unofficial matrimony (25.6% vs 10.7%; $P<0.001$) than older mothers. There were no differences between the age groups in rates of arranged marriages with relatives, income, and household structure. Adolescent mothers reported higher rates of intimate partner violence (17.1% vs 10.8%; $P=0.008$) and inadequate prenatal care use (28.4% vs 17.6%; $P<0.001$) compared with older mothers. Adolescent births were associated with an increased risk for preterm delivery ($P<0.001$) and low birth weight ($P<0.001$). **Conclusions:** Cultural factors rather than economic factors seem to be related to early age at marriage and adolescent childbearing, which are associated with poor birth outcomes.

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1. Introduction

It is estimated that adolescent mothers account for 10% of all births worldwide; more than 90% of these births occur in low-income countries [1]. Adolescent mothers face substantially higher maternal and perinatal morbidity and mortality than adult women and age alone may not be the cause—education, social status, and use of healthcare facilities are all contributing factors [2].

Research on adolescent pregnancy is scarce in Turkey, and valid information is lacking. Nevertheless, a recent national study reported a mean age-specific fertility rate of 35 per 1000 women aged 15–19 years in 2008 and that adolescent childbearing varies significantly across regions of Turkey, ranging from 3% in the eastern Black Sea region to 10% in central east Anatolia [3].

The diverse geographic, climatic, cultural, social, and economic characteristics of different parts of the country are the basis for regional characteristics within Turkey. Six regions (west, south, central, north, east, and southeast) are distinguished, which reflect differences in socioeconomic development levels and demographic conditions within the country. The eastern region is considered to be the least developed part of the country.

Estimating the mortality rates for Turkey is especially difficult because of the inconsistency in the methods used over the past 3 decades. The infant mortality rate (IMR) for Turkey was reported as 16 per 1000 live births in 2008, and maternal mortality rate (MMR) was reported as 29 per 100 000 live births in 2005; these rates were 22 per 1000 and 39 per 100 000 live births, respectively, for east Anatolia [4,5] where the present study was conducted.

The Turkish population reached 71 517 100 in 2008; this was an increase of 1.31% compared with the previous year, whereas the increase in the Van district was 2.49% [6]. The general birth rate for Van was reported as 107 per 1000 population, and the crude birth rate was reported as 26 per 1000 (unpublished data obtained from local health directorate).

The aim of the present study was to determine the rate of adolescent pregnancy in Van, a rural and remote region in the east of Turkey, and to identify factors that may be associated with adolescent pregnancy and its outcomes.

2. Methods

We conducted a survey in Van, Turkey, which is located in the east of the country on the Iranian border. From June 2008 to January 2009, face-to-face questionnaires were completed in three maternity units (1 faculty hospital and 2 public hospitals). Twelve interviewers (final year midwife students) were trained. After conducting a pilot

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study, corrections were made to the questionnaire according to the recommendations from the interviewers and participants.

Mothers were selected for inclusion by using random number tables from the delivery records of the maternity wards and were visited in the departments during the post-delivery hospitalization period. After informed verbal consent had been obtained from the participants, the interviewer asked questions and marked the selected option below each question in the questionnaire. Questionnaire responses were kept anonymous to ensure confidentiality. It took approximately 15 minutes to complete each questionnaire. The study was approved by the Local Ethics Review Committee of the University of Yuzuncu Yil. Consent was obtained from each institution involved.

The questionnaire included 14 structured questions requesting demographic information and the obstetric history of the respondents. Characteristics known to be significant from other studies and our personal experiences in working in this low-resource region were used in the model; these characteristics included socioeconomic information (mother and partner), household income, marital status (matrimony) and history (arranged marriage), household status (living with parents), and intimate partner violence (IPV). In addition, pregnancy-related information was investigated including prenatal care, use of contraception, and previous abortions. Maternal age was defined as the age of the mother in completed years at the time of delivery [7] and was double-checked by comparing health records and identification certificates.

We categorized maternal education as appropriate or inappropriate for age, and mothers who were older than 19 years were considered to have an age-appropriate educational level if they had completed high school, whereas younger mothers had to have completed the minimum number of grades for their age. Information on paternal education was structured as 5 years or more (primary) or less than 5 years of education. Matrimony was categorized as being approved by a “religious leader” (Imam), “government official,” or “both”. Arranged marriage was defined as a marriage where couples had no courtship before the wedding. Partners were described as “close relatives” (cousins), or foreigners. Prenatal care was categorized as adequate, intermediate, inadequate, or intensive according to the Adequacy of Prenatal Care Utilization (APNCU) index, proposed by Kotelchuck [8]. Inadequate utilization is defined as either starting prenatal care after the 4th month of pregnancy or receiving less than 50% of the expected visits based on the schedule recommended by the American College of Obstetricians and Gynecologists [9]. Intermediate care is care that begun by month 4 with 50%–79% of expected visits received; adequate care is that begun by month 4 with 80%–109% of expected visits received; and intensive (adequate plus) care is begun by month 4 with 110% or more of expected visits received.

Information about birth outcomes (birth weight, mode of delivery) and gestational age were retrieved from the digital health records of the institutions using patient barcodes. Healthcare registrants had calculated the gestational age as the interval between the date of delivery and the date of the last normal menstrual period. Birth outcomes of interest in this study were preterm delivery (live neonate delivered at less than 37 weeks of pregnancy) and low birth weight (live neonate weight <2500 g at birth).

Statistical analysis was conducted using SPSS (SPSS, Chicago, IL, USA) by χ^2 and *t* test analysis. $P < 0.05$ was considered significant.

3. Results

During the study period there were 9746 deliveries among the three institutions. A total of 2500 mothers who had a singleton live birth were randomly chosen, and 1872 eligible women (mean age 22.1 years, range 15–43 years) agreed to participate (mean response rate 19.2% for the three institutions). Of these mothers, 211 (11.3%) were younger than 19 years. The mean age of the partners (all husbands) was 32.6 years (range, 20–65 years).

Table 1
Comparison of characteristics by maternal age.^a

Characteristics	Maternal age group		P value
	<19 years (n = 211)	≥19 years (n = 1661)	
Maternal education inappropriate for age	174 (82.5)	1164 (70.1)	<0.001
Husbands' education, <5 years	161 (76.3)	987 (59.4)	<0.001
Monthly household income, <\$403 ^b	154 (73.0)	1198 (72.1)	0.793
Matrimony status			
Only approved by the Imam	54 (25.6)	178 (10.7)	<0.001
Only civil marriage	13 (6.2)	223 (13.4)	
Both	144 (68.2)	1260 (75.9)	
Arranged marriage	129 (61.1)	983 (59.2)	0.586
Husband close relative (cousin)	62 (29.4)	402 (24.2)	0.220
Living with parents	76 (36.0)	516 (31.1)	0.145
IPV during pregnancy	36 (17.1)	180 (10.8)	0.008
Inadequate prenatal care	60 (28.4)	292 (17.6)	<0.001
Previous miscarriage	13 (6.2)	193 (11.6)	0.017
Previous abortion (induced)	3 (1.4)	77 (4.6)	0.030
Ineffective contraceptive method (withdrawal, counting days)	49 (23.2)	279 (16.8)	0.085

Abbreviation: IPV, intimate partner violence.

^a Values are given as number (percentage).

^b Minimum wage rate 2008, Turkey (608 TL/month; 1 USD = 1.51 TL).

The demographics of adolescent mothers were compared with those of the mothers aged 19 years or older (Table 1). Economic levels were low in general, showing deprivation in this area, but there was no difference between the two age groups of women. A higher proportion of adolescent mothers had an inappropriate education for age (82.5% vs 70.1%; $P < 0.001$), and their partners were less educated than those of the older mothers (76.3% vs. 59.4%; $P < 0.001$). More adolescent mothers were married unofficially, only approved by a religious leader compared with the older mothers (25.6% vs 10.7%; $P < 0.001$). There was no difference between the groups in arranged marriage, being married to a close relative, or living with parents-in-law in the same household. However, inadequate use of prenatal care was significantly higher in the adolescent group (28.4% vs 17.6%; $P < 0.001$). In addition, intimate partner violence (IPV) during pregnancy was significantly more prevalent among teenage mothers (17.1% vs 10.8%; $P = 0.008$).

Table 2 shows the obstetric and perinatal outcomes for the study groups. The proportions of preterm labor (28.4% vs. 14.7%; $P < 0.001$) and low birth weights (17.5% vs 8.4%; $P < 0.001$) were significantly higher in the adolescent group compared with the older aged mothers. Adolescent mothers underwent normal vaginal delivery more commonly than did older mothers, and cesarean delivery was more common in the older group (Table 2).

4. Discussion

The proportion of adolescents giving birth was found to be high (11.3%) in the present study compared with previous studies from this region, which have reported 1.9% (hospital-based study) and 10%

Table 2
Comparison of obstetric and perinatal outcomes by maternal age.^a

Outcome	Maternal age		P value
	<19 years (n = 211)	≥19 years (n = 1661)	
Birth weight, g	2830 ± 470	3050 ± 430	<0.001
Preterm delivery	60 (28.4)	244 (14.7)	<0.001
Low birth weight	37 (17.5)	140 (8.4)	<0.001
Cesarean delivery	48 (22.7)	520 (31.3)	0.011

^a Values are given as mean ± SD or number (percentage).

(survey-based study) [3,10]. Because of the large increase in the population of this region and the high proportion of young people, adolescent pregnancy is an important problem.

Information on adolescent childbearing was incomplete and inaccurate and there were limitations in the availability of data. In addition, the rate of deliveries without the attendance of healthcare personnel is high (16.0%), according to unpublished data from the local health administrative. Therefore, our birth rates should be regarded as best estimates.

In kinship-based societies and economies, most girls marry soon after menarche; fertility is high, and consequently many children are born to adolescent mothers. Strong religious and patriarchal control that discourages premarital sex is expected to suppress the levels of adolescent childbearing, but this study shows that this control results in early marriages and childbearing in this region. Although there was no statistical difference between the adolescent and older groups, the rate of arranged marriage and the rate of marriages with cousins were high. The relatively high proportion of adolescent mothers living with parents-in-law and high rates of IPV during pregnancy indicate that there is a feudal setting in this region. In addition, the low educational level of the partners seems to have an effect on early childbearing. Although there has been a gradual shift away from extended family structures and toward nuclear families, this change in family structure does not seem to be occurring in the rural and remote regions of Turkey.

Educational level is low in general in the eastern parts of Turkey and there are gender differentials in educational attainment. Overall, females are less educated than males as can be seen in the results of the present study. However, early childbearing tends to restrict further educational opportunities for women. In our study, all mothers were married, and the mean educational level of the parents was low in general, but was significantly lower in the adolescent group of mothers. Adult men having sexual relationships with adolescent girls may be less acceptable in high-income countries, because many of these relationships may be abusive or coercive. In Turkey, according to the legislation, children are allowed to marry officially at the age of 15 years with the permission of the parents. This might conflict with the high percentage of religious matrimonies among adolescents, which show a strong kinship-based cultural and religious background of the community and the accepted involvement of parents in the marriages and households.

The current situation in the east of Turkey indicates that motherhood at a young age is culturally desirable and reflects a drive in young women's priorities away from education toward motherhood and family, which seems not to be related to economic circumstances. The proportion of adolescent mothers lacking adequate education and the low rate of induced abortions observed in the study may indirectly reflect this situation.

In the present study, teenage mothers were at higher risk for IPV compared with older mothers, which may be another consequence of the patriarchal background and cultural conditions in this low-resource part of the country. Another study [11] found that adolescents, especially those between 15 and 19 years old, were at a higher risk of physical or sexual violence by a partner in many countries. In low-income countries, the causes of IPV are complex. IPV could be related to the unequal position of women in a particular relationship and in society, and the normative use of violence in conflict plus material dependency, lack of alternative opportunities, and culturally sanctioned female subordination to feudalistic values [12].

Adequate contraception is often available for adolescents in Turkey with no major difficulty, as are abortion facilities, as long as they are married. This study reveals that the rate of induced abortions is low among adolescents. The lack of any reliable local and national information on abortion among adolescents in the analysis is a great weakness, and restricts our ability to investigate abortion rates across the country and in other countries.

Use of modern contraceptive methods is below the desired level; one-third of adolescent and older mothers in the study preferred withdrawal as the method of contraception, and there was no difference between the groups. Contraceptive utilization rate was reported as 64% for married women aged 15–49 years for 2005 in Turkey, and there were lower rates for use of modern methods [13].

Prenatal care is often unsatisfactory in low-income countries, but the care of adolescent mothers is typically below the national average. Although the proportion of women who did not receive any prenatal care was reported as 13.9% in the more developed western Anatolia, proportions of up to 62% were recorded in eastern Anatolia [13]. The detrimental effect of inadequate prenatal care on birth weight and gestational age found in our study supports the hypothesis that prenatal care may reduce the risk of low birth weight and preterm births. On the other hand, it is difficult to explain how adequate prenatal care results in fewer low birth weight deliveries and preterm births in teenage mothers. Increased risk for preterm delivery and low birth weight for adolescent mothers has been reported by several studies from high-income and low-income countries [14–16], although some studies failed to find such an association [17–20].

Neonates born to adolescent mothers had poorer birth outcomes in the present study, but discussions continue about whether socioeconomic circumstances before and after pregnancy are risk factors for adverse health outcomes or whether the increased risk is associated with young maternal age [21,22]. Our results indicate that preterm birth and low birth weight may be related to insufficient prenatal care but not to an unfavorable family background characterized by poverty. Because these adolescent pregnancies are planned, and there are no risks of social exclusion, which may lead to poorer health and well-being [23], concern over adolescent pregnancies may be misplaced as adolescents are reported to be physically and mentally more appropriate for pregnancy than are older couples [24,25].

There are several issues that limit the conclusions drawn from our study. In low-income countries many pregnant women deliver at home and go to a hospital only in case of emergency, therefore hospital-based studies may not be fully representative for the population as a whole. However, in our study, we determined that there is a consensus on referring all adolescents to the hospitals for delivery, which reflects the uncertainty and fear about possible complications observed at their age. In addition, 71.1% of all births took place in these three hospitals in 2008 which supports the strength of our results. Nevertheless, there is an unavoidable degree of uncertainty in making conclusions about the likely level of and effect of missing data.

Despite the lack of complete and accurate information on adolescent pregnancies and births, we were able to give an estimate of the birth rate from this low-income region. Using midwives as interviewers provided easy access and communication, but the answers may have been affected because the mothers were not alone in the room during the interviews.

In conclusion, there are no efficient epidemiological data about adolescent mothers in Turkey. On the basis of data from the present study, we suggest that Turkish adolescent mothers are reflecting some sociocultural and tribal characteristics distinctive to this region. All of the adolescent mothers were married and all of their pregnancies were planned and intended. In addition, the majority of adolescent women had arranged marriages with no premarital relationships, which may lead to malfunction in family dynamics and eventually to IPV. Unofficial religious marriages were more prevalent in the adolescent group, which in turn may have caused economic dependency and low self-esteem.

We believe that adolescent pregnancy is associated with cultural and social factors. The results of our study showing that early childbearing is more prevalent among less educated adolescents who are subject to IPV and are married to less educated partners following unofficial weddings puts traditional paternal feudalism among the

main causes of adolescent pregnancy. Therefore, programs that target adolescent pregnancies must address social norms that encourage early marriages and unofficial weddings. Counseling on the benefits of prenatal care and family planning should gain priority in healthcare settings. In addition, situations that discourage young women from attending school after they have given birth and from using appropriate family planning methods must be evaluated.

Conflict of Interest

The authors declare that there is no conflict of interest.

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