

## ORIGINAL RESEARCH ARTICLE

# A retrospective evaluation of pregnant adolescents presenting to an emergency department

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## Abstract

The purpose of this study was to evaluate demographic features, presenting complaints and outcomes of adolescent pregnancies admitted to the emergency department of a Turkish State hospital. The study sample included 1187 pregnant adolescents admitted to the emergency department of a state hospital. Data were collected with a form created by the researchers from the emergency department records and forensic records of the hospital. The pregnant adolescents presented to hospital with a wide range of complaints. The most frequent three reasons of presenting to the emergency department were abdominal pain, supervision of normal pregnancy and vaginal bleeding. More than half of them were discharged after their evaluation in the emergency department. In the study, it was determined that the use of the emergency department for non-emergency indications is widespread among adolescent pregnant women. These findings indicate that pregnant adolescents have unmet needs for reproductive health, especially antenatal care. (*Afr J Reprod Health* 2023; 27 [2]: 26-33).

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**Keywords:** Adolescent pregnancy, emergency department, obstetric outcomes, antenatal care, retrospective study

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## Résumé

Cette étude a pour but d'évaluer les caractéristiques démographiques des adolescentes enceintes ayant consulté le service des urgences, ainsi que les raisons et les résultats de leur admission au service des urgences. L'échantillon de l'étude se composait de 1187 adolescentes enceintes se présentant au service des urgences d'un hôpital public. Les données ont été recueillies en examinant le registre des urgences et le registre médico-légal de l'hôpital à l'aide de la fiche de collecte de données préparée par les chercheurs. Les adolescentes enceintes se présentent au service des urgences avec un large éventail de plaintes. Les trois motifs les plus fréquents d'admission aux urgences sont respectivement les douleurs abdominales, le suivi normal de la grossesse et les saignements vaginaux. Suite aux évaluations effectuées au service des urgences, une bonne moitié des adolescentes enceintes ont été renvoyées chez elles. L'étude a permis de déterminer que le recours abusif au service d'urgence était fréquent chez les adolescentes enceintes. Ces résultats montrent que les femmes enceintes adolescentes ont des besoins non satisfaits en matière de services de santé reproductive, notamment en matière de soins prénataux. (*Afr J Reprod Health* 2023; 27 [2]: 26-33).

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**Mots-clés:** Grossesse des adolescentes, service des urgences, résultats obstétricaux, soins prénatals, étude rétrospective

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## Introduction

Adolescence refers to transition from childhood to adulthood. The World Health Organization (WHO) defines the ages of 10-19 years as adolescence and divides it into two: early adolescence (10-14 years) and late adolescence (15-19 years)<sup>1</sup>. It is a transition period when physical growth occurs and sexual, psychological, and social changes are experienced. Sexual and reproductive health-related problems appearing in this period predispose to many health problems in adulthood<sup>2</sup>. Adolescents experience many health problems and face the risk of death. Their most frequent problems are unprotected sexual intercourse, sexually

transmitted diseases, violence, abuse, substance abuse, suicide, early marriages, unintended pregnancies, and pregnancy complications<sup>3,4,5</sup>. Adolescent pregnancy is defined as pregnancy before the age of 20 years. For comparability between countries, pregnant women aged 15-19 years at the time of labor are considered as pregnant adolescents<sup>6</sup>. Adolescent pregnancy is common in both developing countries and developed countries. However, such pregnancies are more common in societies with a low socioeconomic level<sup>7</sup>. According to data from the WHO, approximately 12 million adolescents aged under 15-19 and 777,000 girls under 15 years give birth each year in developing countries every year<sup>8</sup>. All babies born

to adolescents form 11% of all births and 95% of these births occur in developing countries<sup>6</sup>. The rate of adolescents having children in Turkey was reported to be 5% in 2013 and decreased to 4% in 2018<sup>9</sup>. Several studies performed in different regions of Turkey revealed that this rate changed from 1.01% in 2013<sup>10</sup> to 8.5 in 2017%<sup>11</sup>. Adolescent pregnancies cause negative obstetric and neonatal outcomes and increase the risk of maternal and child deaths. The leading causes of death in girls aged 15-19 years are complications of pregnancy and labor<sup>3,4,12,13</sup>. In addition, becoming pregnant during adolescence prevents girls from completing their education and leads to undesirable social outcomes including violence in the family and serious financial burden on the country<sup>14,15</sup>. Several studies have shown a considerable improvement in sexual and reproductive healthcare for adolescents over the years, but it is not as good as expected<sup>16,17</sup>.

Emergency departments (ED) are important in that they offer care and treatment to pregnant adolescents unable to reach prenatal care services. It has been reported that they usually present with pregnancy-related tiredness, dizziness, breast tenderness, weight gain, nausea, vomiting and non-specific gastrointestinal and genitourinary complaints<sup>18,19</sup>. Taking account of the risks of adolescent pregnancy and its negative effects on maternal and child health, it becomes important to examine utilization of healthcare services and emergency care services in pregnant adolescents. Due to the absence of prenatal care, associated medical complications can occur. Therefore, the present study was conducted to retrospectively evaluate causes of ED utilization and interventions performed in EDs in pregnant adolescents.

## Methods

The study consisted of 1171 pregnant adolescents visiting the obstetric ED of Yakacık Maternity and Child Hospital in Istanbul, Turkey, between 2016 and 2017. One-hundred and eleven pregnant adolescents were excluded due to missing records about them, and 127 pregnant adolescents repeatedly presented to the ED. The study sample included a total of 1187 records kept between 1 January 2016 and 31 December 2017 about pregnant adolescents aged 19 years or younger

including their repeated visits. Data was retrospectively collected by the first author between 1 May 2018 and 15 July 2018 by using a form created by the researchers.

Obtained data were analyzed with the SPSS. Results of the analyses for continuous variables were expressed in descriptive statistics, mean, standard deviation, minimum and maximum values while results of the analyses for categorical variables were expressed in frequencies and percentages.

## Results

As illustrated in Figure 1, of 1187 pregnant adolescents, three were aged 13 years, seven were aged 14 years, 21 were aged 15 years, 58 were aged 16 years, 146 were aged 17 years, 376 were aged 18 years and 576 were aged 19 years. As presented in Table 1, the pregnant adolescents were aged between 13 years and 19 years with a mean of  $18.18 \pm 1.02$  years. Seventy-seven-point-eight percent of the adolescents were Turkish. Records about marital status of 1174 pregnant adolescents were accessed and all of them were found to be married. Of all married adolescents, only 79.1% had a civil marriage. Records about education of 258 pregnant adolescents were available and only 48.8% of them were primary school graduates or had a higher level of education, 29.1% were illiterate and 22.1% dropped out of primary school.

As shown in Table 1, 67.9% of the pregnant adolescents presented to the ED in their third trimester. Out of 1160 pregnant adolescents whose number of pregnancies was available in the records, 76.8% had their first pregnancy, 19.5% had their second pregnancy, 3.3% had their third pregnancy and 0.2% had their fourth pregnancy or more. Since the records were not kept properly in the hospital where the study was conducted, no information about the number of pregnancies in 27 pregnant adolescents was available.

The pregnant adolescents presented to the ED with 16 different complaints. Of all the adolescents, 47.2% had abdominal pain, 27.1% supervision of normal pregnancy, 13.6% had vaginal bleeding, 7.0% had preterm membrane rupture, 5.5% had backache and 4.0% had upper respiratory tract infection. Lower rates of pregnant adolescents had trauma, inability to feel movements of the baby, nausea/vomiting, delayed

**Table 1:** Pregnant adolescents descriptive characteristics

Characteristics	Frequency	Percentage (%)	Mean±SD (Min.-Max)
<b>Age</b>			18.18±1.02(13-19)
<b>Nationality (N:1187)</b>			
Turkish	927	77.8	
Syrian refugee	263	22.2	
<b>Total</b>	<b>1187</b>	<b>100.0</b>	
<b>Civil marriage (1174)</b>			
Yes	928	79.1	
No	245	20.9	
<b>Total</b>	<b>1174</b>	<b>100.0</b>	
<b>Education ( 258)</b>			
Illiterate	75	29.1	
Dropped out of primary school	57	22.1	
Primary school or having a higher level of education	126	48.8	
<b>Total</b>	<b>258</b>	<b>100.0</b>	
<b>Gestational week (N:1187)</b>			
First trimester (1-13 weeks)	252	21.0	
Second trimester (14-26 weeks)	131	11.1	
Third trimester (27-41 weeks)	80.4	67.9	
<b>Total</b>	<b>1187</b>	<b>100.0</b>	
<b>Number of pregnancy</b>			
1 <sup>st</sup> pregnancy	891	76.8	
2 <sup>nd</sup> pregnancy	227	19.5	
3 <sup>rd</sup> pregnancy	39	3.3	
4 <sup>th</sup> pregnancy	3	0.2	
<b>Total</b>	<b>1160</b>	<b>100.0</b>	

**Table 2:** The Most common diagnostic codes associated with emergency department visits of pregnant adolescents\*

Diagnosis Codes	Frequency	Percentage (%)
Abdominal pain unspecified site	561	47.2
Supervision of normal pregnancy	321	27.1
Unspecified hemorrhage in early pregnancy antepartum	183	13.6
Threatened premature labor antepartum	84	7.0
Backache	66	5.5
Upper respiratory tract infection	48	4.0
Trauma (forensic case)	43	3.7
Decreased fetal movements	39	3.2
Nausea with vomiting	39	3.2
Lifting heavy objects	36	3.0
Delayed menstruation	24	2.0
Headache	19	1.6
Infections of genitourinary tract	12	0.9
Diarrhea	12	0.9
Referred by another health center	4	0.3
Use of drug in pregnancy		

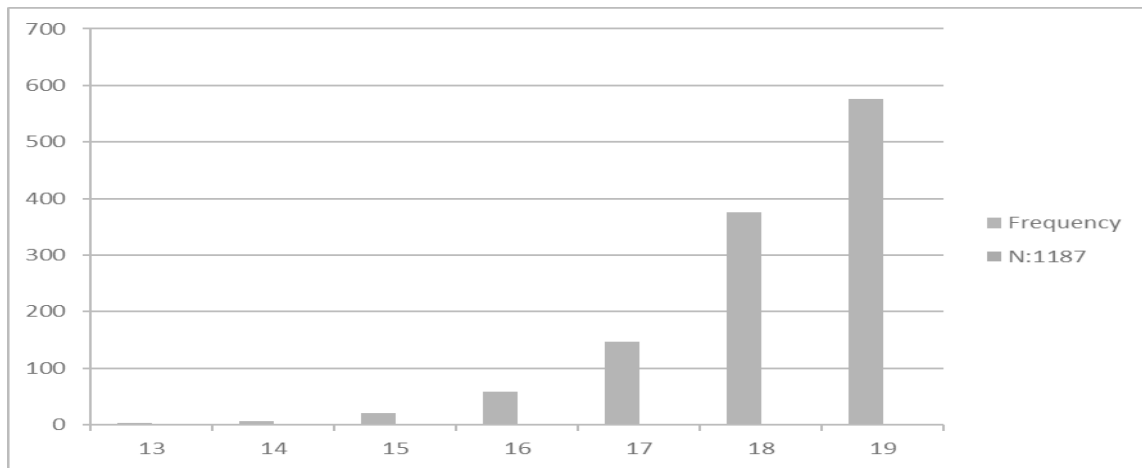
\* Since the pregnant adolescent presented to the ED with more than one complaint, the number (n) multiplied.

menstruation, headache, genital infection, diarrhea, referral from another medical center and use of

**Table 3:** The Distribution of the pregnant adolescents according to outcomes of emergency department visits

Outcomes	Frequency	Percentage (%)
Discharged without any treatment	609	51.3
Admission to hospital	288	24.2
Referred to another health center	227	19.1
Ambulatory treatment	63	5.9
<b>Total</b>	<b>1187</b>	<b>100.0</b>

medications in pregnancy (Table 2). As demonstrated in Table 3, after evaluations in the ED, of all the pregnant adolescents, 51.3% were discharged, 24.2% were admitted to hospital, 19.1% were referred to another health center and 5.4% had ambulatory care. Although it is not shown in the table, out of 288 pregnant adolescents admitted to the hospital, 144(x%) were diagnosed as threatened preterm labor, 103(x%) had birth at term, 40(x%) had abortion and one was admitted to the hospital for blood group incompatibility. Most of the pregnant adolescents receiving ambulatory care had the diagnosis of urinary tract infection.



**Figure 1:** The Distribution of the pregnant adolescents presenting to the emergency department according to their ages

## Discussion

Adolescent pregnancies are high risk and offering high quality care before, during and after labor to all pregnant adolescents can be life-saving. EDs are the units providing care and treatment to pregnant adolescents who are unable to access reproductive healthcare services. In the present study, the mean age of the pregnant adolescents presenting to the ED was  $18.18 \pm 1.02$  years (range: 13-19 years). It was shown to be 16.4 years by Meral *et al.*<sup>20</sup> and 17.8 years by Sivaslıoğlu<sup>21</sup>. It appears that the pregnant adolescents in the present study were relatively older than those reported in the literature. However, it was striking that one in every five pregnant adolescents ( $n=235$ ) were aged 17 years or younger, which is considered to create a high risk for maternal and child health.

In the current study, all the pregnant adolescents whose marital status was available in the emergency department and forensic records were married, but a considerable rate of them did not have a civil marriage. According to the laws, the youngest age of marriage which can be permitted by parents in Turkey is 17 years for both females and males<sup>22</sup>. Early marriages increase the risk of early pregnancies and maternal and child morbidity and mortality. It has been reported that a ten percent-decrease in early pregnancies can reduce the maternal mortality by 70% and the child mortality by 3%<sup>23</sup>. Although the rate of civil marriages in adolescents, which provide women with legal rights, varies between the regions in

Turkey, it is quite low in general<sup>10,17,24</sup>. Similarly, the rate of adolescents without a civil marriage was found to be considerably high in the present study.

There is an inverse relation between education and having children at an early age. Kaya *et al.* emphasized that as age increased, the rate of adolescent marriages dropped<sup>25</sup>. It has been noted in the literature that 60% of American adolescent mothers could not complete their high school education<sup>26</sup>. Likewise, in Turkey, 20% of the female primary school graduates start to have children at adolescence, while only 1% of female high school graduates or females with higher education have children<sup>10</sup>. Consistent with the literature, the sample in the present study had a very low education level. However, information about education of all the pregnant adolescents was not available since the records were not kept properly in the hospital where this study was performed. It is striking that more than half of 258 pregnant adolescents (51.2%) whose education levels were accessed were either illiterate or dropped out of primary school. Most of the pregnant adolescents were primipara. Nevertheless, the rate of adolescents with frequent or repeated pregnancies (23.2%) cannot be disregarded. This is indicative of unmet family planning needs in adolescents. Therefore, their access to reproductive healthcare services, especially family planning and antenatal care should be improved.

In the current study, the number of Syrian refugee pregnant adolescents was high. It is known

that a high number of Syrian people have migrated to Turkey in recent years due to the civil war in their country. According to a report about Syrian women in Turkey issued by Disaster and Emergency Management Directorate of the Ministry of Interior in 2014, the most important problem of these women is early marriages and pregnancies at the ages of 13-14 years<sup>27</sup>. Women and children are the most vulnerable during wars and migrations. Adolescent immigrants form a vulnerable population needing special care and can be forced to have early marriages. Taking account of these facts, health professionals should prioritize reproductive healthcare services based on individual, social, economic, and cultural features of immigrants.

In the present study, pregnant adolescents were found to have 16 different causes of ED visits. The most frequent one was abdominal pain. In a study by Dođru et al., the patients were shown to visit EDs due to abdominal pain (20%), nausea and vomiting (13.6%), vaginal bleeding (12.1%) and having tests (9.1%)<sup>28</sup>. Köse et al. evaluated all patients presenting to an ED and revealed the most frequent cause of ED visits was abdominal pain at the rate of 11.5%<sup>29</sup>. Abdominal pain might have caused pregnant adolescents to feel anxious about their babies and present to EDs. Besides, it might have been considered as a sign of preterm birth.

Another cause of ED visits was vaginal bleeding, which frequently occurs in the first trimester. It is mainly caused by ectopic pregnancy, abortion, gestational trophoblastic disease and cervix pathologies. Vaginal bleeding appearing in the third trimester is a clinical condition which increases maternal and fetal morbidity and mortality. It primarily results from placenta previa, placental abruption and vasa previa<sup>30</sup>. In the current study, unspecified hemorrhage in early pregnancy antepartum was the third most common cause of ED visits. Congruent with this finding, Dođru et al. also noted that vaginal bleeding was one of the causes of ED visits<sup>28</sup>.

It is crucial that EDs where cases requiring emergency interventions are dealt with should be utilized appropriately by patients and that adequate time should be allocated for each patient. As the number of patients with less serious emergencies presenting to EDs increases, time spent by health professionals on each patient and the quality of healthcare services decrease and time elapsing until

access to care is prolonged. In the present study, 27.1% pregnant adolescents presented for supervision of normal pregnancy while 2.0% pregnant adolescents were found to present with delayed menstruation or suspicion of pregnancy. This showed that 29.1% pregnant adolescents misused the ED. Similar to the results of the current study, Oktay et al. showed that 31.2% of the patients presenting to an ED did not have an emergency condition<sup>31</sup>. In a study by Kılıçaslan et al., of all the patients receiving emergency care, 10.4% needed very urgent care, 42.3% needed urgent care and 47.2% did not need urgent care<sup>32</sup>. Carret et al. found the rate of misuse of emergency care to be 24.2%<sup>33</sup>. It is clear that misuse of ED care services is very common in both Turkey and in Brazil. It prevents patients who really need emergency care from accessing these services, reduces their quality and increases healthcare costs. In addition, it may decrease the motivation of emergency healthcare professionals<sup>34,35</sup>.

A considerable rate of the adolescents presenting to EDs with abdominal or genitourinary complaints have been found to be pregnant<sup>28,30,36</sup>. The pregnant adolescents in this study might have had ED visits due to insufficient access to prenatal care services, inadequate information about signs of serious pregnancy-related conditions and common discomforts in pregnancy.

Concerning outcomes of the emergency evaluations, of all the pregnant adolescents, 24.2% were admitted to the ward, 19.2% were referred to another health center and 5.4% had ambulatory care). Half of the pregnant adolescents admitted to the ward (50%) had preterm labor and a lower rate of them (13.8%) had threatened abortion. Besides, most of the adolescents receiving ambulatory care were recommended treatment for urinary tract infections.

Pregnant adolescents should usually be followed in tertiary healthcare institutions considered as reference health centers. They have insufficient nutrition, receive inadequate antenatal care, lack social support, and have more maternal and fetal complications. They should be referred to reference health care centers like university hospitals equipped with high-quality facilities for newborns. It was striking in the present study that one in every five pregnant adolescents were referred to another healthcare center.

## Limitations

An important limitation of the study was lack of a sufficient recording system. Another limitation was that type of delivery and features of the newborns (e.g. weight) could not be evaluated. However, the results of the study are of great importance since they revealed the current causes and outcomes of ED visits of the pregnant adolescent population.

## Conclusion

The pregnant adolescents included in this retrospective study had a wide variety of complaints on their ED visits. About one third of them admitted to the ED for supervision of normal pregnancy. The study showed that the use of the EDs for the wrong among adolescent pregnant women. Based on these findings, it can be recommended that pregnant adolescents' needs for ED services can be lowered by prioritizing and focusing on pre-conceptional care, family planning and antenatal care in the framework of the primary healthcare services. Considering the fact that they are a vulnerable group, their access to personalized and extensive reproductive healthcare services should be improved. During antenatal visits, they should be informed about physiology of pregnancy, common discomforts in pregnancy and coping with these discomforts and their adaptation to pregnancy should be supported. Pregnant adolescents should also be informed about the functions of health centers and EDs. If a doctor and a midwife are available in gynecological and obstetric outpatient clinics of hospitals until 7 pm., ED visits for tests and treatment can be prevented. It can be suggested that all health professionals working in the hospital where the present study was conducted should be offered in-service training for keeping hospital records properly.

## Ethical consideration

Ethical approval was obtained from the Clinical Research Ethics Committee of Mersin University (approval date:12 April, 2018 and approval number: 2018/156) and written permission was obtained from the administration of the hospital where the study was carried out (permission number: 16867222-774.99 and permission date: 24 April, 2018).

## Conflicts of interest

The authors declare that there is no conflict of interest.

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The study was not supported financially by any institutions or organizations.

## Contribution of authors

MY contributed to conception and design of the study, analyzed data, manuscript preparation, editing. RK contributed to conception and design of the study, data collection, analyzed data, manuscript preparation. Both authors read and approved the final manuscript.

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