

# Maternal Perinatal Outcomes of Pregnancy Adolescents in A Lima Hospital From 2017 to 2020

Research Article

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## Article History

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## Summary

Adolescent pregnancy constitutes a risk condition for some obstetric complications, especially in early adolescence. Objective: The general objective was to describe the demographic, clinical and perinatal characteristics of pregnant adolescents and their newborns in a hospital in Lima between 2017 and 2020.

Materials and methods: Cross-sectional descriptive observational study of pregnant adolescents treated at the Edgardo Rebagliati Martins Hospital between 2017 and 2020. A census sample was taken that included all the pregnant women registered in the database. Data of the services and of those that meet inclusion and not exclusion criteria. Statistical records were transferred to Excel spreadsheets for coding and could be imported into STATA version 12.0 for Windows for further analysis.

Results: Among the maternal complications, premature rupture of membranes was more common in young adults; among newborns, the most common complication was neonatal respiratory distress syndrome (18 cases).

Conclusions: It was concluded that adolescent pregnancy increases morbidity and perinatal morbidity, which is also a sociocultural problem.

**Keywords:** Adolescents; pregnancy; Neonate; Cross Sectional studies; Preterm birth; Neonatal Respiratory Distress Syndrome; Risk Factors; Morbidity

## Abstract

Teenage pregnancy is a risk condition for some obstetric complications, especially in early adolescence. Objective: The general objective was to describe the demographic, clinical and perinatal characteristics of pregnant adolescents and their newborns in a hospital in Lima between 2017 and 2020.

## Introduction

The World Health Organization considers pregnancy in adolescence as high obstetric risk because it can affect the health of the pregnant woman and the newborn; also due to social and psychological influences

[1] Trends in adolescent pregnancy have changed throughout the world in recent decades. The World Health Organization establishes that the period of adolescence is the stage between 10 and 19 years of age. It can be divided into: early, from 10 to 14 years of age, and late, in those over 14 years of age [2]



Adolescent pregnancy is recognized as a public health problem, due to the greater occurrence of unfavourable outcomes and maternal and neonatal deaths [3]. Young women who start sexual life early are at risk of becoming pregnant and presenting complications, [4,5] such as are the higher incidence of caesarean section, preterm birth and perinatal mortality. In Latin America, a slow decline in pregnancy rates for the 15-19 age group has been observed, in contrast to other regions worldwide. Likewise, it represents the only region with an increasing trend of pregnancies in the age group of girls under 15 years of age [6]. In Peru, according to information from the United Nations Population Fund, for 2017-2022, every 8 minutes a child is born as a result of an adolescent pregnancy. There is a decrease in the numbers of pregnant adolescents, from 75 to 53 births per 1,000 women between 1996 and 2018; however, these figures remain high [7,8].

The study carried out by Macedo TC, Montagna E, and collaborators, constitutes the largest and most recent meta-analysis that evaluates adolescent pregnancy and the prevalence of preeclampsia and eclampsia at this stage in different countries of the world since 1969, being 6.7% in the population studied [9,10]. In Tlaxcala, Mexico, Osorno-Romero Flores-Pulido and Méndez-Hernandez concluded that adolescent pregnancy constitutes a very high-risk situation that can lead to fatal medical, maternal, and neonatal complications [11]. In 2022, Ciudad Juárez, Chihuahua, Camargo-Reta, Estrada-Esparza, Reveles-Manríquez et al reported that 49.8% had complications during pregnancy, 24.4% during childbirth, and 0.3% present in the postpartum period and are perinatal diseases more important. The main one being fetal distress [12].

In the studies reviewed, the most commonly reported maternal complications were spontaneous abortion, gestational hypertension, hemorrhage, urinary tract infection, and premature rupture of membranes; which were more common in the adolescent pregnant population than in other age groups [13,14]. The higher incidence of placental disorders in adolescents may be related to the concept of uterine immaturity or resistance of the decidua, as well as other unexplored aspects of uterine physiology [15,16]. Among the circumstances that affect the perinatal outcome in pregnant adolescents, according to the study by Timur H Onur-Topcu H, Kuntay-Kokani M and their colleagues in Turkey, it was concluded that the risk of a first pregnancy is greater than the next. Additional risk situations were identified, such as the occurrence of perinatal complications in the first pregnancy, younger maternal age, and birth intervals of less than 18 months [17].

The importance of this study is based on characterizing the group of pregnant adolescents and the maternal-perinatal complications that have occurred, since they will contribute to an adequate diagnosis and treatment. In addition, this research will help address prevention and health promotion issues that will affect sexual and reproductive health in this age group.

## Aim

The objective was to describe demographic, clinical and perinatal characteristics of pregnant adolescents and their newborns in a hospital in Lima between 2017 and 2020. The present study is of a retrospective descriptive observational type.

## Materials and Methods

A census-type sampling was carried out that included all the pregnant patients of adolescent age registered in the Perinatal Surveillance Service. There would be no non-personally identifiable data that met the inclusion criteria and there would be no exclusion criteria, such as medical record numbers.

### Inclusion Criteria

Pregnant women between the ages of 10 and 18 who are admitted to

the HNERM Hospital between 2017 and 2020; and that do not have exclusion criteria.

### Exclusion Criteria

Pregnant women whose pregnancy ended in an abortion.

### Statistics

a. A file was used as a data collection tool where the demographic and perinatal variables of the patients filled out by the researchers were recorded. The perinatal surveillance database has a collection form which was filled out during the patient's admission and completed during the hospitalization of the patient and their NB, this is updated and filled out routinely by the service.

b. The statistical records will be transferred to an Excel spreadsheet to code them and be able to enter them into the STATA program version 12.0 for Windows for subsequent statistical analysis.

c. Double typing, correction of errors will be made with the original perinatology record and the clinical history, as it is a descriptive study, measurements and frequency graphs will be used to analyze each of the study variables. To describe the qualitative variables, frequency bars will be used. For quantitative variables with a normal distribution, the mean is used; as a measure of dispersion the standard deviation. For variables that do not present normal distribution, it will be presented in median and interquartile range. As this is an observational study, statistical measures of association will not be used. Tables with absolute and relative frequencies (percentages) will be presented.

### Ethical Aspects

Letter of approval No. 6 6-GRPR-ESSALUD-2022 Lima, 17 1 FEB 2022. Confidentiality, files and Excel were taken into account anonymously, sources found in the perinatal surveillance system and medical records that are private, it does not require informed consent, it is an observational study and a data census is used.

## Results

1,047 adolescents attended from 2017 to 2020 were registered, out of a total of 22,250 pregnant women (4.71%) and 23,141 births (4.52%), corresponding to the years 2017 (305 patients), 2018 (341 patients), 2019 (273 patients) and 2020. (128 patients). Average age 16.71, median 17 years, with a minimum value of 12 and a maximum of 19 years. 99.2% (1039 patients) correspond to single births attended in pregnant adolescents, and 0.8% (8 patients) correspond to twin births. In the population studied, a history of 1 abortion was recorded in 6% of the pregnant women (0.57%) of patients; history of 2 abortions in 0.3% (3 patients). The hospital stay was 3.65 days. 13 pregnant women were admitted to the Intensive Care Unit.

### Maternal Outcomes

It was determined that maternal diseases occurred in 874, 84% of the cases. Of the patients studied, 293 presented UTI (33.5%) and 547 patients (52%) presented other diseases; 28 patients (3.2%) presented asthma, 5 patients (0.6%) had diabetes. hypertension 5 (0.6%). Among the Obstetric Conditions registered in 409, there were cases of premature rupture of membranes in 88 patients (21.5%), Anemia in 77 patients (18.8%), and Other conditions in 166 patients. (40.6%) Cases of Severe Preeclampsia were registered in 41 patients (10%).

Postpartum complications were recorded in 458 patients (43.7% of the total postpartum women); of which, 234 presented anemia (51.1%); 51 patients presented urinary tract infections (11.1%). Presented complications during delivery, 27 patients (5.9%), Postpartum infections, 43 patients (9.4%), Hemorrhage without shock, 22 patients (4.8%), others 14.17%, see Table 1.



**Table 1:** Description of Maternal Characteristics.

Maternal Characteristics	Subgroup	No	%
women in general		22250	100
1. Background	teenage women	1047	4.71
	Total	874	100
	UTI (urinary infection)	293	33.5
	Asthma	28	3.2
	Diabetes	5	0.6
	AHT	5	0.6
2. Obstetric complications	Total	409	100
	RPM	88	21.5
	Anemia	77	18.8
	preeclampsia	71	17.3
	severe preeclampsia	41	10
3. Postpartum complications	Total	458	100
	Anemia	2. 3. 4	51.1
	UTI (urinary infection)	51	11.1
	Delivery	27	5.9
	postpartum infections	43	9.4
	non-shock hemorrhage	22	4.8

**Perinatal Results**

Among the perinatal results, of a total of 1055 newborns, 85.4% presented a birth weight of 2500 g to 4000 g. A total of 93 neonates (8.8%) with a birth weight of 1,500 to 2,500 grams were registered.

4.3% of the neonates, corresponding to 45 cases, had a birth weight greater than 4000 g and 1.5%, corresponding to 16 neonates, had a weight of less than 1500 g. It should be noted that the average weight at birth was 3153 g, see Table 2.

**Table 2:** Description of the characteristics of the newborns of adolescent patients.

Maternal Characteristics	Subgroup	No	%
RN in general		23141	100
	RN of adolescents	1055	4.56
Birth weight	Greater 4000g	Four. Five	4.3
	2500-4000g	901	85.4
	1500-2500g	93	8.8
	1000-1500g	eleven	1
	Less than 1000g	5	0.5
prematurity	preterm	131	12.5
Sex	Female	532	50.4
	Male	523	49.6
low apgar	At the minute	120	11.1
	at 5 minutes	8	0.7
type of birth	Vaginal delivery	582	54.6
	Caesarean section	465	45.4
Newborn status at birth	Live births without pathology	991	94.7
	Live births with pathology	64	8.5
	Deaths before TdP	4	0.4
	Death during TdP	3	0.3



neonatal morbidity	Jaundice	88	8.3
	congenital anomalies	44	4.2
	intrauterine infections	32	3
	Hyaline membrane disease	18	1.7
	Transient tachypnea of the newborn	13	1.2
	Glycemic disorders	10	0.9
	hematological alterations	4	0.4
	Meconium aspiration	2	0.2
	intraventricular hemorrhage	1	0.1
	neonatal asphyxia	1	0.1

Term newborns were 924, representing 87.4% and preterm newborns were 131, representing 12.5%; the average gestational age being 37.74 weeks, see Figure 1. The sex characteristics of the newborns were; 532 female and 523 male. The APGAR characteristics were 87.9% of neonates with adequate apgar at one minute and 11.1% low apgar at one minute. The APGAR at 5 minutes was adequate in 98.5% and low in 0.7%, see Figure 2.

There were 4 cases of death before labor (0.4%) and 3 cases of death during labor (0.3%). 92 neonates required ICU or NICU. Among the cases of neonatal morbidity, 888 neonates without morbidity were registered. There were 18 cases of neonates with hyaline membrane disease, 2 cases of neonates with meconium aspiration, 13 neonates with transient tachypnea and other morbidities in 1 neonate. There were cases of asphyxia in 1 neonates, respiratory depression in 22 neonates, glycemic disorders in 10 neonates, congenital anomalies in 44 neonates, intrauterine infections in 32 neonates, and jaundice in 88 neonates. Likewise, there were 4 cases of hematological alterations and 1 case of intraventricular hemorrhage.

### RN A TERMINO Y PRETERMINO DE PACIENTES ADOLESCENTES

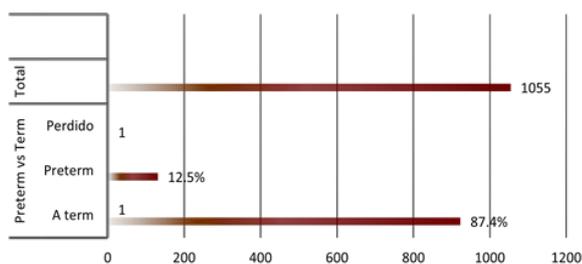


Figure 1: According to gestational age.

### APGAR AL 1 MIN Y AL 5 MIN DE LOS RN DE PACIENTES ADOLESCENTES

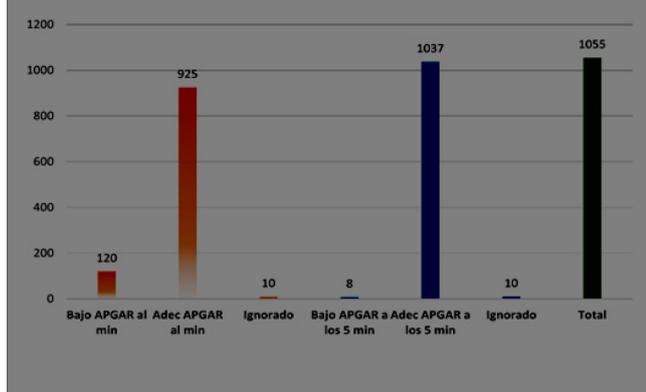


Figure 2: According to the birth APGAR.

In the present study, the vaginal delivery route was in 54.6% of cases, corresponding to 582 births, see Figure 3. The indications for cesarean section were: fetal distress 11.5%, cephalopelvic disproportion 11.4%, preeclampsia 8.5%, dysfunctional labor 7.5%, previous caesarean delivery 5.6%, breech 2.4%, other 51.4%, see Figure 4.

The mean hospital stay of neonates was 4.49 days. In 62.8% of the cases it was greater than 3 days. Among neonates, out of a total of 1055; 991 cases (94.7%) of live births without pathology were registered.

### PV O CESAREA EN ADOLESCENTE

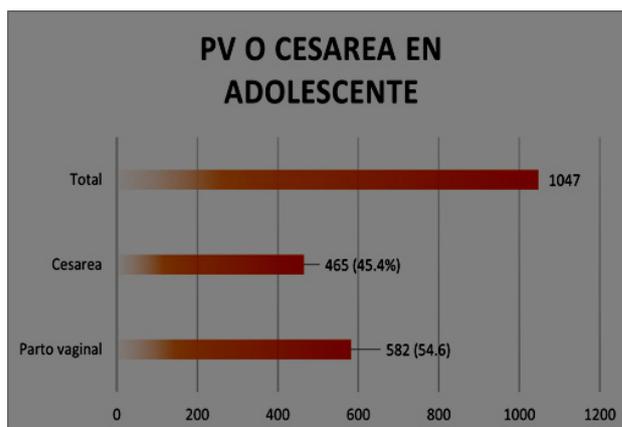


Figure 3: According to type of delivery.

### CAUSAS DE CESAREA EN PACIENTES ADOLESCENTES

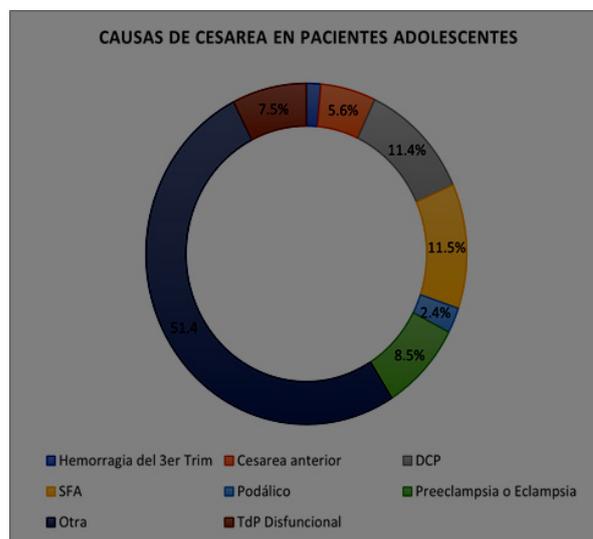


Figure 4: Causes of cesarean section in pregnant adolescents.



## Discussion

Between 2017 and 2020 there were 22,250 pregnant women and 23,141 newborns at the Edgardo Rebagliati Martins National Hospital in Lima, Peru. In this research, adolescent pregnancy surprisingly represented 4.71% of all pregnancies; lower figures than those observed in the Latin American region, where it is higher than 12%. This figure is surpassed in Africa, where adolescent pregnancies were 18.8% [18]. It also emphasizes the fact that pregnant women receive prenatal care until the last trimester of pregnancy, with institutional delivery. This is due to the nature of health insurance, which is aimed at the working population and their dependents.

The average age of adolescent pregnancy was 16.71 years; similar to the results of other studies [5,9,13] 99.2% were only children and 0.8% were twins. This work showed that more than half (54.6%, corresponding to 582 births) of the new pregnancies that end by vaginal delivery, the percentage that ends by cesarean section can be considered high (45.4%). The main indications for cesarean section in adolescents were cephalopelvic incompatibility (11.5%), acute fetal distress (11.5%) and preeclampsia (8.5%); similar results from other authors [5,9,13].

In 2006, Urbina C and Pacheco J analyzed the perinatal characteristics of adolescent pregnancies. The study was conducted between 2000 and 2004 in a hospital in Lima, Peru. They concluded that preterm delivery and perinatal mortality were higher in the younger age group, especially in pregnant women aged 17 years or younger, as the highest risk group. Evidencing an increase in the incidence of cesarean sections in these patients, in contrast to older adolescents [13] Pregnancy in patients of this age group is at high risk. Previous studies have shown that pregnant women between the ages of 13 and 18 have a higher risk of preeclampsia. A study by Domínguez-Anaya R demonstrated that pregnancy in children under 15 years of age has a higher risk of premature birth and cesarean delivery than older adolescents in Colombia. The age of the pregnant woman was considered a risk condition for obstetric complications [5].

In contrast, 84% of the pregnant women in our study developed some medical condition, such as urinary tract infection (33.5%), premature rupture of membranes (21.5%), anemia (18.8%), severe preeclampsia (10%). It is mentioned that anemia constitutes the most frequent complication of pregnancy, showing 18.8% in the present study, incomparisonto another publication in Peru where it was found at 14.48%.14. Among postpartum complications (43.7%), anemia (51.1%) was the most important, followed by urinary tract infection (11.1%); data very similar to those of other publications [19,20] Patients aged 15 to 19 years were twice as likely to die from reproductive events; being six times higher in children under 15 years of age [21].

The perinatal data obtained indicated that the average birth weight was normal (3,153 grams), with 10.3% weighing less than 2,500 grams and 4.3% weighing more than 4,000 grams; Figures similar to those described in other series (7-14% at <2500 g of body weight) [22] Likewise, gestational age corresponds to term 87.4% and preterm 12.5%. The percentage of prematurity is similar to that of non-adolescent pregnant women and is lower than that found in another study [13] Apgar was low at 11.1 percent in the first minute and just 0.7 percent after 5 minutes.

The mean hospital stay of newborns was 4.49 days, and 62.8% of them were hospitalized for more than 3 days. 94.7% of the newborns did not present pathological changes, and the main neonatal symptoms were jaundice, congenital anomalies, intrauterine infection, respiratory depression and hyaline membrane. The perinatal mortality of the young women studied was 7%; lower than that described in other series [22,23].

## Conclusion

This work identifies the most common maternal and perinatal complications in the adolescent population, which is important because it helps to develop strategies to prevent adverse outcomes in this vulnerable group.

## Acknowledgement

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## Conflict of Interest

There is no Declaration of conflict of interest, Declaration of some financing source: it is self-financed

## Author's Contribution

- CUA: Conceptualization, Methodology, Software, Formal analysis, Research, Resources, Data curation, Writing - original draft, Writing - review and editing, Visualization, Project administration, Supervision, Acquisition of funds.
- MCD: Software, Validation, Formal Analysis, Research, Resources, Data Curation, Writing - Original Draft, Writing - Proofreading and Editing, Visualization Project Management, Fundraising.
- JST: Formal analysis, Research, Data curation, Fundraising, Writing - proofreading and editing,
- DVF: Formal Analysis, Research, Data Curation, Fundraising, Software.

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