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Comparison of obstetric and neonatal outcomes between Syrian adolescent refugees and local Turkish adolescent citizens

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ABSTRACT

The provision of antenatal care in adolescents in refugee populations presents particular difficulties because of conflict, nutritional deficiencies, language barriers and lack of access to health care facilities. Due to the absence of prenatal care, associated medical complications can occur. A total of 525 adolescent women who gave birth to singletons agreed to participate in this study. Data about maternal demographic and obstetric characteristics, as well as neonatal outcomes were analysed. In conclusion, adolescent pregnancy continues to be an important social problem due to health support needs. However, the results of our present study are important in terms of showing that perinatal care is quietly improving in Turkey.

IMPACT STATEMENT

- **What is already known on this subject?** Adolescent pregnancies are at much higher risk than adult pregnancies in terms of complications. These complications include preterm delivery, intra-uterine growth retardation, maternal morbidity and mortality, neonatal morbidity and mortality. According to various beliefs and traditions, marriages in early ages are observed in some societies and as a result, adolescents become pregnant. Additionally, the present study includes early adolescent aged pregnancies as 14,15 and 16. As far as we search in the literature, there is no reported about early adolescent pregnancies.
- **What do the results of this study add?** Often, such pregnancies occur more frequently in societies with low socioeconomic levels. For this reason routine pregnancy screening, support during pregnancy, prenatal care is not adequately provided. Some of the complications develop on them. Primarily, the adolescent pregnancies should be gotten under control, if not, some complications can be prevented by routine pregnancy follow-up and adequate provision of prenatal care and support.
- **What are the implications of these findings for clinical practice and/or further research?** As a guide on clinical practices and further studies; an effective method of contraception should be applied to sexually active women at early maternal age. If not, pregnancies should be kept under close follow-up and with adequate support to avoid complications.

KEYWORDS

Adolescent; pregnancy; Syrian refugees; fertility control; general obstetrics; intrapartum care

Introduction

Adolescent pregnancy is defined as pregnancies between the ages of 10 and 19 years (McAnarney 1987; Treffers 2003). Approximately 11% of all births in the world occur at an adolescent age.

Refugees who are forced to leave their homeland due to war are deprived of prenatal care due to nutritional difficulties, language differences and difficulty in applying to health institutions. Due to the absence of prenatal care, associated medical complications like caesarean delivery, preterm labour, low birth weight, small for gestational age (SGA), foetal distress at birth, prenatal mortality and sudden infant death syndrome can occur.

The aim of our study is to compare the effects of lack of antenatal care on pregnancy outcomes in early adolescent

pregnancies due to nutritional difficulties, language differences and difficulties in applying to health institutions.

The purpose of our comparison of Syrian and Turkish early adolescent pregnant women is to investigate the pregnancy outcomes of Syrian refugees who receive less prenatal care, and local Turkish adolescents who have better prenatal care and nutritional support.

In recent years, the increase in the incidence of teenage pregnancy was strongly influenced by some factors (Bongaarts and Cohen 1998). Declining age at menarche, early sexual intercourse, marriage at an early age, unplanned pregnancies, low socio-economic and education levels, and regional cultural factors increase the rate of adolescent pregnancies.

Medical complications caused by pregnancy at adolescent ages emerge as a result of incomplete maternal growth and biological immaturity. It remains controversial whether the

observed association between teenage pregnancy and adverse birth outcomes simply reflects the deleterious socio-demographic environment that many pregnant teenagers confront or whether biological immaturity is also causally related (Chen et al. 2007).

The World Health Organisation has developed guidelines addressing some areas such as preventing early marriage; preventing early pregnancy through sexuality education, increasing education opportunities and economic and social support programs; increasing the use of contraception; reducing coerced sex; preventing unsafe abortion; and increasing the use of prenatal care, childbirth and postpartum care (Chandra-Mouli et al. 2013). All of these areas are related to undesirable consequences of pregnancy in adolescence. Managing adolescent pregnancy is firstly about prevention, then prenatal care, labour, birth and postnatal care (Trotman et al. 2015). During labour, foetal wellness status must be efficiently followed. If possible, emotional support must be provided continuously (Hodnett and Fredericks 2003). Specialised care, especially for very young adolescents, may be suggested because the predisposition for failure to progress in labour and complications will increase in patients with the immature pelvis (Moerman 1982; Sharma et al. 2016). Adolescents tend to delay obtaining prenatal care and typically cannot benefit from prenatal care corporations.

The purpose of the article is to investigate the results for adolescent pregnancies in terms of mode of delivery, caesarean rates, indications for caesarean section, birth weight, and preterm delivery among the Syrian adolescent immigrants and local Turkish adolescent citizens who gave birth in Sanliurfa Training and Research Hospital, Turkey.

Material and methods

A total of 5000 singleton deliveries were performed at our institution between January 2017 and December 2017 according to the hospital records, including 525 adolescent pregnancies. A total of 525 adolescent women who gave birth to singletons agreed to participate in this descriptive cross-sectional study. Data about maternal demographic and obstetric characteristics, as well as neonatal outcomes, were recorded. Among the criteria for inclusion in the study were

that all participating pregnant women had their first pregnancies, their body mass index was below 30, and they did not have any chronic diseases. Excluding factors were a chronic disease, psychological problems, pregnancies after the age of 16 and before 14.

Statistical method

In the analysis stage, firstly the fit of a range of assumptions was researched. The fit to normal distribution was investigated with the Kolmogorov–Smirnov normality test, while the fit to the homogeneous variance assumption used the Levene test. The decisions about appropriate tests to be used were made by considering whether the assumptions were met by the relevant data and the structure of the data. Descriptive statistics for continuous variables are shown as mean \pm standard deviation, while categorical variables are given as a patient number (n) and percentage (%).

According to whether assumptions were met or not, the chi-square test or Kendall's tau-c correlation coefficient was used for comparison of age according to nationality and type of birth. Comparisons according to age and nationality for a birth week and mean birth weight used the multivariate ANOVA (MANOVA) test. For comparison according to the age of nationality and birth weight, birth weight was taken as a categorical variable and the chi-square test or Kendall's tau-c correlation coefficient was used depending on whether assumptions were met or not.

Statistical analysis in this study was performed using the SPSS 22.0 statistical program. The p values obtained in test results were assessed at $\alpha = 0.05$ significance level.

Results

In our study, delivery types of Syrian immigrants and Turkish local early adolescent (14, 15 and 16 years) pregnancies, delivery types in Table 1, caesarean indications in Table 2, and infant birth weights in Table 3 were compared. When looked separately in age groups and in a total of 525 patients, according to the analysis results; There is no statistically significant difference between the nationality of the patients and the mode of delivery ($p > .05$) and Caesarean

Table 1. Descriptive statistics and analysis results in comparing nationality and birth method by age.

| Age | Birth | CROT ($n = 257$) | Syrian nationals out of camp ($n = 178$) | Syrian nationals inside the camp ($n = 90$) | p -Value |
|-------|-------|--------------------|--|---|-------------------|
| 14 | NVD | 10 (71.4%) | 20 (95.2%) | 5 (83.3%) | .147 ^a |
| | C/S | 4 (28.6%) | 1 (4.8%) | 1 (16.7%) | |
| | Total | 14 (100%) | 21 (100%) | 6 (100%) | |
| 15 | NVD | 42 (91.3%) | 42 (89.4%) | 14 (100%) | .543 ^b |
| | C/S | 4 (8.7%) | 5 (10.6%) | 0 (0%) | |
| | Total | 46 (100%) | 47 (100%) | 14 (100%) | |
| 16 | NVD | 167 (84.8%) | 93 (84.5%) | 63 (90%) | .397 ^b |
| | C/S | 30 (15.2%) | 17 (15.5%) | 7 (10%) | |
| | Total | 197 (100%) | 110 (100%) | 70 (100%) | |
| Total | NVD | 219 (85.2%) | 155 (87.1%) | 82 (91.1%) | .360 ^a |
| | C/S | 38 (14.8%) | 23 (12.9%) | 8 (8.9%) | |
| | Total | 257 (100%) | 178 (100%) | 90 (100%) | |

^aChi-Square Test; ^bKendall's tau-c coefficient.

CROT: citizens of the republic of Turkey; NVD: normal vaginal delivery; C/S: caesarean delivery.

When looked separately in age groups and in total of 525 patients, according to the analysis results; There is no statistically significant difference between the nationality of the patients and the mode of delivery ($p > .05$).

Table 2. Descriptive statistics for comparison of nationality and C/S indications by age.

| Age | Caesarean indication | CROT (n = 38) | Syrian nationals out of camp (n = 23) | Syrian nationals inside the camp (n = 8) | p-Value | | |
|-----------------------------|-----------------------------|---------------------|--|---|---------|-----------|--|
| 14 | Breech presentation | 1 (2.5%) | 0 (0%) | 1 (100%) | | | |
| | Foetal distress | 2 (50%) | 1 (100%) | 0 (0%) | | | |
| | Abruptio placentae | 1 (2.5%) | 0 (0%) | 0 (0%) | | | |
| | Total | 4 (100%) | 1 (100%) | 1 (100%) | | | |
| 15 | Breech presentation | 1 (2.5%) | 0 (0%) | (0%) | | | |
| | Foetal distress | 2 (50%) | 3 (60%) | (0%) | | | |
| | Previous uterine surgery | 1 (2.5%) | 0 (0%) | (0%) | | | |
| | Vasa previa | 0 (0%) | 2 (40%) | (0%) | | | |
| | Total | 4 (100%) | 5 (100%) | (0%) | | | |
| 16 | Foetal distress | 11 (36.7%) | 4 (23.5%) | 2 (28.6%) | | | |
| | Previous uterine surgery | 5 (16.7%) | 6 (35.3%) | 3 (42.9%) | | | |
| | Multiple pregnancy | 5 (16.7%) | 0 (0%) | 0 (0%) | | | |
| | Abruptio placentae | 1 (3.3%) | 2 (11.8%) | 1 (14.3%) | | | |
| | Cephalopelvic disproportion | 2 (6.7%) | 0 (0%) | 0 (0%) | | | |
| | Foetal anomaly | 1 (3.3%) | 0 (0%) | 0 (0%) | | | |
| | Breech presentation | 4 (13.3%) | 1 (5.9%) | 1 (14.3%) | | | |
| | Eclampsia | 1 (3.3%) | 0 (0%) | 0 (0%) | | | |
| | Optionally | 0 (0%) | 3 (17.6%) | 0 (0%) | | | |
| | Umbilical cord prolapse | 0 (0%) | 1 (5.9%) | 0 (0%) | | | |
| | Total | 30 (100%) | 17 (100%) | 7 (100%) | | | |
| | Total | Breech presentation | 6 (15.9%) | 1 (4.3%) | | 2 (25%) | |
| | | Foetal distress | 15 (39.5%) | 8 (34.8%) | | 2 (25%) | |
| | | Abruptio placentae | 2 (5.2%) | 2 (8.7%) | | 1 (12.5%) | |
| Previous uterine surgery | | 6 (15.8%) | 6 (26.1%) | 3 (37.5%) | | | |
| Vasa previa | | 0 (0%) | 2 (8.7%) | 0 (0%) | | | |
| Multiple pregnancy | | 5 (13.2%) | 0 (0%) | 0 (0%) | | | |
| Cephalopelvic disproportion | | 2 (5.3%) | 0 (0%) | 0 (0%) | | | |
| Foetal anomaly | | 1 (2.6%) | 0 (0%) | 0 (0%) | | | |
| Eclampsia | | 1 (2.6%) | 0 (0%) | 0 (0%) | | | |
| Optionally | | 0 (0%) | 3 (13%) | 0 (0%) | | | |
| Umbilical cord prolapse | | 0 (0%) | 1 (4.3%) | 0 (0%) | | | |
| Total | | 38 (100%) | 23 (100%) | 8 (100%) | | | |

Table 3. Descriptive statistics and analysis results in comparison of nationality and infant weight by age.

| Age | Weight | CROT (n = 257) | Syrian nationals out of camp (n = 178) | Syrian nationals inside the camp (n = 90) | p-Value |
|-------|----------|----------------|---|--|-------------------|
| 14 | 2–2.5 kg | 0 (0%) | 3 (14.3%) | 0 (0%) | .375 ^a |
| | 2.5–3 kg | 5 (35.7%) | 8 (38.1%) | 1 (16.7%) | |
| | 3–3.5 kg | 6 (42.9%) | 8 (38.1%) | 4 (66.7%) | |
| | 3.5–4 kg | 1 (7.1%) | 2 (9.5%) | 1 (16.7%) | |
| | 4–4.5 kg | 2 (14.3%) | 0 (0%) | 0 (0%) | |
| | Total | 14 (100%) | 21 (100%) | 6 (100%) | |
| 15 | 2–2.5 kg | 4 (8.7%) | 4 (8.5%) | 1 (7.1%) | .857 ^b |
| | 2.5–3 kg | 17 (37%) | 16 (34%) | 6 (42.9%) | |
| | 3–3.5 kg | 20 (43.5%) | 23 (48.9%) | 4 (28.6%) | |
| | 3.5–4 kg | 5 (10.9%) | 4 (8.5%) | 3 (21.4%) | |
| | 4–4.5 kg | 0 (0%) | 0 (0%) | 0 (0%) | |
| | Total | 46 (100%) | 47 (100%) | 14 (100%) | |
| 16 | 2–2.5 kg | 26 (13.2%) | 14 (12.7%) | 12 (17.1%) | .759 ^b |
| | 2.5–3 kg | 70 (35.5%) | 34 (30.9%) | 24 (34.3%) | |
| | 3–3.5 kg | 78 (39.6%) | 52 (47.3%) | 27 (38.6%) | |
| | 3.5–4 kg | 22 (11.2%) | 9 (8.2%) | 7 (10%) | |
| | 4–4.5 kg | 1 (0.5%) | 1 (0.9%) | 0 (0%) | |
| | Total | 197 (100%) | 110 (100%) | 70 (100%) | |
| Total | 2–2.5 kg | 30 (11.7%) | 21 (11.8%) | 13 (14.4%) | .823 ^a |
| | 2.5–3 kg | 92 (35.8%) | 58 (32.6%) | 31 (34.4%) | |
| | 3–3.5 kg | 104 (40.5%) | 83 (46.6%) | 35 (38.9%) | |
| | 3.5–4 kg | 28 (10.9%) | 15 (8.4%) | 11 (12.2%) | |
| | 4–4.5 kg | 3 (1.2%) | 1 (0.6%) | 0 (0%) | |
| | Total | 257 (100%) | 178 (100%) | 90 (100%) | |

^aChi-Square Test; ^bKendall's tau-c coefficient.

When looked separately in age groups and in total of 525 patients, according to the analysis results; There is no statistically significant difference between the nationality of the patients and the weight of the baby ($p > .05$).

(C/S) indications by age. There is no statistically significant difference between the nationality of the patients and the weight of the baby ($p > .05$).

There was no significant difference between the two groups. In addition, prenatal outcomes of early adolescent pregnancies and adult pregnancies were found to be similar.

Discussion

We included pregnant women, 14, 15 and 16 years old, who gave birth in Şanlıurfa Training and Research Hospital, consisting of Syrian and local Turkish people. The lack of prenatal care around the world is common but complications

could be prevented in our patients with ease of accessibility to a health centre for the patient group in the region where we work, adequate nutritional supports and pregnancy follow-up according to international standards. However, specific complications for adolescent pregnancies produced similar results to other studies conducted around the world.

The mode of delivery changes according to the age of the pregnant case. As far as we have researched, the C/S delivery rate was found to be lower among adolescent pregnant women in the literature. For instance, the ratio of C/S was 17.1% in adolescent pregnancies whereas the caesarean ratio was 28.8% for adult pregnancies (Forman et al. 1995; Miller et al. 1996; Miller 2000; Hacettepe University Institute of Population Studies 2004; Zeteroglu et al. 2005). Moreover, the Turkish Demographic and Health Survey found the C/S rates in adolescent and adult pregnant women were 11.5% and 22.5%, respectively, in 2003 (Hacettepe University Institute of Population Studies 2004). Consistent with these studies, increased caesarean section rates were not observed among our adolescent pregnant Turkish or Syrian women (Bildircin et al. 2014; Ozel et al. 2018; Baş et al. 2020; Turkay et al. 2020). Although biological immaturity is a cause of indications for caesarean delivery (Moerman 1982), possible genetic structure, environmental factors, foods consumed daily, climatic conditions, and body structures of the people in the region where we work may be favourable for normal birth.

Due to various credential factors, traditions and customs, the sociocultural structure of the region of the study encourage people to experience early marriage and pregnancy at an early age. But this type of lifestyle can be prevented if education is given.

Although sociocultural factors or traditions and customs cannot be prevented in the region of our study, with education and increasing knowledge and provision of support for prenatal care, birth, and postnatal care, preventable complications of adolescent pregnancies can be prevented (Flores-Valencia et al. 2017).

Pregnancy is an acceptable process for adolescents in the area where we conducted our study, as they are accustomed to seeing pregnancies around them at an early age.

The reason why the caesarean rate is quite low in the region is that people avoid optional caesarean operations due to the consideration to have more than four children.

Similar results are encountered when comparing infant birth weight in pregnancies between 20 and 49 years old with adolescent pregnancies. However, Kassa et al. revealed that higher rates of adverse neonatal outcomes like LBW and preterm birth were found in babies born from adolescent women than babies born from adult women (Kuo et al. 2009; Kassa et al. 2019).

Consequently, no significant difference could be detected between adolescent pregnancies and 20- to 49-year-old pregnancies as a result of the availability of pregnancy follow-up in health care establishments, the ease of accessibility to free healthcare, and the necessary care and medication of pregnancies. Specific complications for adolescent pregnancies may already continue (Del Ciampo et al. 2004; Michelazzo et al. 2004; Fiorelli and Krebs 2006; Iacobelli et al. 2012; Azevedo et al. 2015).

We highlight that differences between maternal and obstetric outcomes, caesarean rates, caesarean indications, intrauterine growth retardation, and low-birth-weight infant rates among Syrian and Turkish adolescent pregnant girls are not significant. In conclusion, adolescent pregnancy continues to be an important social problem due to health support needs. However, the results of our present study are important in terms of showing that perinatal care is quietly improving in Turkey.

Ethical approval

Clinical trial registry number: NCT04546204; Ethics Approval: HRÜ/19.01.36.

Author contributions

MT Cimsir: Manuscript writing; MS Yildiz: Project development, Data Collection, Manuscript writing.

Disclosure statement

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