Medical University
"Prof. Dr. Paraskev Stoyanov" – Varna
Faculty of Medicine
Department of Obstetrics and Gynecology

Antonio Hristov Dushepeev MD

Adolescent pregnancy and childbirth – current problems and solutions

ABSTRACT

on

Dissertation

for awarding an educational and scientific degree

"Doctor"

Supervisor:

Prof. Emil Georgiev Kovachev, MD, PhD

Varna, 2025

Medical University "Prof. Dr. Paraskev Stoyanov" – Varna

Faculty of Medicine

Department of Obstetrics and Gynecology

Antonio Hristov Dushepeev MD

Adolescent pregnancy and childbirth – current problems and solutions

ABSTRACT

on

Dissertation

for awarding an educational and scientific degree

"Doctor"

Field of Higher Education: 7. Health and Sports

Professional field: 7.1 Medicine

Doctoral program: "Obstetrics and Gynecology"

Supervisor:
Prof. Emil Georgiev Kovachev, MD, PhD

Official reviewers:
Ass. Kremen Tsvetanov Tsvetkov, MD, PhD – internal member;
Prof. Elena Dimitrova Dimitrakova, MD, PhD - external member;

Varna, 2025

The dissertation contains 149 standard typewritten pages and is illustrated with 71 figures, 39 tables and one appendix.

The literary sources used include 182 titles, of which 3 are in Cyrillic and 179 in Latin.

The numbers of the figures and tables in the abstract correspond to the numbers in the dissertation.

The author is a PhD student in an independent form of study at the Obstetrics and Gynecology Department, Faculty of Medicine, Medical University - Varna and was enrolled by Order No. R-109-352/18.07.2023.

In connection with the dissertation, three full-text publications have been realized.

The dissertation was discussed, adopted and proposed for public defense at meetings of the Departmental Council of the Department of Obstetrics and Gynecology, Faculty of Medicine at MU – Varna, held on 19.02.2025.

Scientific jury consisting of:

Internal Members:

1. Assoc. Prof. Dr. Stefan Vasilev Kisyov, MD - Chairman;
2. Assoc. Prof. Kremen Tsvetanov Tsvetkov, MD, PhD

Reserve Internal Member:

Ass. Zhivko Stoyanov Zhekov, MD, PhD

External members:

1. Prof. Elena Dimitrova Dimitrakova, MD, PhD
2. Prof. Maria Angelova Angelova, MD, PhD
3. Assoc. Prof. Petar Petrov Dobrev, MD, PhD

Reserve External Member:

Ass. Tihomir Pankov Totev, MD, PhD

The public defense of the dissertation will take place on 21.05.2025.

The materials on the defense are published on the website of MU – Varna.

C O N T E N T

CUTS

But.	Adolescents
A.B.	Adolescent pregnancy
APGAR	Activity, heart rate, irritation/aspiration response, skin color, breathing
TR	Probable term on razhnan
DG	Gestational diabetes
LCD	Antenatal consultation
IURP	Intrauterine fetal retardation
OHM	Amniotic sac
M.	Stillbirth
PPI	Sexually transmitted infections
PPOM	Premature ruptured amniotic sac
IP	Preterm birth
P	Birth
WHO	World Health Organization
SC	Cesarean
Ultrasound	Ultrasound diagnostics
ELBW	Extremely low birth weight
HIV	Human immunodeficiency virus
LBW	Low birth weight
VLBW	Very low birth weight

INTRODUCTION

Adolescent pregnancy is a global phenomenon with clearly known causes and serious health, social and economic consequences. Globally, the birth rate among adolescents has decreased, but the rate of change is uneven in different regions. There are also huge differences in levels between and within countries. Teenage pregnancy is higher among those with lower education or low economic status. In addition, there has been slower progress in reducing first births among adolescents among these and other vulnerable groups, leading to increasing inequality. Child marriage and child sexual abuse put girls at increased risk of pregnancy, often unwanted. In many places, barriers to obtaining and using contraceptives prevent adolescents from avoiding unwanted pregnancies. Every year, approximately 21 million girls aged 15-19 in developing regions become pregnant and approximately 12 million of them give birth.

Globally, adolescent (juvenile) pregnancy births decreased from 64.5 births per 1000 women (15-19 years) in 2000 to 41.3 births per 1000 women in 2023. Several factors contribute to adolescent pregnancies and births. First, in many societies, girls are under pressure to marry and have children. In many places, contraceptives are not readily available to adolescents. Child sexual abuse increases the risk of unwanted pregnancy. A 2020 WHO report estimated that 120 million girls under the age of 20 have experienced some form of forced sexual contact.

Adolescent pregnancy is a worldwide public health problem. It is associated with an increased risk of maternal and fetal complications.

They put to the test the health insurance and welfare systems in countries with high rates of adolescent pregnancy. It is said that 90% of them are in developing countries. On the other hand, countries such as the USA, the Netherlands, Great Britain, Ireland, where the high percentage is a fact, are indicated.

Puberty is described as the transition from childhood to adulthood, a time of profound biological, intellectual and psychosocial changes. During this period, mental and sexual maturity is reached, the abilities of deep thinking and decision-making about education and lifestyle, which sizes their lives as adults. Three periods could be differentiated in adolescents: early (between 10-14 years), middle (15-17 years), late (18-20 years).

The early period is considered the most problematic. It is characterized by a low capacity for individual decision-making against the background of emotional and financial dependence on parents and pronounced relationships with personalities of the same sex. The foundations of identity, sexuality and autonomy are being laid. The attitude towards the

changing bodily essence changes. The same, but weaker changes occur in the middle period (15-17 years), while late puberty (18-20 years) is almost identical to the social and medical problems of the next age group - 20-24 years.

All three periods of pregnant adolescents are characterized by a late search for medical and social consultation, advice and support. This does not allow the development of planned strategies to promote adequate health behavior during pregnancy, and hence the strengthening of decision-making skills, responsible behavior, as well as the availability of alternative decision-making behaviors. Behavioral relationships are damaged during weight gain and body changes, good nutrition and good appearance, and it is difficult for parents and relatives to be involved in prenatal care. There are obstacles in teaching the pregnant woman to take responsibility for caring for pregnancy and the unborn child, as well as to catch the initial symptoms of depression, anxiety and emotional distress. The consequences are delayed intellectual development, decreased sensitivity to one's own fate, anxiety and depression, domestic violence and neglect of caring for the newborn. The socio-economic consequences are a reduced level of education, low incomes, greater dependence on parents and people with whom the child cohabits and/or the child's father (as a rule, much older), instability of cohabitation and/or marriage, marked dependence on national and regional social payments.

PURPOSE AND OBJECTIVES

1. PURPOSE OF THE DISSERTATION

The purpose of the dissertation is to study obstetric problems in pregnancy, childbirth and the puerperal period in adolescence from their own empirical material.

2. TASKS

1. Determine the age profile of the studied group.
2. To track the level of demand for medical services and consultations in pre-hospital care
3. To study the frequency of abortions at will in adolescence.

4. To clarify the frequency of abortions in the first and second trimesters, premature ruptured amniotic sac, premature birth and prematurity in adolescence.
5. To define the etiology, levels of intrauterine fetal death and stillbirths.
6. To visualize deviations and differences in birth per vias naturales, birth traumatism, indications of S.C. and features of the puerperal period.
7. The results obtained and processed, where necessary, should be compared with those of a control group or with all pregnancies and births that occurred during the analyzed period.

MATERIAL AND METHODS

(clinical contingent and methodology)

1. Material and methods

A retrospective study was carried out of 14,936 pregnancies admitted and managed in the Maternity Ward and Gynecology Department of UMHAT – Burgas AD in the period 2016 – 2022.

1290 are pregnancies in adolescence, defined by the WHO up to 20 years. For the purposes of this work, in order to differentiate, emphatically, the characteristics of the appearance, course and result of A.B. , the upper limit was set at 18 years of age on the day of birth, which is in line with the practice of similar studies duly cited in the literature review. With the same argumentation, this clinical group was divided into two subgroups – 10 – 15 years old – 310 /24.03% / and 16-18 years old - 980 / 75.97% / .

A total of 1039 births were analyzed, of which 1024 live births and 15 stillbirths, for the entire period.

The first subgroup consisted of 242 pregnant women, and the second – of 797.

All periods of A.B. were examined in detail, and the results obtained, where necessary, were compared with those of a control group consisting of 120 pregnant women aged 20-24 years.

For processing the data from the study related to the dissertation, the following statistical packages, application programs and applications are used:

1) Data processing and analysis using spreadsheets (MS Excel 2019) – to apply descriptive statistics, compliance tests, distribution laws, graphical representation of data and analysis results.
2) Package of application programs for statistical analysis, interpretation and presentation of data SPSS (SPSS Inc., IBM SPSS Statistics) and medical statistical software MedCalc (© 2023 MedCalc Software Ltd) - for procedures for analysis of variance, correlation and regression analysis, graphical representation of data and analysis results.

For the purposes of statistical analysis, the following categories and methods are used:

1) Variational Analysis:

1. Calculation of arithmetic mean X, standard deviation σ, representative error Δ and 95% confidence interval of the mean.

2. Student t-test to compare two averages.

2) Frequency analysis of qualitative variables (nominal and rank), which includes absolute frequencies, relative frequencies (in percentages), cumulative relative frequencies (in percentages).

3) Graphs, tables and diagrams.

2. Methods for testing hypotheses:

1) Parametric methods:

1.1. T-test for comparing the averages of two independent samples (Independent Samples Ttest) – checking for equality of two mean values.

1.2. T-test for comparing the means of two dependent samples (Paired Samples T-test).

1. 3. One-sample T-test to compare the average value of a sample with a selected test value (One-Sample T-test).

2) Non-parametric methods:

2.1. Fisher's exact test for control of statistical significance in the analysis of influence between selected parameters.

2.2.Determination of the $\chi 2$ criterion (Chi-square test, Pearson test) for comparison of factual and theoretical frequencies.

2.3. Kolmogorov-Smirnov and Shapiro-Wilk methods – verification of normality of the distribution of a quantitative variable.

2.4. Mann-Witney method – comparison of averages in two groups of one quantitative variable when the distribution is not normal.

3) Single Factor Analysis (ANOVA: Single Factor).

4) Correlation Analysis:

1. Calculation of correlation coefficients for descriptive alternative features.

2. Nonparametric Linear Correlation Coefficient – Spearman.

5) Regression analysis: When testing hypotheses, we assumed a confidence interval of 95% and a critical level of significance - $\alpha = 0.05$. We reject the corresponding null hypothesis if the p-value is less than α.

RESULTS AND DISCUSSION

Age profile and contingent

The retrospective study covered a total of 1290 adolescent patients admitted to UMHAT-BURGAS AD in the age range from 10 to 18 years of age in 2016-2022.

It should be concluded that the largest share of patients aged 17 years (42.5%) of the total population studied. This is followed by patients aged 16 years (34.5%) and 18 years old – 18.7%, while the smallest share is of 13-year-olds – 0.8%.

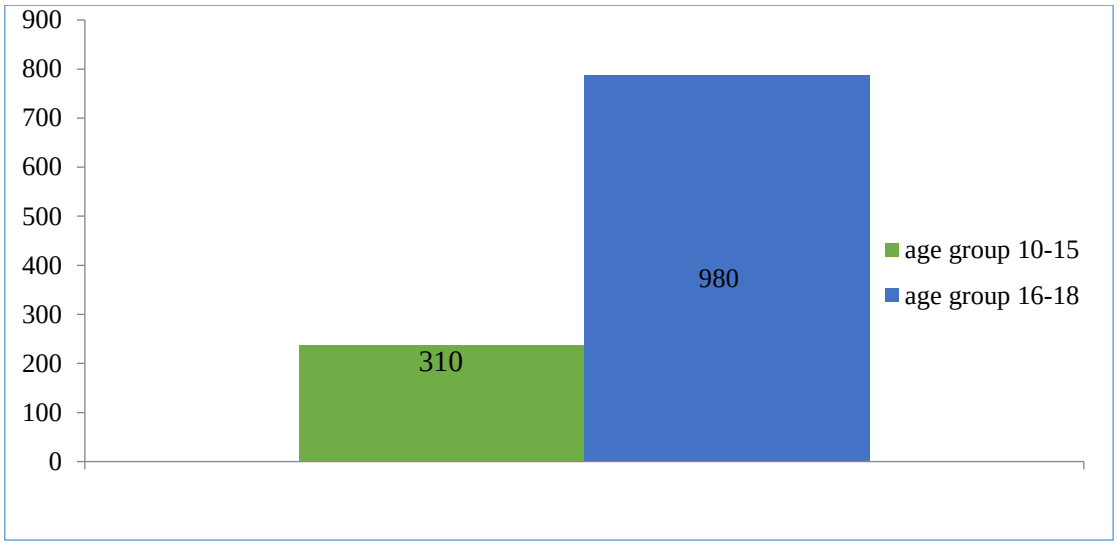


Figure 1. *Distribution of adolescent patients by age subgroups*

Table 1. *Average age of patients broken down by year*

Year	2016	2017	2018	2019	2020/21	2022	p-value
Middle age	16.1094 SD± 0.9242	16.1523 SD± 0.9242	16.1345 SD± 0.9242	16.1835 SD± 0.9242	16.0329 SD± 0.9242	16.1329 SD± 0.9042	*p=0.7331*

The analysis of the results (Table 1) did not find a statistically significant difference in the age profile of this clinical group for the period 2016-2022 (*p=0.7331).* The average age of the admitted patients was 16 years (16.12 SD± 0.9441).

The same trend is maintained when analyzing the years by pairs (Table 2).

Table 2. *Average age of patients divided by pairs of years*

Pairs of years	Average age	p - value
2016/2017	2016 = 16.11 2017= 16.15	*p = 0.99566*
2016/2018	2016 = 16.13 2018 = 16.15	*p =0 .99947*
2016/2019	2016 = 16.11 2019= 16.18	*p = 0.96611*
2016/2020	2016 = 16.11 2020= 16.03	*p = 0.96198*
2017/2018	2017 = 16.15 2018= 16.13	*p = 0.99986*
2017/2019	2017= 16.15 2019 = 16.18	*p =0 .99875*
2017/2020	2017= 16.15 2020 = 16.03	*p =0 .83089*
2018/2019	2018 = 16.13 2019= 16.18	*p =0 .99277*
2018/2020	2018= 16.13 2020 = 16.03	*p = 0.89872*
2019/2020	2019= 16.18 2020 = 16.03	*p = 0.67458*

Menarche

After administration of the T-test, a significant difference (*p = 0.0004*) was found at the time of the first cycle between adolescent patients in the age group of 10-15 years (M = 11.82, SD = 34.5) and in adolescent patients in the age group of 16-18 years (M = 12.23, SD = 23.5).

In patients in the age range of 20-24, the mean value at the time of the first cycle is 13 years (M=13, SD = 1.07), and we find a significant difference between them and the time of the first cycle in adolescent patients aged 10-15 years (*p < 0.00001*) in whom the mean value is 12 years (M=12, SD=1.04).

The results coincide with those of similar studies – early menarche affects the onset of sexual intercourse and, accordingly, the age at the onset of the first pregnancy.

Age profile of the control group (patients aged 20-24 years)

The mean age of the admitted patients in the control group was 23 years (M22.58 SD± 1.61).

Between 2016 and 2022, the pregnancies found at UMHAT – Burgas AD were 14936. Of these, 11718 ended in childbirth.

1290 are the pregnancies in adolescents. Up to the age of 15 are 310, and those up to 18 years of age. – 980.

A total of 1039 adolescent births were examined, representing 8.87% of all births. 1024 of them / 98.56% / have graduated with live birth, and 15 /1.44%/ with M.

At the age of 10 – 15 years, we have 242 pregnancies ending in childbirth (5 months) or 23.29%, and in the other subgroup – 797 / 10 months / - 76.71%. / N=1039/

ABORTION – Statistical Basis

131 (10.17%) are abortions on demand. Of these, 31 (23.7%) were aged 10-15 and 100 (76.3%) were aged 16-18.

Miscarriages are 104 /8.06%/. 28 are of patients up to 15 years of age - 26.92%, and 76 /73.08%/ - of those from 16 to 18 years of age.

Abortions for medical reasons are 9 and 7, respectively for the two clinical subgroups or a total of 1.24% of all A.B. .

In women over 18 years of age, abortions for medical reasons were 75 for the entire study period – 0.7%.

PREGNANCY AND CHILDBIRTH - statistical basis

In the age range of 10-15 years, 237 live births occurred, and in the group 16-18 years old - 787 births - 1024 in total or 1039 births after the addition of 15 stillbirths.

In the first age group, 2.07% of all births for the period occurred, and in the second group 6.80%.

For 832 A. /80.08%/ was the first birth, for 190 /18.26%/ – the second, for 16 /1.55%/ – the third and for one / 0.1%/ – the fourth.

These statistics include 8 pregnancies and births of twin pregnancies /0.78%/ reported as "birth". They were conceived without assisted reproduction and will be presented in a special section.

GENERALIZATION

There were 1290 pregnancies in adolescent women /9.45% of all pregnancies/, 1024 /79.38%/ ended in live birth, 15 stillbirths /1.16%/, 104 /8.06%/ - with miscarriage, 131 /10.17%/ - with abortion by desire and 16 /1.24%/ - with abortion for medical reasons.

For comparison, women over 18 years of age have had 13646 pregnancies and we have 10552 live births – 77.32% and 127 stillbirths – 0.93%, a total of 10679. In addition, 954 /7.00 %/ are miscarriages and 1938 - 14.20% are abortions on demand. Abortions for medical reasons are 75 – 0.55%.

Abortions by the age of 18 relative to the total number of abortions are shown in Figure2

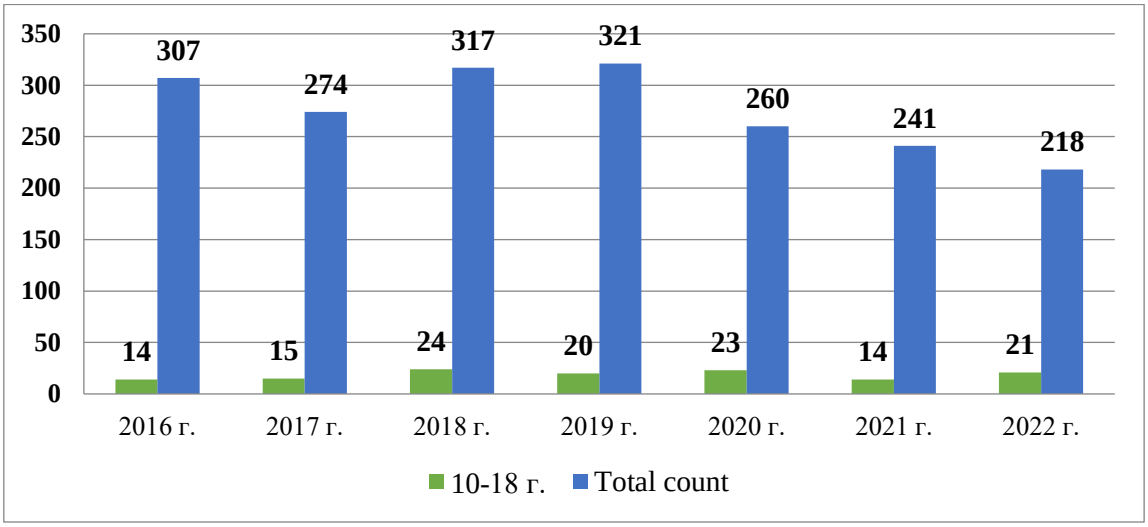


Figure 2. *Abortions on demand up to the age of 18 relative to the total number of abortions.*

Abortions on demand in A. accounted for 6.75% of all abortions performed at the University Hospital – Burgas AD during the analyzed period.

Abortions by age groups are shown in Figure 3.

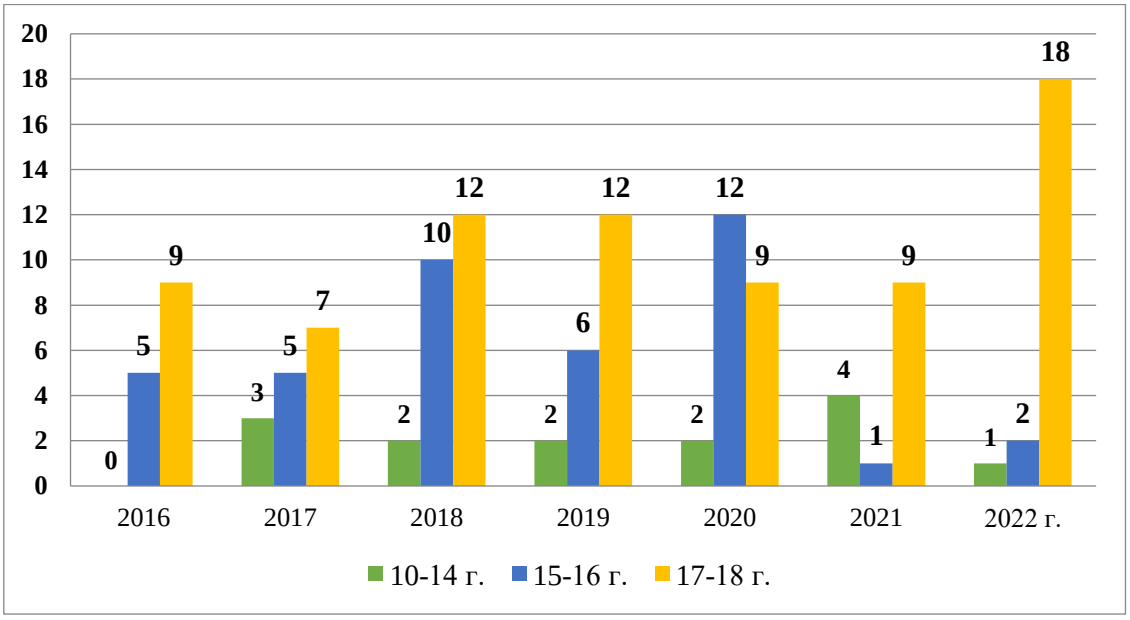


Figure 3. *Abortions on demand distributed by age groups.*

The distribution of abortions on demand according to gestational age is presented in Figure 4.

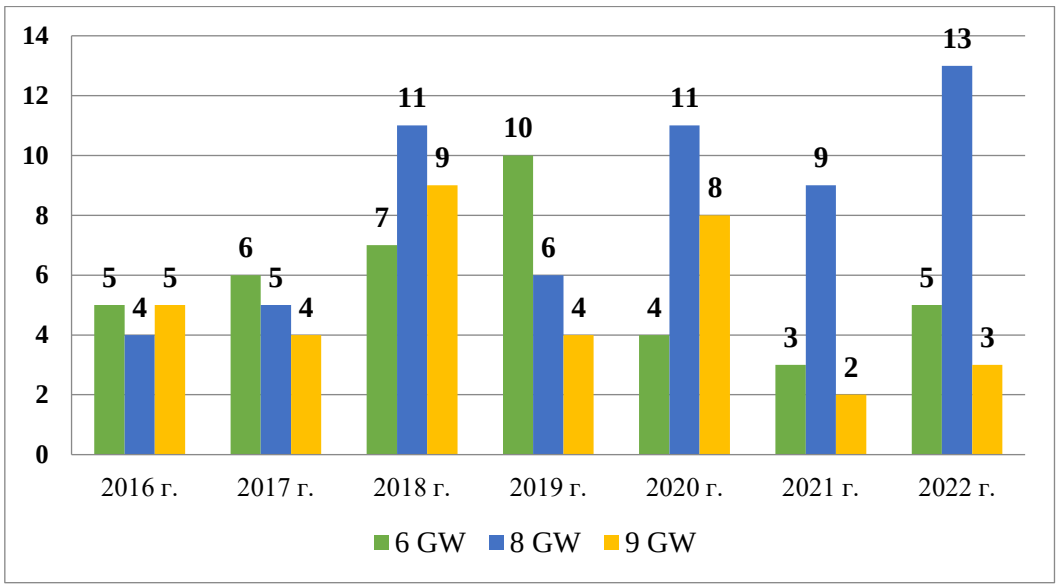


Figure 4. *Abortions at will, distributed according to gestational sac.*

Pregnant women up to 14 years of age are separated from the clinical subgroups, because termination of pregnancy becomes mandatory, after the assistance, presence and written consent of a parent.

The conclusion that is necessary is that in cases where the pregnant A. does not want to become a mother, she seeks assistance and medical assistance, within the statutory time limits, for termination of the pregnancy.

Miscarriages

There were 104 miscarriages for the period 2016 – 2022. 39 of them were missed abortion and 58 were abortus incompletus. It should be emphasized that 86 / 82.69% / of them occurred in the first trimester, and 18 – in the second /17.31%/.

At the age of 18 years, 459 abortus incompletus and 495 missed abortions occurred. Total – 954. / 692 /72.54% in the first trimester and 262 /27.46%/ in the second.

The distribution of incomplete abortions by age group is presented in Figure 5.

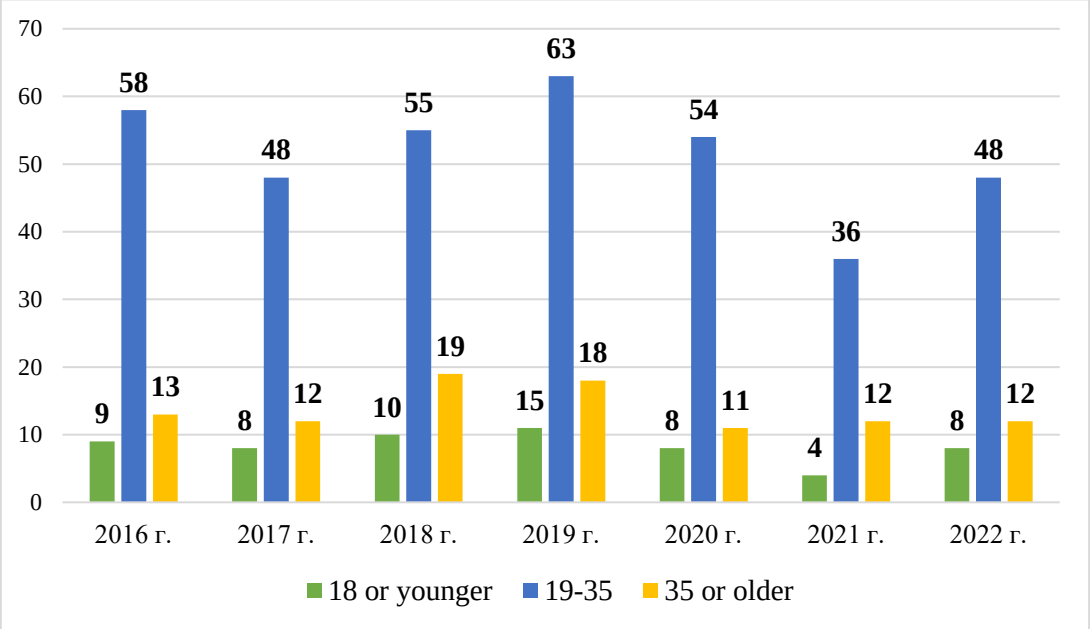


Figure 5. *Incomplete abortions distributed by age groups.*

The distribution of delayed abortions by age group is presented in Figure 6.

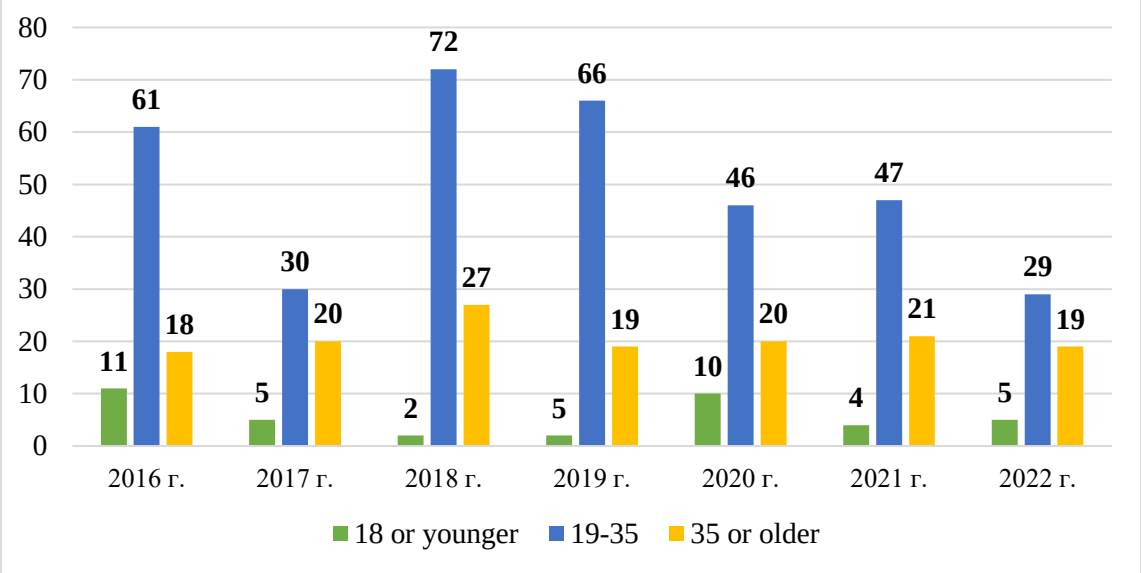


Figure 6. *Delayed abortions, divided by age groups.*

Table 3. *Number of incomplete and delayed abortions and rebirths.*

	Incomplete abortions		Delayed abortions		Reabrasions	
	under 18 years old.	**Over 18 years old.**	**under 18 years old.**	**Over 18 years old.**	**under 18 years old.**	**Over 18 years old.**
2016	9	71	11	79	1	7
2017	8	60	5	50	0	7
Aug. 2018	10	74	2	99	0	13
Aug. 2019	15	81	5	85	0	14
Aug. 2020	8	65	10	66	1	5
Aug. 2021	4	48	4	68	0	7
Aug. 2022	8	60	5	48	0	8

Table 4. *Abortions for the period 2016 - 2022, distributed by age groups.*

	10-15 years of age	**16-18 years old**
Miscarriages	28	76
Abortions for medical reasons	9	7
Abortion on demand	31	100
Total number of births	237	787

Table 5. *Data on the ratio of abortions of adolescent pregnant women in the period 2016-2022 at UMHAT Burgas AD.*

	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
n=250	**n=37**	**n=30**	**n=39**	**n=43**	**n=42**	**n=22**	**n=38**
Spontaneous Abortions	20 (54.05%)	13 (43.33%)	12 (30.77%)	20 (46.51%)	18 (42.86%)	8 (36.36%)	13 (34.21%)
Abortions for medical reasons	3 (8.11%)	2 (6.66%)	3 (7.69%)	3 (6.97%)	1 (2.38%)	0 (0.00%)	4 (10.52%)
Abortion on demand	14 (37.84%)	15 (50%)	24 (61.54%)	20 (46.51%)	23 (54.76%)	14 (63.63%)	21 (55.26%)

In terms of annual distribution, there are no significant differences in the total number of abortions, only a slight decrease in 2021 is noticeable, but there is no overall trend for such.

A positive trend is observed in the incidence of miscarriages in adolescent pregnancies, which fell from 54.05% in 2016. to 34.21% in 2022. A factor that is an indicator of improvement in the quality and scope of specialized medical care and pregnancy prevention among adolescent pregnant women.

Table 6. *Total number of births during the years studied and number of births by adolescent mothers.*

	Total number of births **N = 11576**	**Births from adolescent mothers** **N = 1024**	**%**
2016	1713	128	7,47%
2017	1620	169	10,43%
2018	1695	171	10,08%
2019	1809	109	6.02%
2020	1685	152	9.02%
2021	1546	151	9.76%
2022	1508	144	9.54%

The trend of a decline in the birth rate as an absolute value of the number of births and a decrease in the birth rate is obvious. According to NSI data, the birth rate in 2016 was 9.1‰, and in 2022 it was 8.8‰.

According to WHO data, the adolescent birth rate worldwide has fallen from 6.45% in 2000. to 4.13% in 2023. Therefore, the results of this study are relevant to those from developing countries rather than to the countries of Western Europe.

Table 7. *Data on the total number of pregnancies in adolescents and the ratio between abortions and births for the period 2016-2022 at UMHAT Burgas AD. N- without abortion for medical reasons.*

	Total number of pregnancies in adolescents n=1275	Pregnancies ending in abortion		Pregnancies ending in births	
		n	%	n	%
2016	165	37	22,42%	128	77,57%
2017	199	30	15,07%	169	84,92%
2018	210	39	18,57%	171	81,42%
2019	152	43	28,29%	109	71,71%
2020	194	42	21,65%	152	78,35%
2021	173	22	12,71%	151	87,28%
2022	182	38	20,88%	144	79,12%

As in previous scientific publications and based on the review, it is concluded that miscarriages in adolescent pregnancy are 8.06%, a low level compared to other studies on this issue. Abortions on demand accounted for 10.17%. Abortions for medical reasons represent 1.23% and represent a low level compared to the data from the surveyed literature.

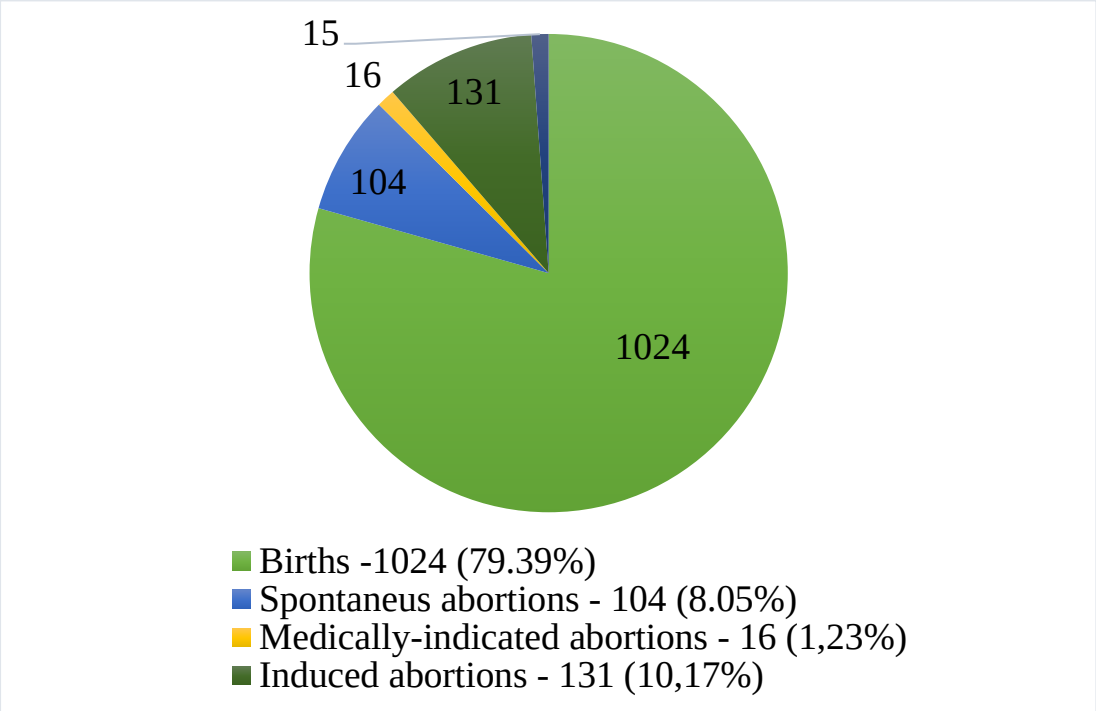


Figure 7. *Distribution of pregnancies in adolescents according to the outcome of pregnancy***.**

STILLBIRTH

The number and percentage of stillbirths relative to the total number of births by year is presented in Figure 8.

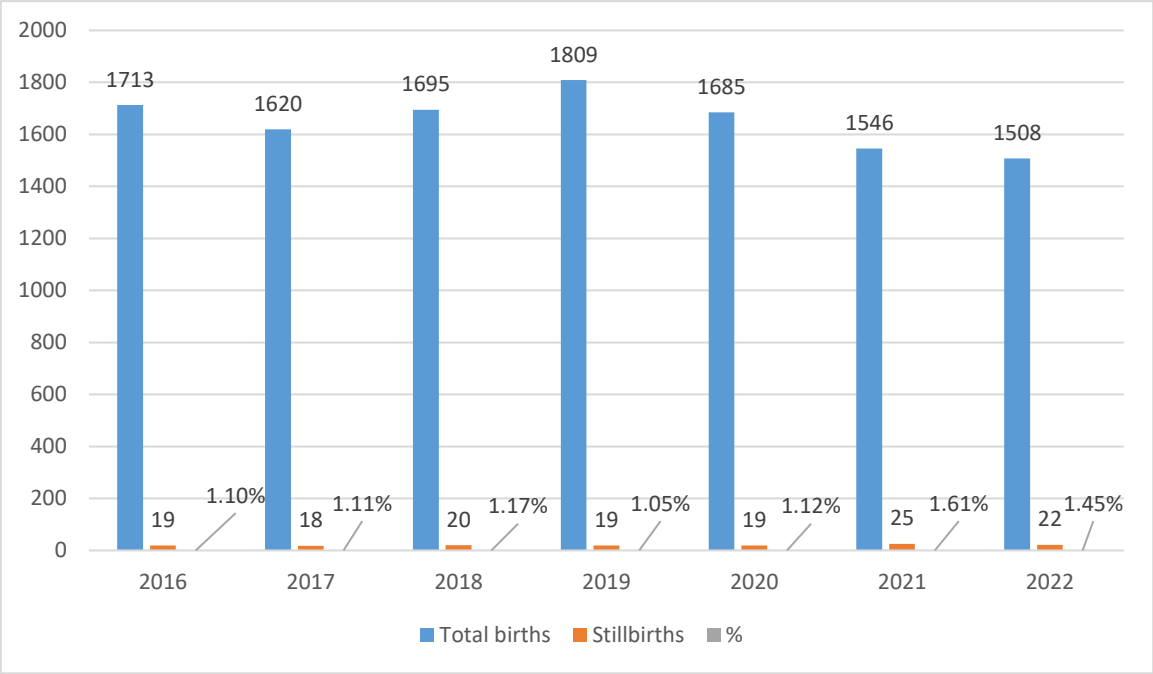


Figure 8. *Number and percentage of stillbirths for the period 2016-2022*

There were 142 stillbirths between 2016 and 2022, or 1.22% of all births.

The number and percentage of stillbirths in adolescents by year is presented in Figure 9.

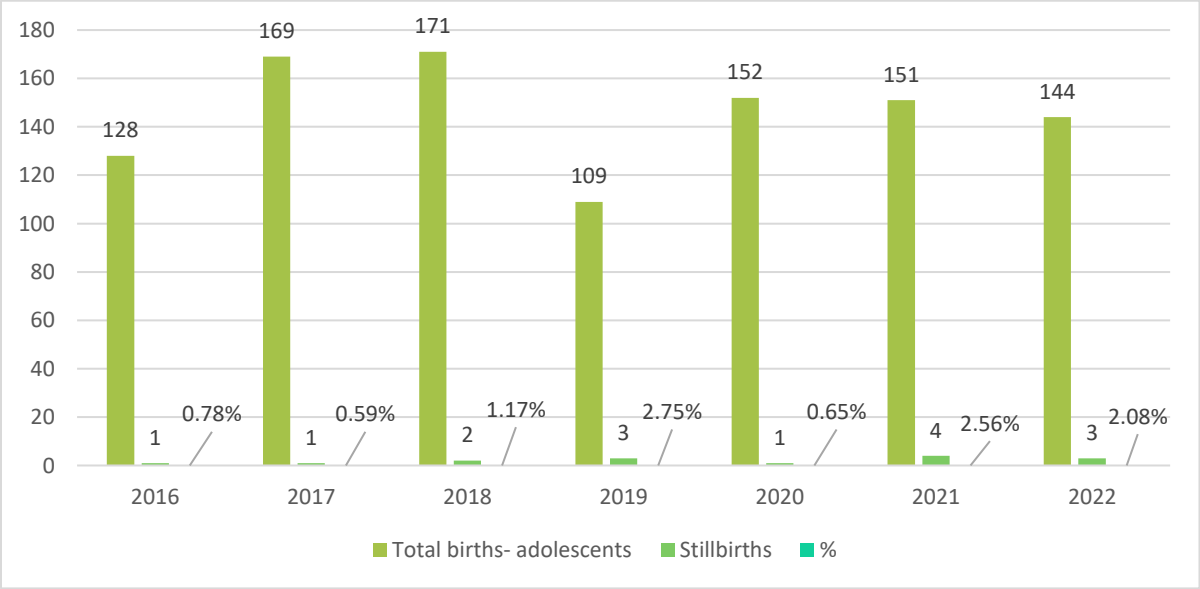


Figure 9. *Number and percentage of stillbirths in adolescents.*

In the first subgroup /10-15 years old/ we have 5 M., which is 2.07% of their births /n=242/, and in the second are 10 M. or 1.25% of the births /n=797/.

The number of stillbirths with maceration in adolescents and in women over 18 years of age is presented in Figure 10.

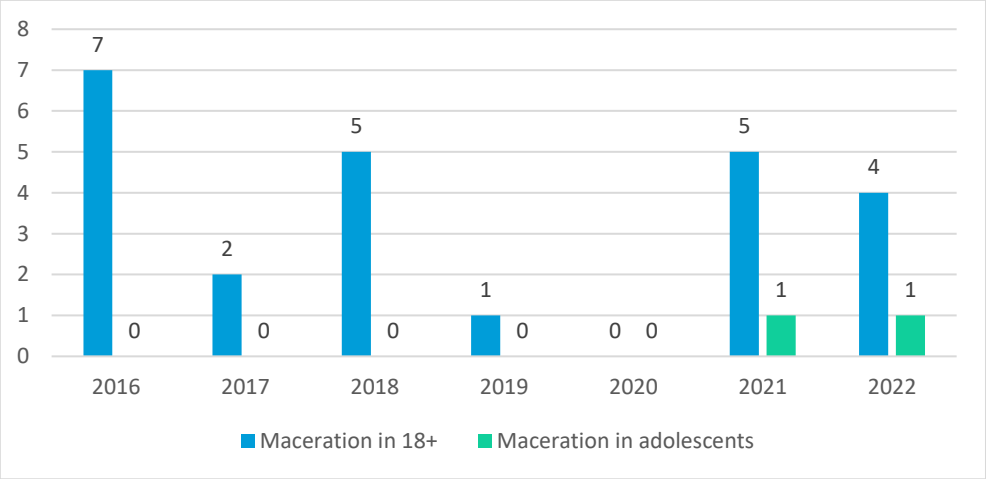


Figure 10. *Stillbirths with maceration in adolescents and in women over 18 years of age.*

The number of stillbirths without maceration in adolescents and in women over 18 years of age is presented in Figure 11.

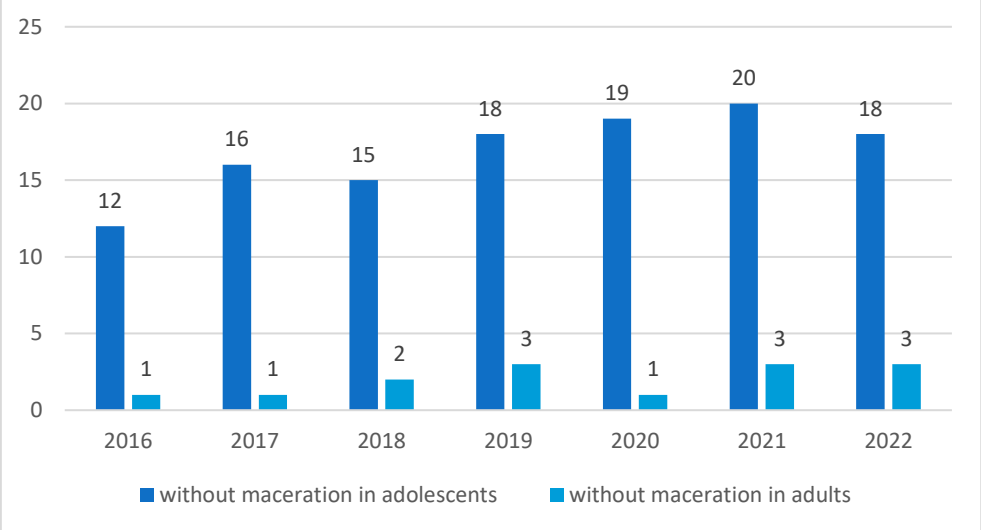


Figure 11. *Stillbirths without maceration in adolescents and in women over 18 years of age.*

In the literature review, it was pointed out, firstly, that the stillbirth rate is between 2.4% and 3.3% of all births, and in A. it is about 10-11%, and secondly, 35% of the macerated fruits are infected, and 52% of the uncertified fetuses have intrauterine asphyxia.

Our results show a low percentage - between 0.59% and 2.75%, or 1.44%, on average - of all births in A..

Only one is at term /37-38 gestational weeks/ - 6.67% compared to 40% in similar publications.

Births per vias naturales predominate in the VI – VII – VIII lunar month, one VBAC. The breech births of M. are six.

Of the concomitant diseases in M., six are with anemia, four are with syphilis, and two with condylomata accuminata.

An emergency operative delivery was also performed - Sectio Caesarea, due to placental abruption, hemorrhage and transverse presentation of the fetus.

Based on the results visualized in the previous tables, a reasonable assumption can be made, despite the low number of stillbirths. that fetal asphyxia prevails over infection.

PREGNANCY

The distribution of pregnant adolescents according to the attendance of the LC is shown in Figure 12.

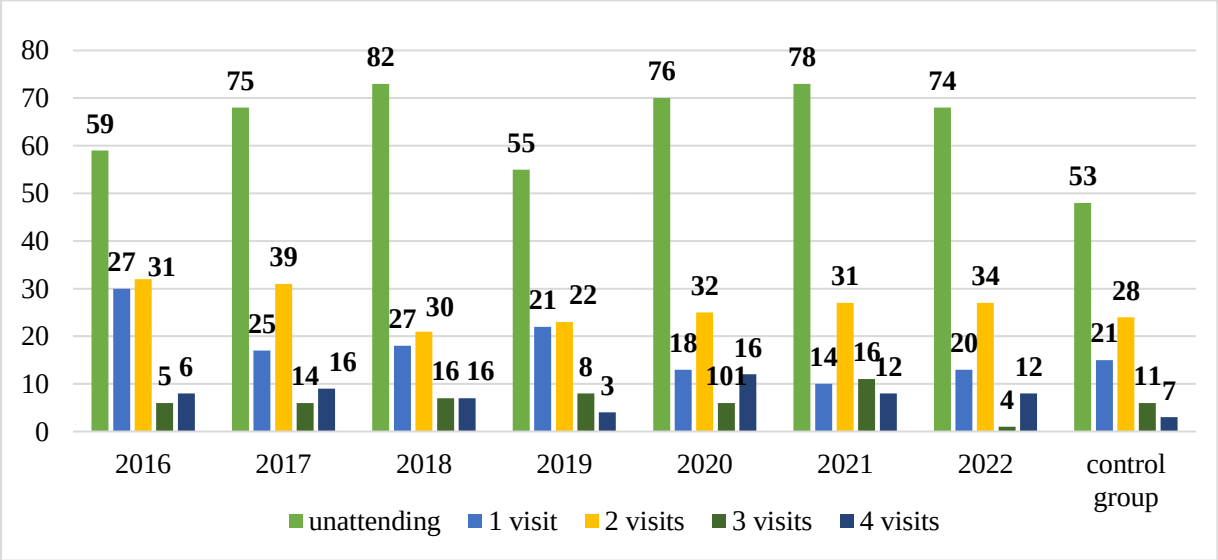


Figure 12. *Distribution of pregnant adolescents according to the attendance of the residential complex.*

After the analysis of the results, no statistically significant differences in the duration of pregnancy in days were found in the different groups of patients.

Number of visits to the Children's Hospital and average weight of newborns with different attendance - 1,2,3, etc., times, by subgroups in adolescence, compared to the control group. It is related to the ratio of full-term / premature babies.

After the correlation analysis, the following conclusions can be drawn:

1) Between the number of visits to the ICU (*M = 1.7 SD=2.21*) and the mean weight of newborns (*M = 2950 SD = 525.4*) in the group of adolescent patients (10-15) there is a weak positive correlation *r(80) = 0.23, p = 0.00047.*

2) There is a weak positive correlation between the number of visits to the ICU (*M = 1.5 SD = 2.08*) and the mean weight of newborns (*M = 3030 SD = 446.5*) in the group of adolescent patients (16-18) there is a weak positive correlation *r(39) = 0.14, p = 0.01310.*

3) Between the number of visits to the ICU (*M = 2 SD = 2.56*) and the mean weight of newborns (*M = 3250 SD = 473.34*) in the control group of patients (20-24) **there is no** statistically significant correlation p *= 0.3455.*

4) There was no statistically significant difference in the number of visits to the ER in adolescent patients with DU (*M = 1.7 SD = 2.21*) (10-15) and the control group (*M = 2 SD = 2.56*) (20-24) *p = 0.0628.*

1) A significant difference was found between the weight of the newborn in the group of adolescent patients (10-15) and the control group (20-24) ***p* <0.00001**.
2) A significant difference was found between the weight of the newborn in the group of adolescent patients (16-18) and the control group (20-24) ***p* = 0.00159**

The average weight of newborns according to the attendance of the LC by year is presented in Figure 13.

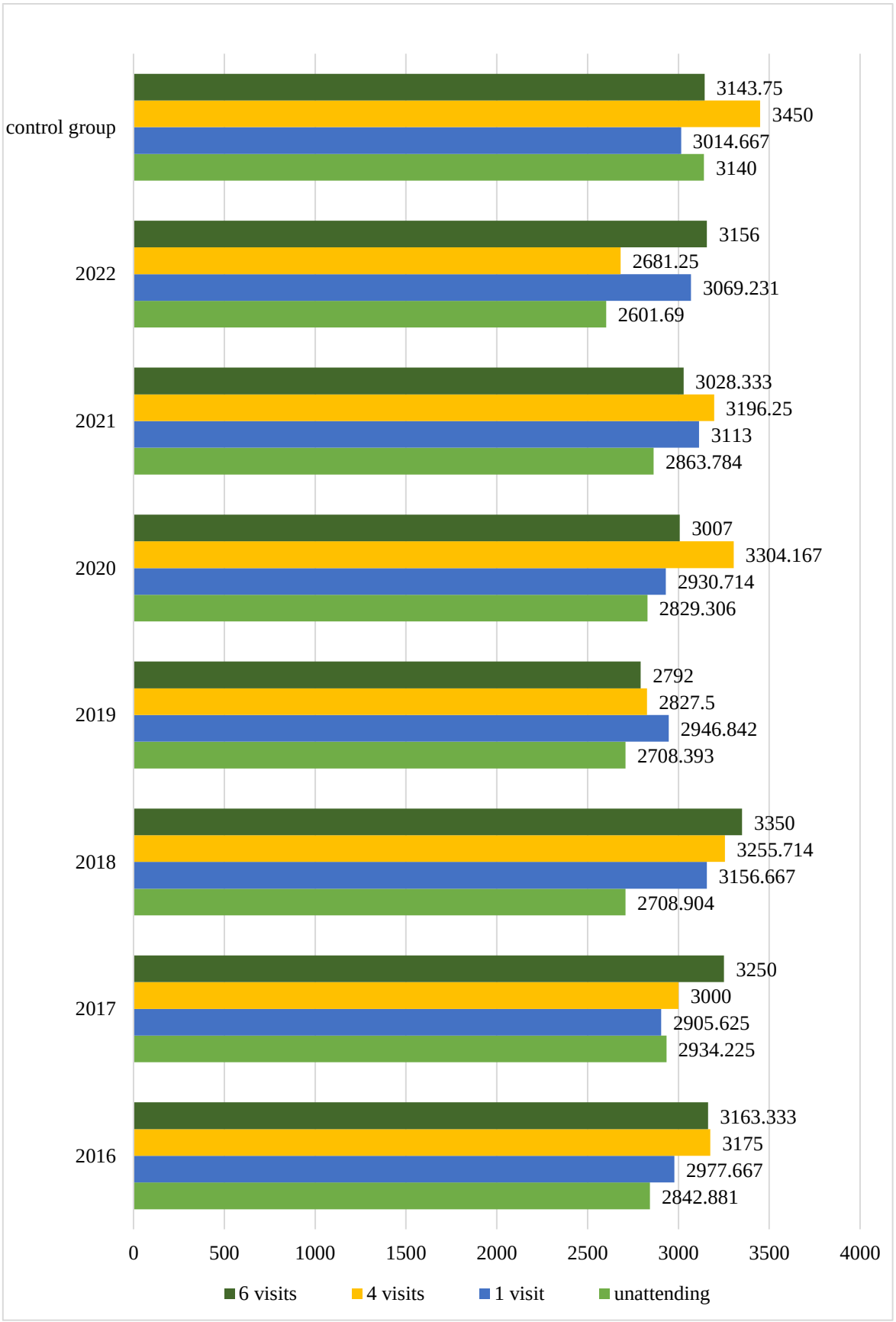


Figure 13. *Average weight of newborns according to the attendance of the residential complex.*

COMORBIDIETIES DURING PREGNANCY

Table 8. *Concomitant diseases in the study and control groups.*

Concomitant diseases	2016	2017	Aug. 2018	Aug. 2019	Aug. 2020	Aug. 2021	Aug. 2022	Total	Control group
Anemia	17	18	18	21	19	30	20	**143**	**23**
HBsAg+	1	0	3	1	2	4	2	**13**	**2**
Varices of the vulva	2	1	0	1	0	1	2	7	0
Varices cruris	1	1	1	0	0	0	0	**3**	**1**
Cataract	1	0	0	1	0	0	0	**1**	**0**
Appendicitis	0	2	0	0	0	0	0	**2**	**0**
Bronchial asthma	2	1	0	2	0	1	1	**7**	**1**
Gastritis	0	1	1	0	1	0	0	**3**	**0**
ZD type 1	0	1	0	0	0	0	0	**1**	**0**
Nephrolithiasis	0	1	0	0	0	0	1	**2**	**0**
Peritonitis	0	1	0	1	0	0	0	**2**	**0**
Syphilis	0	3	0	3	4	1	1	**12**	**1**
Strabismus	0	1	0	0	0	0	0	**1**	**0**
Tuberculosis	0	1	0	0	0	0	0	**1**	**0**
Pyelonephritis	0	1	0	0	2	0	1	**4**	**0**
Hepatitis B	0	0	2	1	1	1	1	**6**	**0**
Eclampsia	0	0	1	1	2	2	1	**7**	**0**
Preeclampsia	2	5	6	4	5	6	7	**35**	**5**
Pulmonary valve stenosis	0	0	0	1	0	0	0	**1**	**0**
Condyloma acuminata	0	3	0	1	1	0	1	**6**	**0**
Epilepsy	0	0	4	0	1	0	0	**5**	**2**
Obesity	4	5	6	9	5	8	5	**42**	**2**
Chorioamnionitis/amnionitis	0	0	3	0	1	5	3	**12**	**0**
Covid 19	0	0	0	0	1	6	4	**11**	**1**
Bacterial vaginosis	0	0	1	0	0	0	1	**2**	
Thrombophlebitis	1	1	0	0	1	0	1	**4**	
Polyhydramnios	0	0	1	0	01	0	1	**3**	**2**
Condition after heart surgery	0	0	1	0	0	0	0	**1**	
Thalasemia minor	0	0	1	0	0	0	0	**1**	

Here data from other studies are confirmed, where the leading concomitant disease among adolescent patients is anemia. It is significant to take into account obesity as an emerging

problem in development and, most of all, the prevalence of preeclampsia. The presence of hepatitis B and HbsAg +, syphilis and associated chorionamnionitis is also distinct. (Table 3 and Table 4).

Number of adolescent patients with comorbidities: 338 – 32.53%.

Number of adolescent patients without comorbidities: 701.

The total number of live and stillbirths is 1039.

In the whole group - anemia - 143 - 13.76%

Obesity - 42 - 4.04%

preeclampsia/eclampsia – 35 - 3.37%

HbsAg+andHepatitisB-19 - 1.83%

syphilis – 12 - 1.15%

chorionamnionitis/amnionitis - 12 1.15%

The distribution of the number of patients by comorbidities is shown in Figure 14.

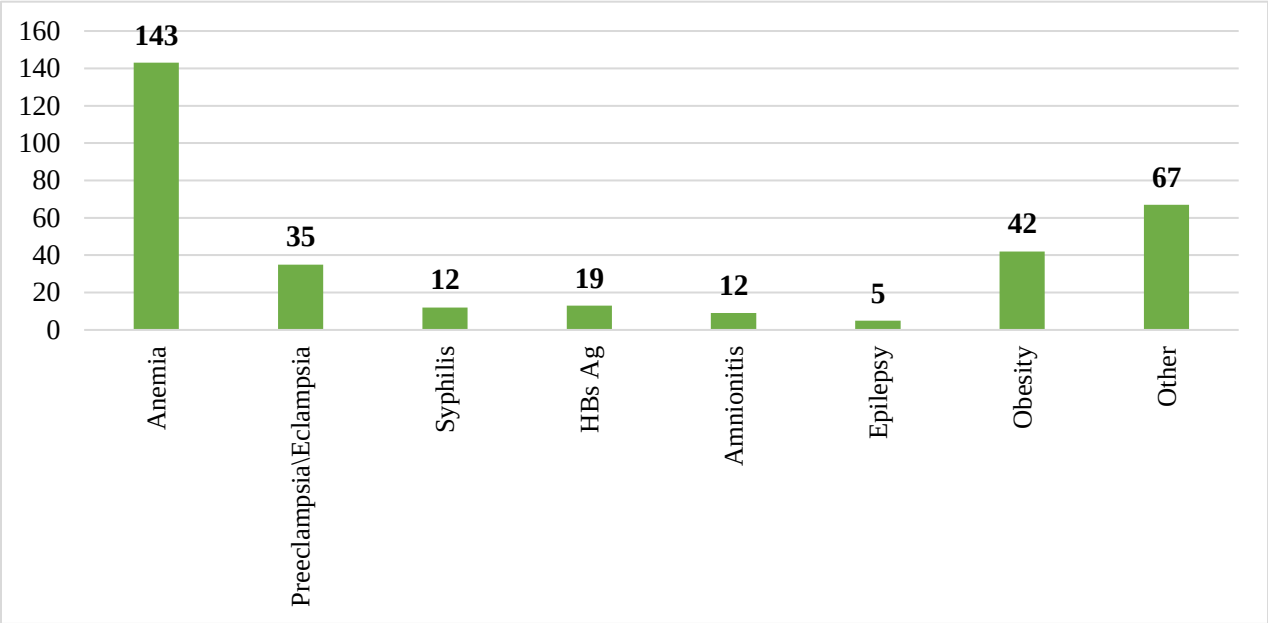


Figure 14. *Number of patients with various comorbidities*

Table 9. *Distribution of comorbidities among adolescents.*

Concomitant disease	Number of patients	Percentage of the contingent with comorbidities
Anemia	143	42.31%
Preeclampsia / Eclampsia	35/7	10.36%/2.07%
Obesity	42	12.43%
Syphilis	12	3.55%
Hepatitis B/HbsAg+	19	5.62%
Chorioamnionitis/Amnionitis	12	2.66%
Epilepsy	5	1,48%
Other	67	19.82%

Table 10. *Distribution of comorbidities among the control group.*

Concomitant disease	Number of patients	Percentage of the contingent with comorbidities
Anemia	23	19.17%
Preeclampsia	5	4.17%
Epilepsy	2	1.67%
Other	10	8.34%

The differences are clearly distinguished. Anemia is more than twice as common. There are three times fewer cases of preeclampsia/eclampsia. Almost absent is obesity, syphilis, hepatitis B and chorionamnionitis.

BLOOD COUNT INDICATORS

Hb values in adolescents in the age group 10-15 years. are presented in Figure 15.

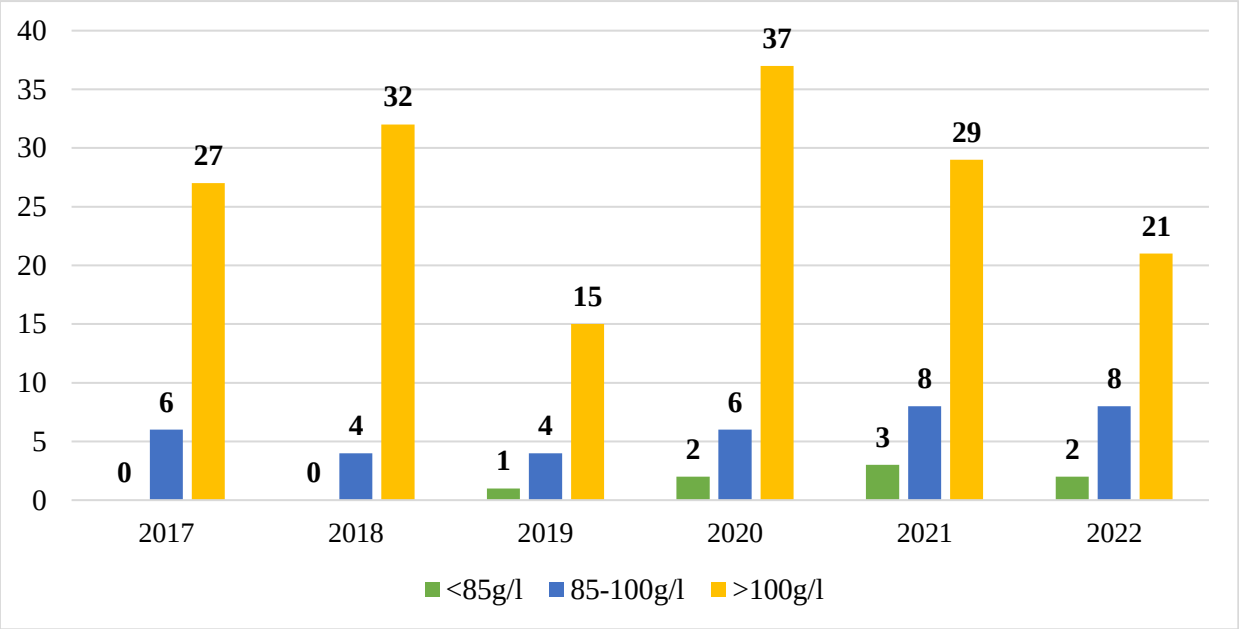


Figure 15. *Hb values in adolescents in the age group 10-15 years.*

Hb values in adolescents in the age group 16-18 years. are presented in Figure 16.

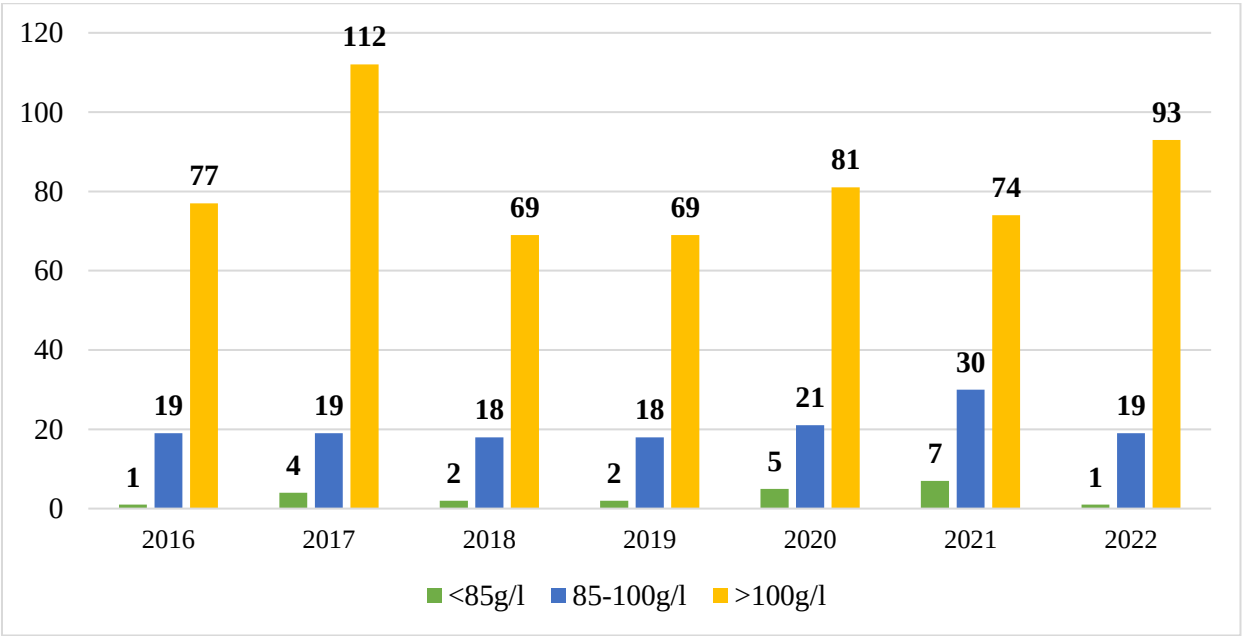


Figure 16. *Hb values in adolescents in the age group of 16-18 years*

It should be emphasized that the results shown are from studies performed after partus normalis and Sectio Caesarea within the requirements of the respective clinical pathway. The difference between the anamnestic data for hospitalization for delivery, for diagnosed and treated anemia in pre-hospital care and laboratory results after birth, appearing in the database, is visible. The discrepancy is due to the desire of obstetricians and gynecologists from pre-hospital care to require Hb > 110 g/l and all values below this are designated as "anemia". However, the WHO defines the limit of anemia as Hb < 85 g/l. This is also the case with the data for Ht, where it is defined as pathological at <0.28. In this sense, the diagnosis of "anemia" among A., made in pre-hospital care, should not be accepted uncritically and should be verified, if possible, ante- intra- and/or postnatal.

In addition, no statistically significant difference was found between the mean value of Hb g/l in adolescent patients after S.C. (M = 112.55 SD=3.19) and after P.N. (M = 110.11 SD=2.11), *p=0.06744.*

Hct values in adolescents in the age group of 10-15 years are presented in Figure 17.

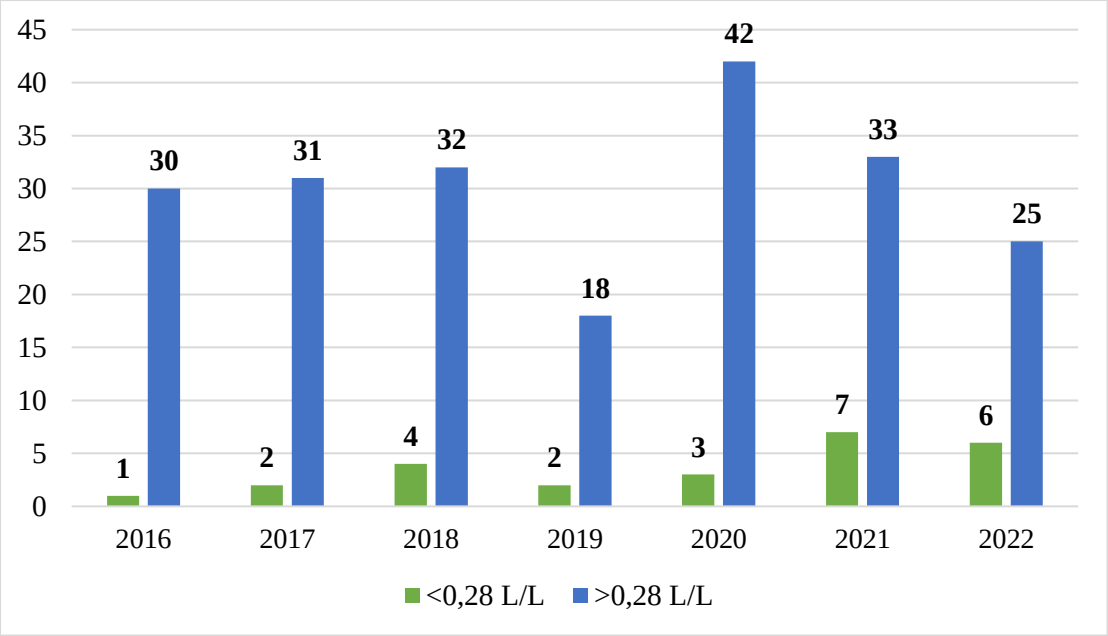


Figure 17. *Hct values in adolescents in the age group of 10-15 years.*

Hct values in adolescents in the 16-18 age group are presented in Figure 18.

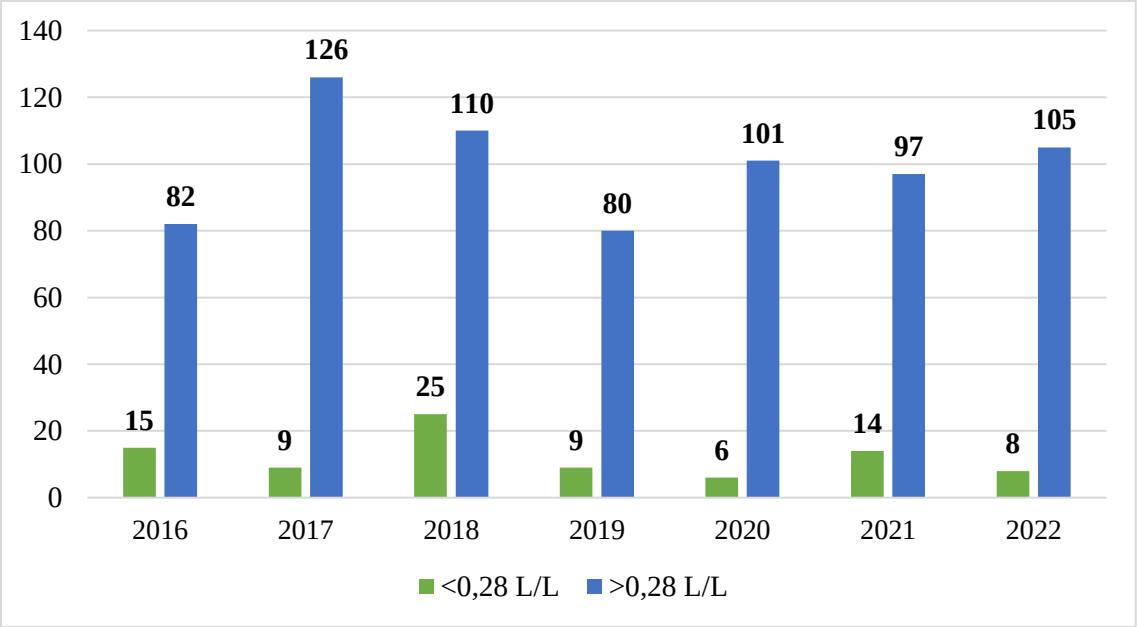


Figure 18. *Hct values in adolescents in the age group of 16-18 years.*

Leu values in adolescents in the age group of 10-15 years are presented in Figure 19.

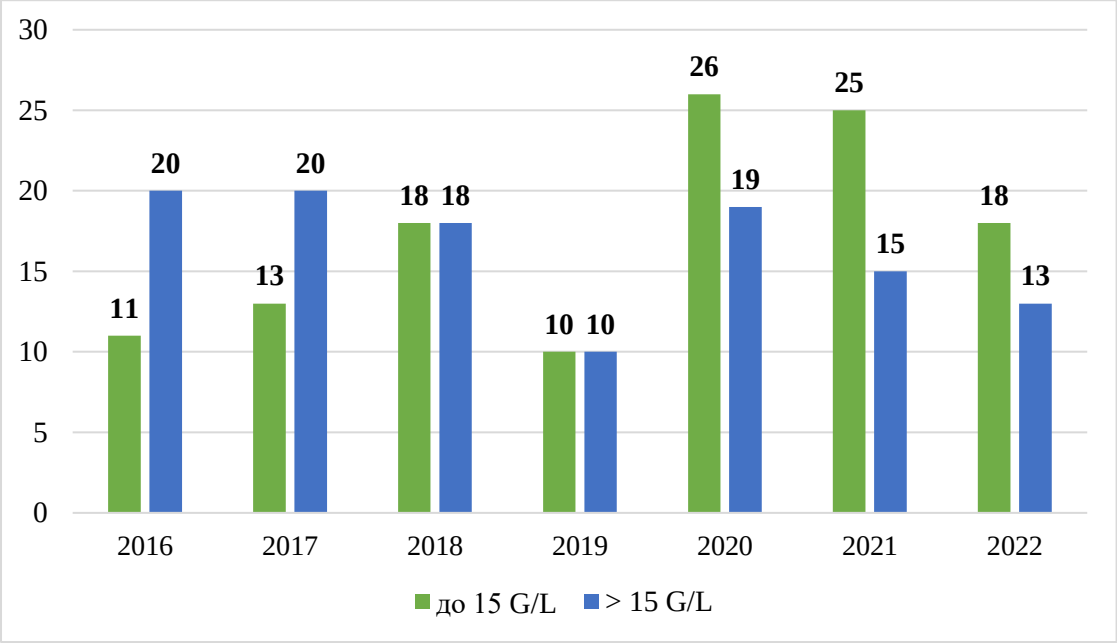


Figure 19. *Leukocyte values in adolescents in the age group of 10-15 years.*

Leu values in adolescents in the 16-18 age group are presented in Figure 20.

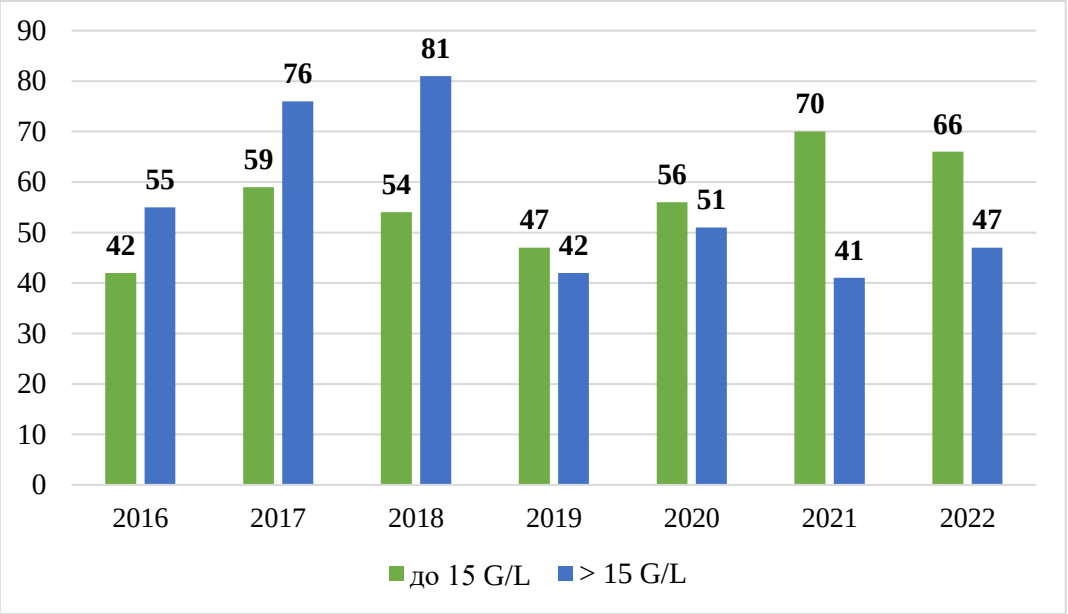


Figure 20. *Leukocyte values in adolescents in the age group of 16-18 years.*

A statistically significant difference in mean Leu values was found in adolescent patients after S.C. (M = 13.06, SD=0.48) and after P.N. (M = 15.71 SD=0.77), ***p< .00001***

Table 11. *Statistical difference in blood parameters in the studied groups.*

Indicator	Age group 10-18	Age group 20-24	Distinction
Hb	(M = 112.16 SD = 14.40)	(M = 110.36 SD = 13.60)	p= 0.154
Er	(M = 3.92 SD = 0.57)	(M = 3.89 SD = 0.44)	p=0.451
Hct	(M = 0.33 SD = 0.05)	(M = 3.16 SD = 0.62)	p=0.1345
Leu	(M=16.17 SD=4.69)	(M = 14.69 SD = 5.01)	**p=0.00481**

A statistically significant difference (***p=0.00481***) was found in the number of leukocytes in adolescent patients (M=16.17, SD =4.69) compared to the control group (M=14.69, SD = 5.01).

CONTROL GROUP

Hb values in control patients are presented in Figure 21.

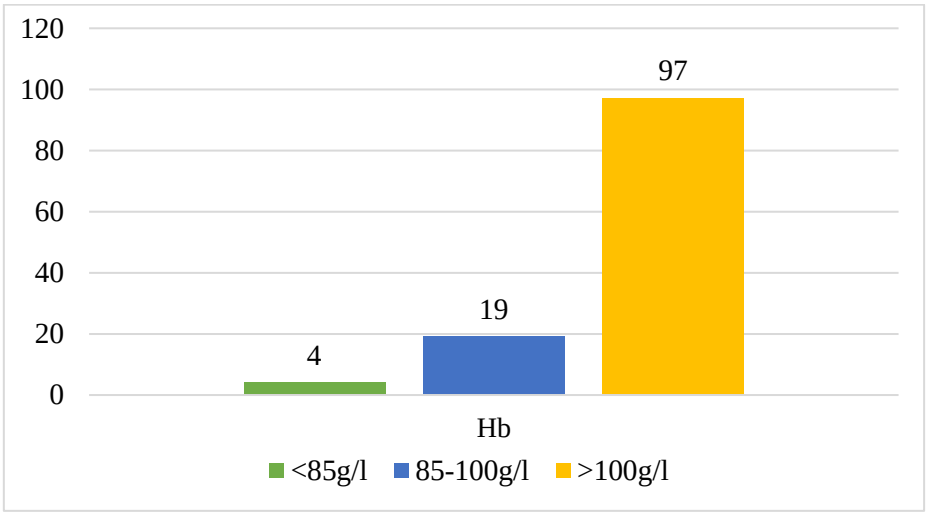


Figure 21. *Hb values in patients in the control group.*

Hct values in control patients are presented in Figure 22.

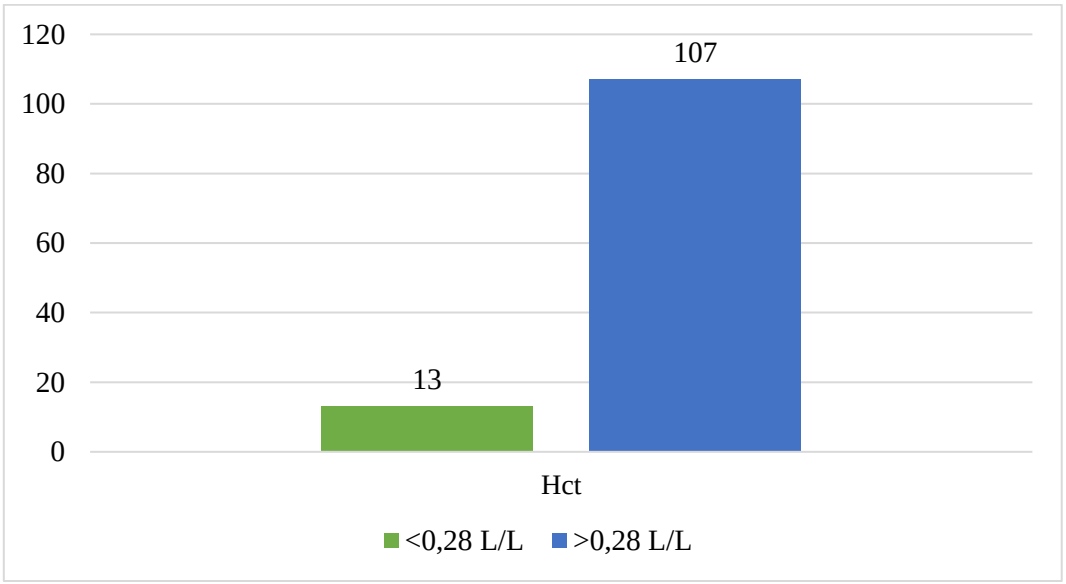


Figure 22. *Hct values in patients in the control group.*

Leu values in control patients are presented in Figure 23.

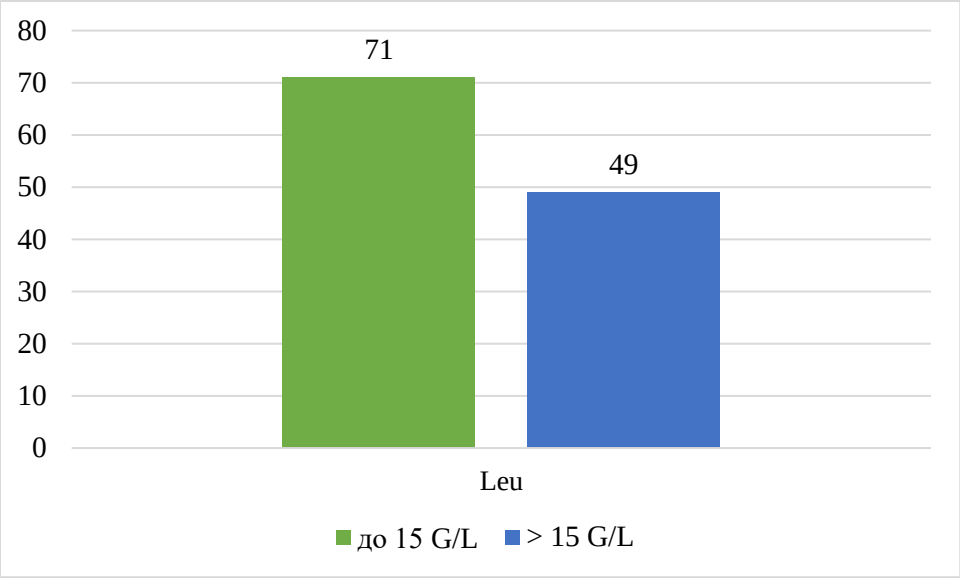


Figure 23. *Leukocyte values in patients from the control group.*

Duration of pregnancy in days by adolescent groups compared to the control group.

Table 12. *Duration of pregnancy in days for different age groups.*

Indicator	**Age group 10-15**	**Age group 16-18**	**Distinction**
Duration of pregnancy in days	*(M = 276.1 SD=33)*	*(M=274.8 SD=12)*	*p* = 0.307312
Indicator	**Age group 10-15**	**Age group 20-24**	**Distinction**
Duration of pregnancy in days	*(M = 276.1 SD=33)*	*(M=275.3 SD=2.3)*	*p* = 0.431301
Indicator	**Age group 16-18**	**Age group 20-24**	**Distinction**
Duration of pregnancy in days	*(M = 274.8 SD=12)*	*(M=275.3 SD=2.3)*	*p* = 0.393099

There is no significant difference in the duration of pregnancy, in days, between the clinical group, in particular the subgroups, compared to that of the control group.

- **Weight and Height**

Table 13. *Statistical data on the average values of weight and height in the studied groups.*

Indicator	Age group 10-18	Age group 20-24	Distinction
Weight	*(M=60.05 SD=13.39)*	*(M=70.13 SD=10.27)*	***p=0.00604***
Stature	*(M=158.73 SD=8.13)*	*(M = 161.62 SD = 5.58)*	***p=0.00207***

The average weight of adolescent patients is 60 kg. /M=60.05 SD=13.39/, with a statistically significant difference with the average weight of the patients from the control group /20 – 24 g/, where the average weight is 70 kg. /M=70.13 SD=10.27/ - p=0.00604. The difference in height is also statistically significant. The average height in the clinical group is 158 cm. /M=158.73 SD=8.13/, and for those in the control group it is 161 cm. /M=162.62 SD =5.58/, p= 0.00207.

Table 14. *Statistical data on the mean values of systole and diastole in the studied groups.*

Indicator	Age group 10-18	Age group 20-24	Distinction
RR systole	***(M = 113 SD = 1.64)***	***(M = 115 SD = 1.24)***	***p=0.0905***
RR diastole	***(M = 8.76 SD = 1.62)***	***(M=9.33 SD=0.99)***	***p=0.144***

The mean values of systole and diastole were lower, compared to the control group, at the time of admission to the HL.

BIRTHS

The number of live births in UMHAT-Burgas AD in the period 2016-2022 is presented in Figure 24.

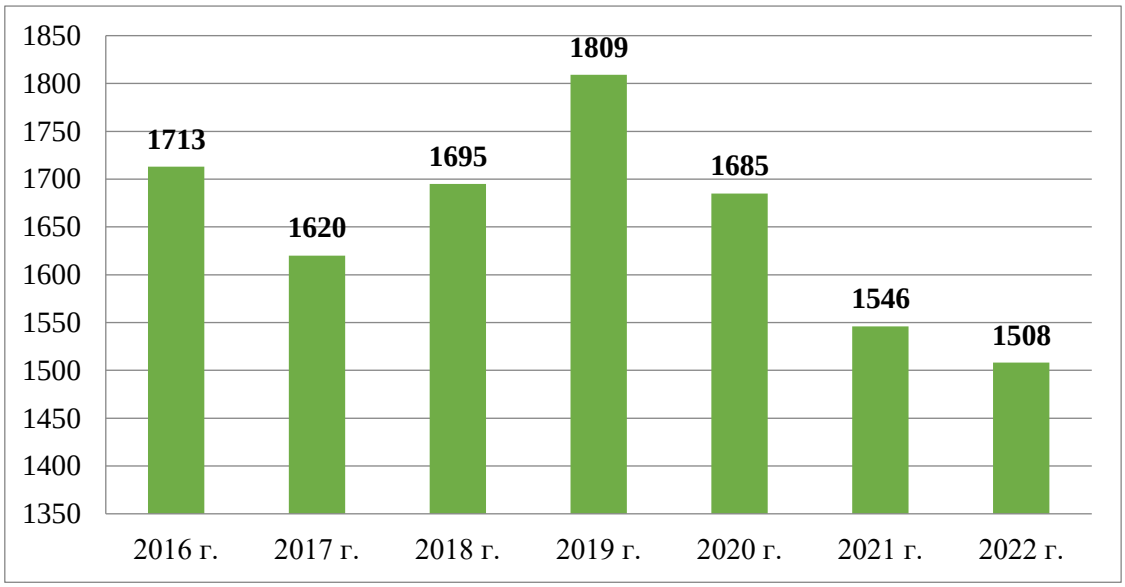


Figure 24. *Number of live births in UMHAT-Burgas AD during the studied years.*

The number and percentage of adolescents born in UMHAT-Burgas AD for the period 2016-2022 is presented in Figure 25.

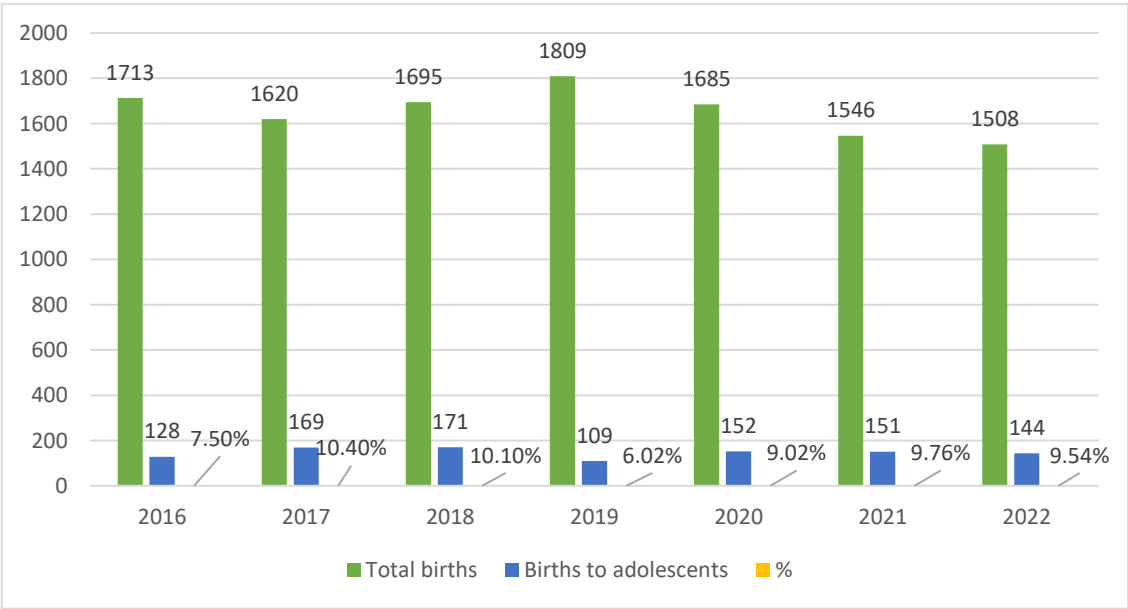


Figure 25. *Number and percentage of those born to adolescents in "UMHAT-Burgas AD" during the studied years.*

The total number of births in UMHAT-Burgas AD for the period 2016-2022, and the number of births by adolescents, distributed by age groups, is presented in Figure 26.

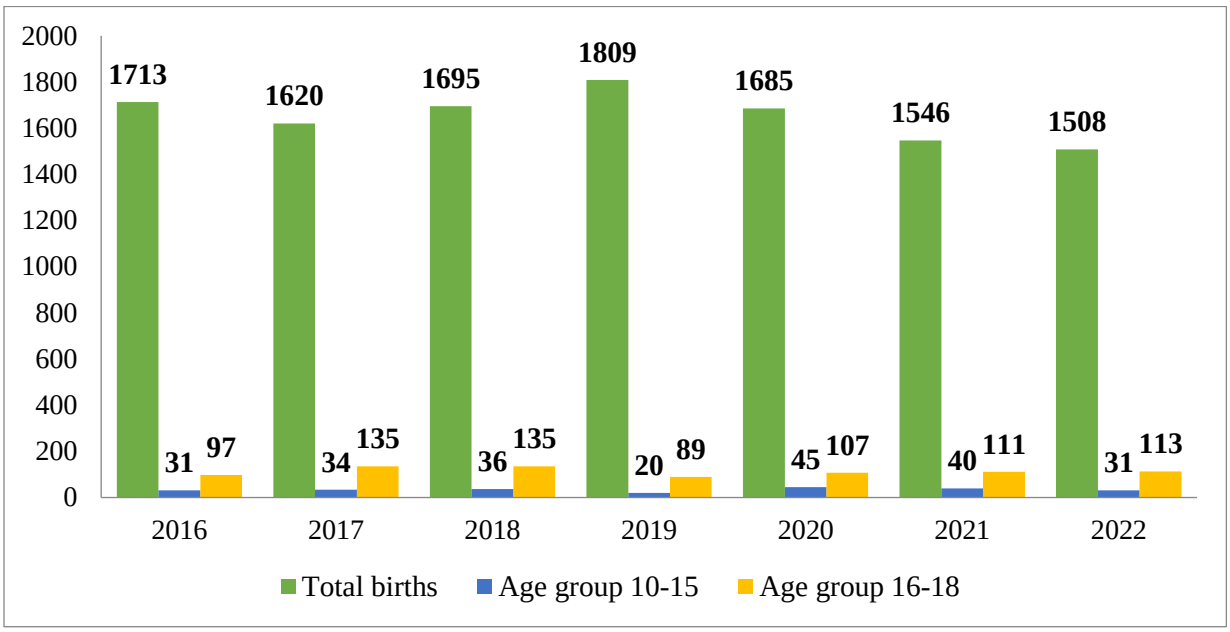


Figure 26. *Total number of births in UMHAT-Burgas AD during the studied years, and number of births by adolescents, divided by age groups.*

The number of adolescent births by age group for the period 2016-2022 is presented in Figure 27.

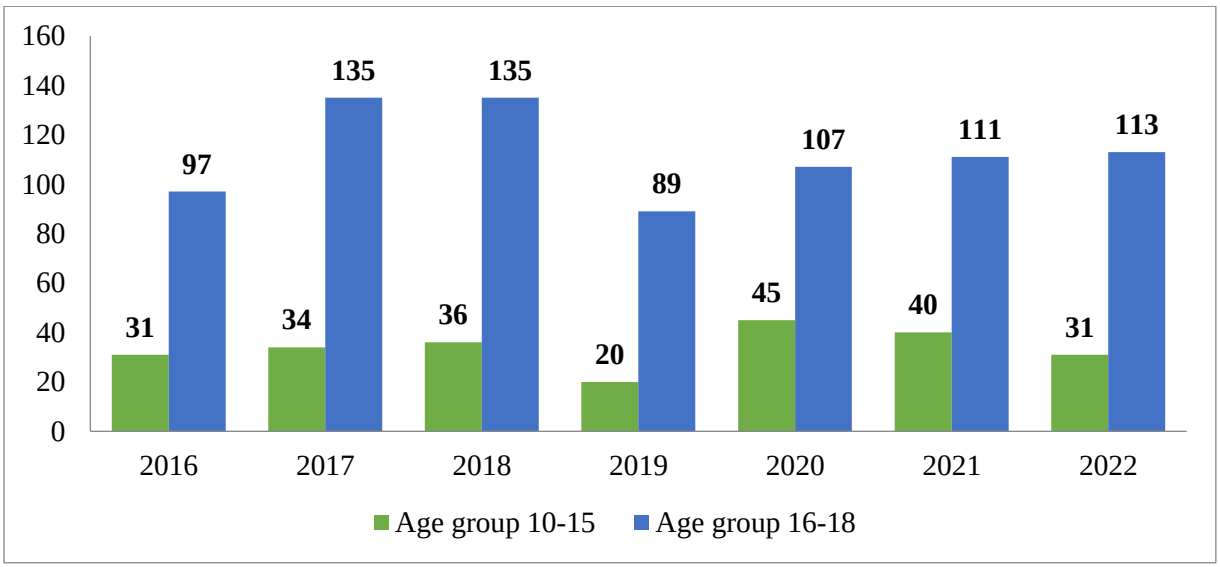


Figure 27. *Number of births by adolescents distributed by age groups.*

Bishop Score

Table 15. *Average value of Bishop's score at admission to the RR in adolescents and in the control group.*

Indicator	Age group 10-18	Age group 20-24	Distinction
Bishop Score	*(M=5.25 SD=3.39)*	*(M=7.39 SD=3.44)*	***p<0.0001***

The mean assessment of the status of the soft birth canal /a.k.a pelvic score/ in both clinical subgroups was 5.30 /M = 5.25 SD = 3.39/, with a significant difference with the control group. The average score is 7.39 /M=7.39 SD=3.44/ p<0.0001.

INDUCTION/STIMULATION OF LABOR

Table 16. *Number of birth inductions in the age groups 10-15 years and 16-18 years, divided by year.*

Induction	2016	2017	2018	2019	2020	2021	2022	Control group
10-15 years old.	2	1	1	0	2	1	2	8
16-18 years old.	9	14	12	7	8	11	9	

Table 17. *Number of birth stimulations in the age groups 10-15 years and 16-18 years, divided by year.*

Stimulation	2016	2017	2018	2019	2020	2021	2022	Control group
10-15 years old.	4	2	3	1	2	4	6	68
16-18 years old.	17	23	25	8	15	17	12	

In the first subgroup /10 years. – 15 years / nine inductions were undertaken out of 237 births – 3.80% and seventy inductions in the 16 year old subgroup. – 18 years old, which is 8.90% of 787 births.

We report seven planned S.C. in the first and 34 in the second, in which no induction has been applied, the percentages change as follows – 3.91% and 9.30%.

The facts regarding the incentives are as follows – twenty-two in the first subgroup – 9.28% and 117 in the second – 14.87%. After adjusting with the number of planned S.C., we reach 9.57% and 15.54%, respectively.

It should be noted that of the inductions/stimulations discussed here, 56 were appointed before the decision was made to perform a selective operative delivery – Sectio Caesarea, out of a total of 104 emergency S.C. . / 30 are in the clinical subgroup up to 15 years of age – practically all those who graduated with Sectio in the course of childbirth and 26 out of 74 in the second.

It is appropriate to emphasize that in 53.34% of the births that ended with Sectio Caesarea in the course of birth /55/, a trial of labor was undertaken, consistent and compatible with the diagnosis upon admission to the medical institution.

In summary, in 41 planned (all) and 48 (out of 103) emergency Sectio Caesarea/Resectio, a decision was made not to prescribe/undertake induction/stimulation of the birth act. With 218 /22.95%/ births completed per vias naturales, such a decision was made.

Specifically, in 717 A. /70.02%/ the birth took place, entirely, in the conditions of spontaneous labor, combined with medical anesthesia.

In the control group, patients with spontaneous labor predominate, because there were only eight inductions – 6.67%, but the stimulations were 68 – 56.67%. Only 15% of these births took place in spontaneous labor /21.67% S.C./

BREECH PRESENTATION / BIRTH

During the seven-year period under review, 42 pregnancies with a fetus in sciatic presentation were diagnosed and delivered. Of these, 31 (73.8%) were diagnosed after hospitalization in the medical institution.

The data cited in the literature review for a high percentage of sciatic presentations - 9-12% - are not confirmed. In our survey it is 4.04%.

There are 16 preterm births, 8 of which are delivered by caesarean section and 8 Per vias naturales (50%).

Births in full-term babies are 26. 84.62% (22 years) of them gave birth by caesarean section, and 15.38% (4 years) gave birth per vias naturales.

TWIN PREGNANCIES

In the clinical group, 8 pairs of twins were born, which, in statistical analyses, were considered as a "single birth", be it per vias natulales or Sectio Caesarea.

Born children are included in the relevant subcategories – born to a mother of the appropriate age, full-term, premature, mode of birth, etc. The good reason for this approach is their small number.

The approach for the control group is the same.

This is also the reason for presenting and considering them separately.

A pregnant woman has visited the residential complex. At five, the diagnosis of pregnancy – Bigemini, was made in the ward.

In 4 of the pregnant women there are pregnancy-related diseases - 2 preeclampsias, 1 gestational diabetes and 1 - anemia.

All of them were admitted with labor activity - 3 with PPOM and 5 with ZOM.

5 A. gave birth per vias naturales, and 3 through Sectio Caesarea.

The indications for operative delivery are only obstetric - one - due to breech presentation of the first twin, and the other two - acute intranatal asphyxia of the second twin and preeclampsia, respectively.

Two full-term babies were born. Nine of them are with the first degree of prematurity, and five - with the II.

Two couples were born in the control group. Of the concomitant diseases, one severe preeclampsia has been reported. One was delivered by Sectio Caesarea, and the other – by a normal route.

Two children were born full-term (one of the pregnancies complicated by preeclampsia) and two – with second-degree prematurity.

MECHANISM OF BIRTH

Table 18. *Mechanism of birth in pregnant women in the age group 10-15 years and the control group.*

Mechanism of birth	Adolescent (10-15)	Control group (20-24)
P.n.	84.81%	79.17%
S.c.	15.19%	20.83%

Table 19. *Mechanism of birth in pregnant women in the age groups 10-15 years and 16-18 years.*

Mechanism of birth	Adolescent (10-15)	Adolescent (16-18)
P.n.	84.81%	86.28%
S.c.	15.19%	13.72%

Table 20. *Mechanism of birth in pregnant women in the age group 16-18 years and the control group.*

Mechanism of birth	Adolescent (16-18)	Control group (20-24)
P.n.	86.28%	79.17%
S.c.	13.72%	20.83%

The percentage of Sectio Caesarea for the entire clinical group is 14.46%.

Duration of the Ivi, IIth, III period

Table 21. *Duration of the Ist, II and III period of labor in pregnant women in the age group 10-18 years and in the control group.*

Period	Duration in adolescents 10-18	Duration of counter. group	Distinction
Ivy	(M= 6.1 SD = 1.67)	(M= 5.37 SD =1.48)	***p = 0 .0082***
IIri	(M= 20.14 SD =7.64)	(M= 15.95 SD = 6.61)	***p < 0.0001***
IIIth	(M= 6.94 SD =3.63)	(M= 7.26 SD = 5.14)	*p = 0.2526*

- A significant difference in the duration of the IV period was found in adolescent patients (M= 6.1 SD = 1.67) and the control group (M= 5.37 SD = 1.48), ***p = 0 .0082***

- A significant difference in the duration of the second period was found in adolescent patients (M= 20.14 SD = 7.64) and the control group (M= 15.95 SD = 6.61), ***p < 0.0001***

- No statistically significant difference was found in the duration of the third period in adolescent patients (M= 6.94 SD = 3.63) and the control group (M= 7.26 SD = 5.14),p = 0 .0082

NEWBORNS

- **Gestational week**
  A statistically significant difference was found in the gestational week of the admitted adolescent patients 10-15 years old, both with the control group and with the group of patients in the age group of 16-18 years***, p<0.00001.*** On average, adolescent patients between 10-15 years of age for the period 2016-2022 are admitted for delivery at 36 weeks of gestation, patients from the control group and those aged 16-18 years at 37 weeks of gestation.

Table 22.*Average value of gestational age in gestational weeks at admission for childbirth in the R.O., in pregnant women in both age subgroups and the control group.*

Indicator	Age group 10-15	Control group	Distinction
Gest.week	*(M=36.14 SD=1.57)*	*(M=37.38 SD=2.42)*	***p<0.00001***

Indicator	Age group 10-15	Age group 16-18	Distinction
Gest.week	*(M=36.14 SD=1.57)*	*(M=37.29 SD=2.22)*	***p<0.00001***

Indicator	Age group 16-18	Control group	Distinction
Gest.week	*(M=37.29 SD=2.22)*	*(M=36.72 SD=2.42)*	*p=0.33345*

Table 23. *Mean values of anthropometric indicators in newborns from adolescents and in the control group.*

Indicator	Age group 10-18	Age group 20-24	Distinction
Weight	*(M = 2954.96 SD = 627)*	*(M = 3187.97 SD = 448.7)*	***p= 0.00593***
Stature	*(M=49.01 SD=2.48)*	*(M = 50.17 SD = 2.009)*	***p=0.00049***

Apgar 1	*(M = 7.75 SD = 1.64)*	*(M = 8.28 SD = 1.24)*	***p=0.00207***
Apgar 5	*(M = 8.76 SD = 1.62)*	*(M=9.33 SD=0.99)*	***p=0.00617***

The applied correlation analysis showed a positive correlation between gestational week and newborn weight, both in the control group, *r(120) = 0.51, p <0 .0001*, and in adolescent patients, *r(120) = 0.63, p <0 .0001*.

Average weight and mechanism of birth

Table 24. *Average weight of newborns in different age groups, according to the method of delivery.*

Mechanism	Average weight of the newborn in adolescents 10-15 years old.	Average weight of a newborn in adolescents 16-18 years old	Average weight of the newborn in a control group
S.C.	(M = 2810 SD = 586)	(M = 2886 SD = 544)	(M = 3196 SD = 423)
P.N.	(M = 2919 SD = 517)	(M = 2954.96 SD = 527)	(M = 3153 SD = 432)

In the clinical group, those born with Sectio Caesarea had a lower body weight compared to the control group.

The distribution of full-term fetal weight in adolescents over the years is presented in Figure 28.

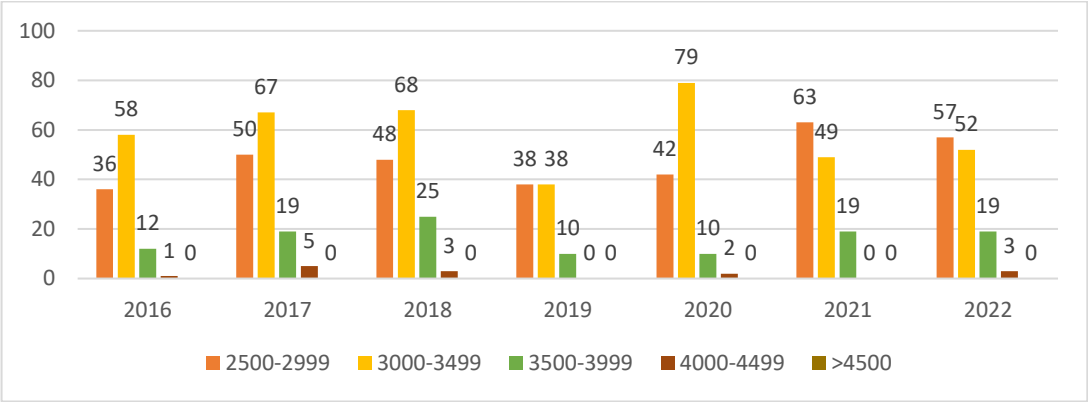


Figure 28. *Distribution of full-term newborns by weight over the years.*

From 2016 to 2020, newborns in the weight group 3000 - 3499 years prevailed, and after the onset and unfolding of the COVID19 pandemic - those in the subgroup 2500 - 2999 years. No macrosomia was reported in A. during the entire study period.

The control group is dominated by newborns in the weight group 3000 – 3499 years. – 53 / 44.17% / . 24.17% - 28 births were in the groups 2500 - 2999. and 3500 – 3999. Three (2.5%) are those over 4000.

The distribution of premature newborns by weight over the years is shown in Figure 29.

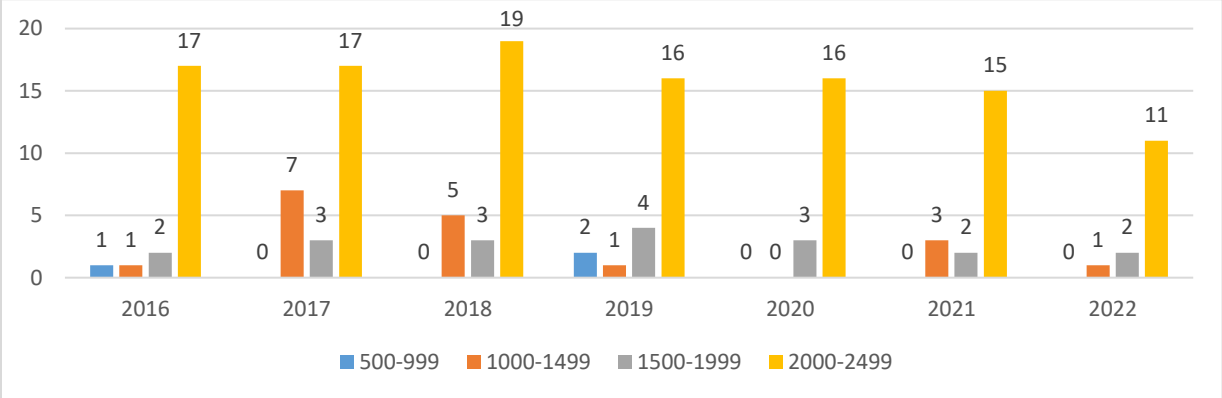


Figure 29. *Distribution of premature newborns by weight over the years.*

The percentage of premature newborns by age subgroups is presented in Figure 30.

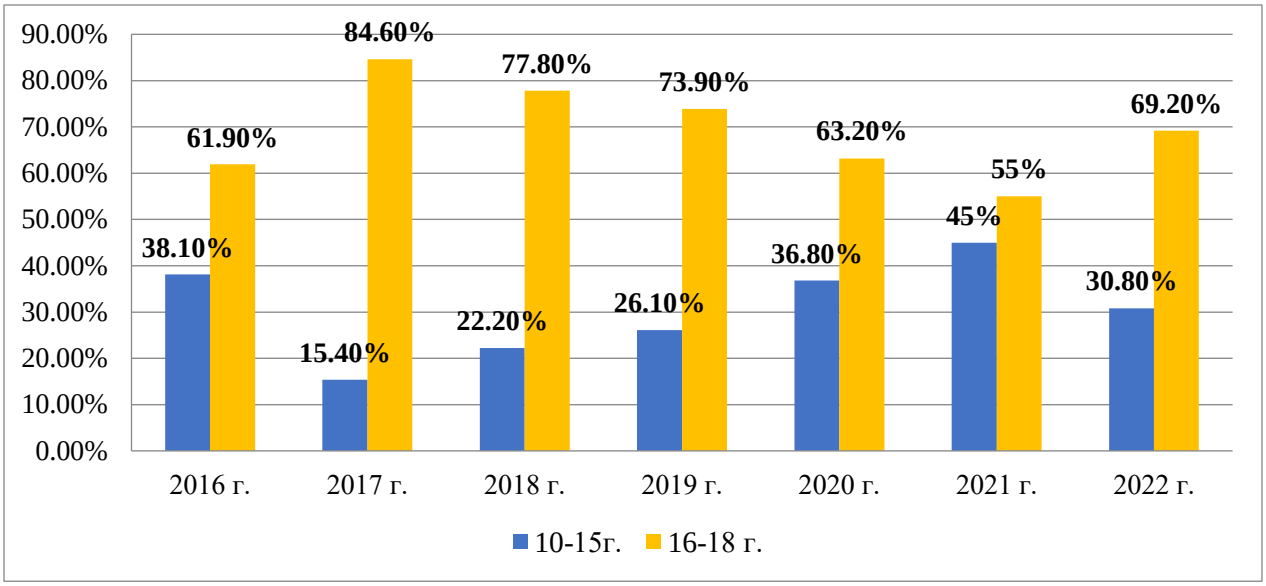


Figure 30. *Percentage of premature newborns in both age groups of adolescents.*

DEGREE OF PREMATURITY

18.99% of newborns (45) in the group of adolescent patients 10-15 years old. (n=237) are premature, of which **10.6**% are of the first degree, 4.08% of the second degree, 3.43% of the third degree and 0.87% of the fourth degree. In the control group, the percentage of neomaturity is 5.03% (all I degree), and the difference is statistically significant – p = 0.043.

In the group of adolescent patients 16-18 years old. (n=787) the average percentage of premature newborns (n=106) is **13.47**%, with the difference between the two subgroups being statistically significant, ***p=0.0412. Here, too, the first degree of prematurity prevails.***

As mentioned above, in the control group the percentage of premature babies is only **5.03%** (first degree), and the difference with the group of adolescent patients (10-18 years old) is also statistically significant - ***p=0.0239.***

17.21% of premature newborns (n=151), in the group 10 – 18 years. were born through S.C

43.80% of premature newborns (n=7) in the control group were born with S.C.

POM AND PREMATURITY

There is a positive correlation between the degree of prematurity and POM, over **65%** of preterm infants in adolescent patients were admitted with POM. , r (29) = 0.46, p< 0.00001.

The percentage of premature babies born to adolescent women compared to the total number of premature babies by years is shown in Figure 31.

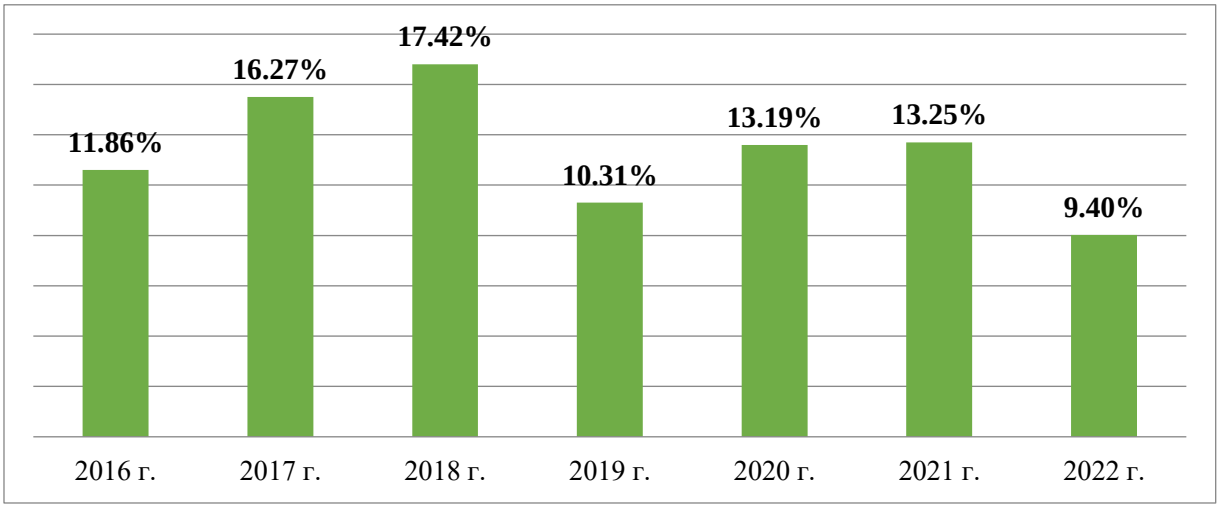


Figure 31. *Percentage of premature births to adolescents of all premature births in the relevant year.*

These levels of prematurity were reached in 8.87% of teenage mothers. The marked downward trend at the end of the survey period is a direct result of the improved communication with the structures of pre-hospital care and the modified over the years, complex approach in the Department to adolescent pregnancy.

The percentage of premature babies born to women over the age of 18 is shown in Figure 32.

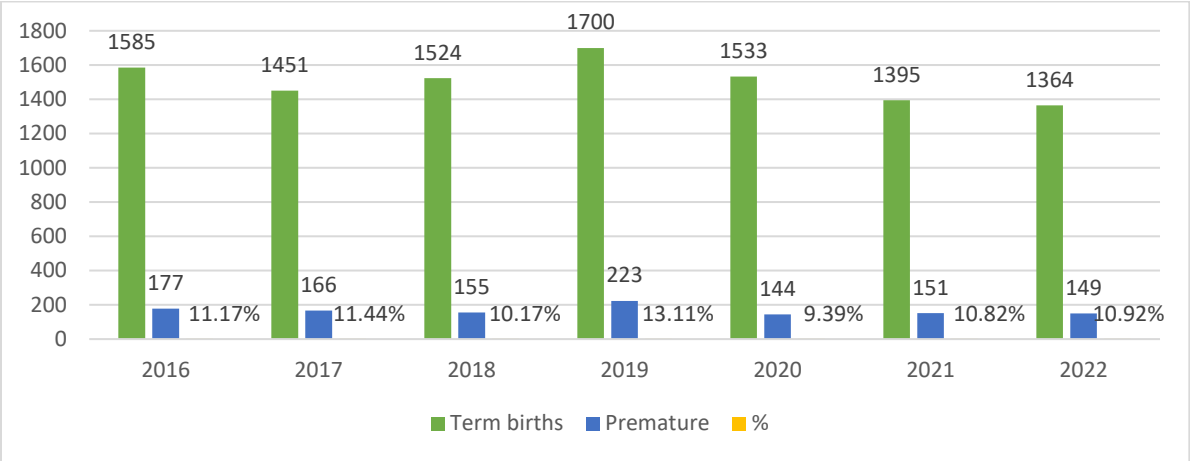


Figure 32. *Percentage of premature births by adults of all premature births in the respective year.*

APGAR after Partus normalis

The values of APGAR at the 1st minute at P.N. at term are shown in Figure 33.

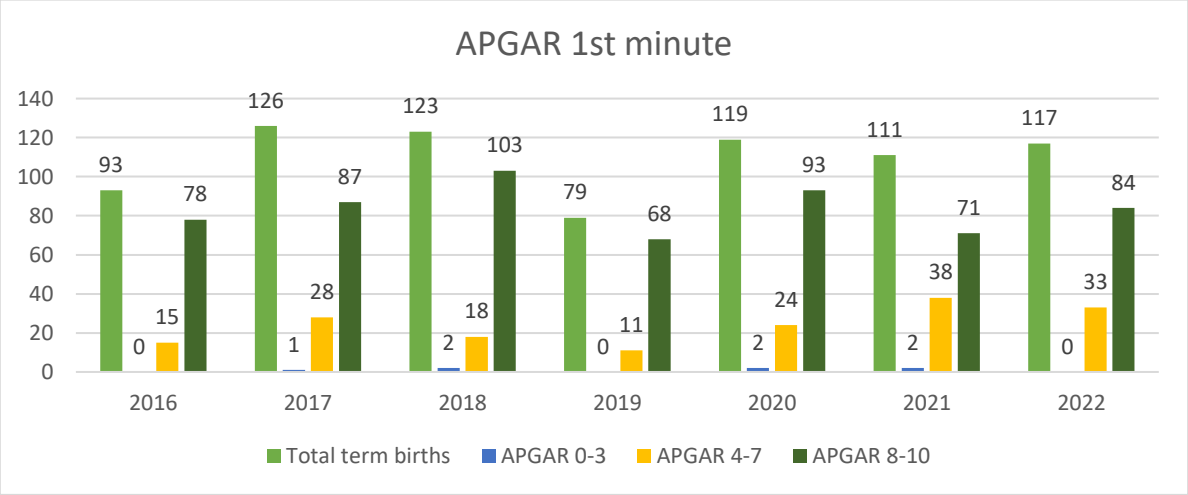


Figure 33. *APGAR values at 1 minute, in full-term newborns per vias naturales, N=768*

The APGAR values at the 5th minute at P.N. at term are shown in Figure 34.

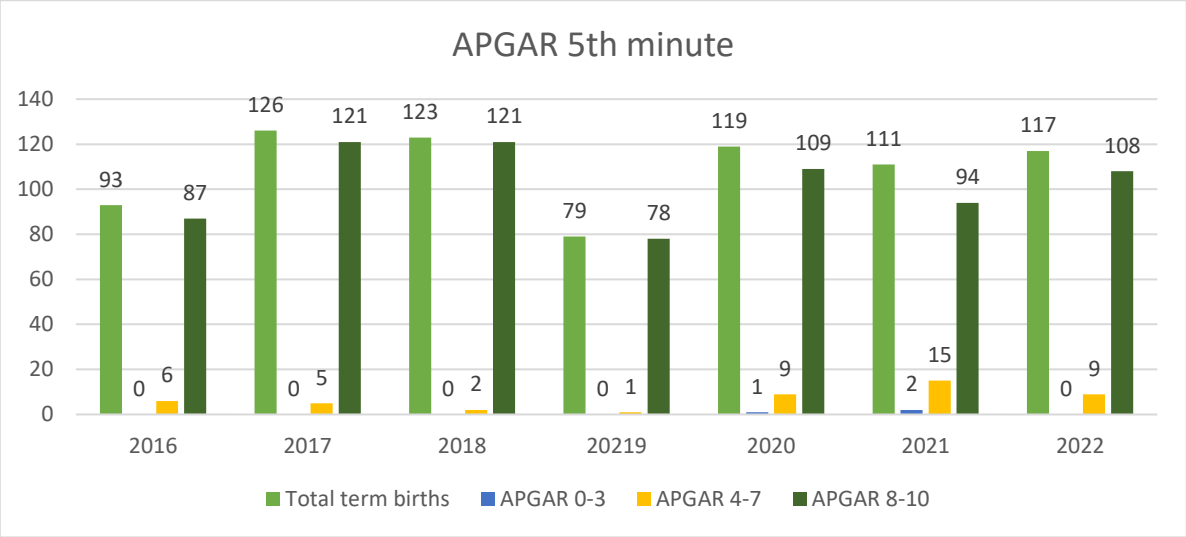


Figure 34. *Apgar values at the 5th minute, in full-term newborns per vias naturales, N=768*

The values of APGAR at the 1st minute at P.N. <2499. are presented in Figure 35.

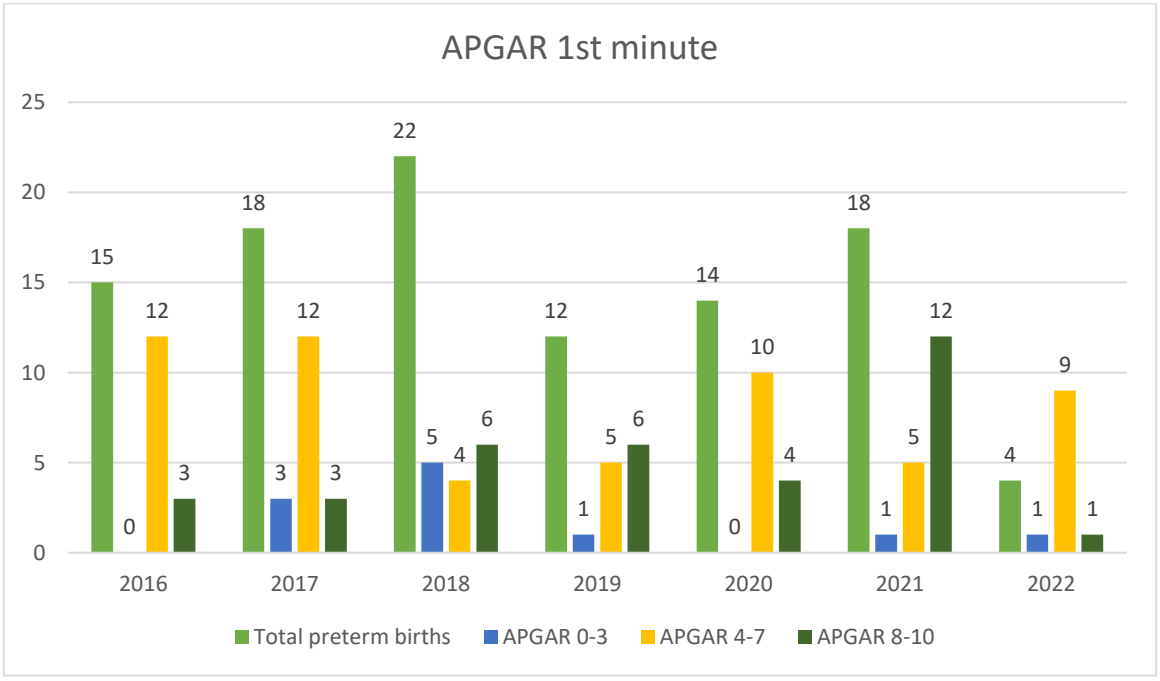


Figure 35. *APGAR values at 1 minute, in premature newborns per vias naturales, N=110.*

The values of APGAR at the 5th minute at P.N. <2499g. are presented in Figure 36.

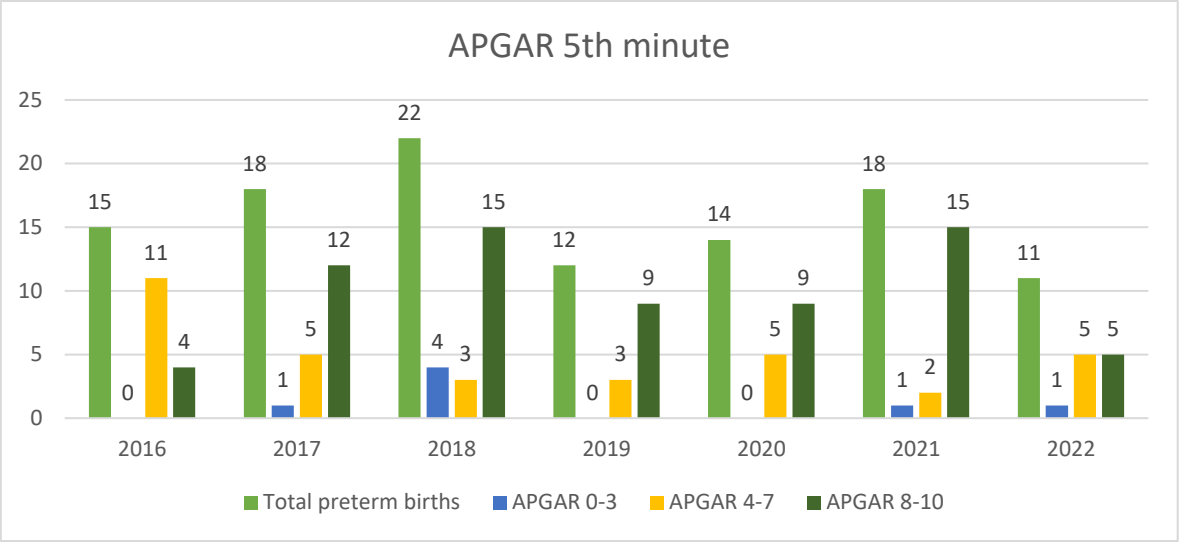


Figure 36. *APGAR values at the 5th minute, in premature newborns per vias naturales, N=110.*

The APGAR values at the 1st and 5th minute in the control group P.N. at term are shown in Figure 37.

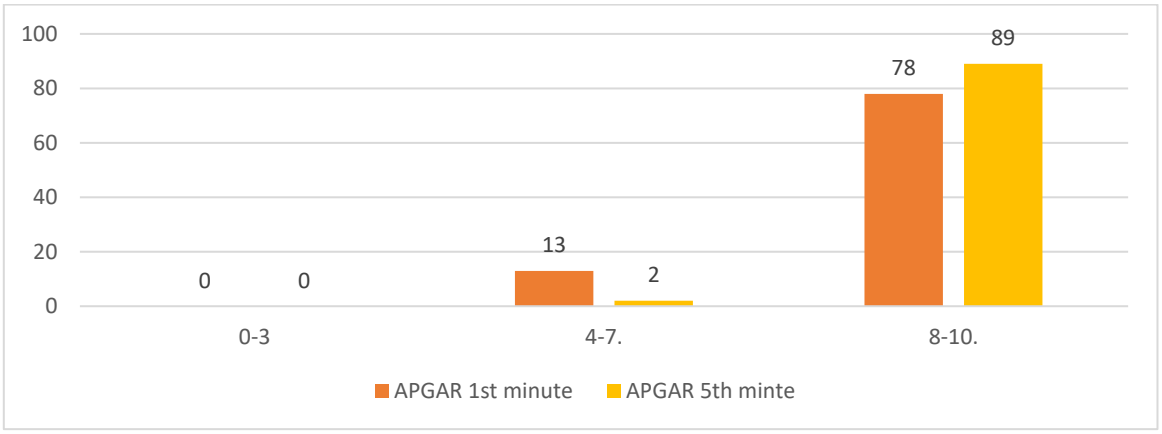


Figure 37. *APGAR values at the 1st and 5th minute, in full-term newborns per vias naturales in the control group.*

The values of APGAR at the 1st and 5th minutes in the control group P.N. <2499 g. is presented in Figure 38.

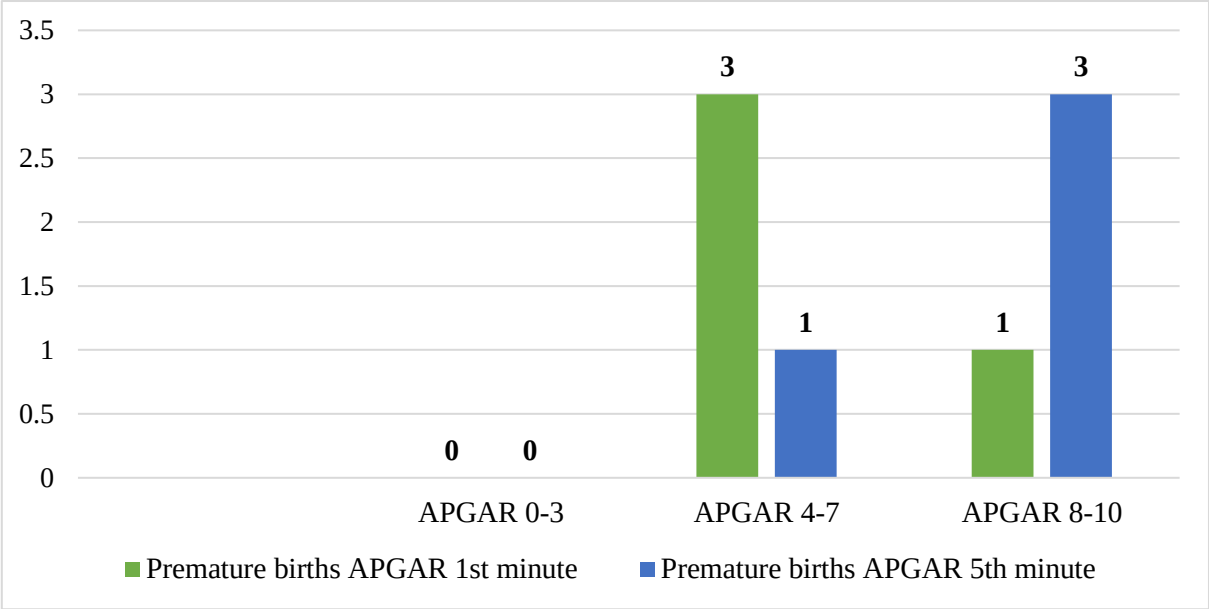


Figure 38. *APGAR values at the 1st and 5th minute, in premature newborns per vias naturales in the control group.*

OBSTETRIC OPERATIONS after Partus normalis

The number of episioraphys, perineorhaphys, and vaginorrhaphys in adolescents for the analyzed period is presented in Figure 39.

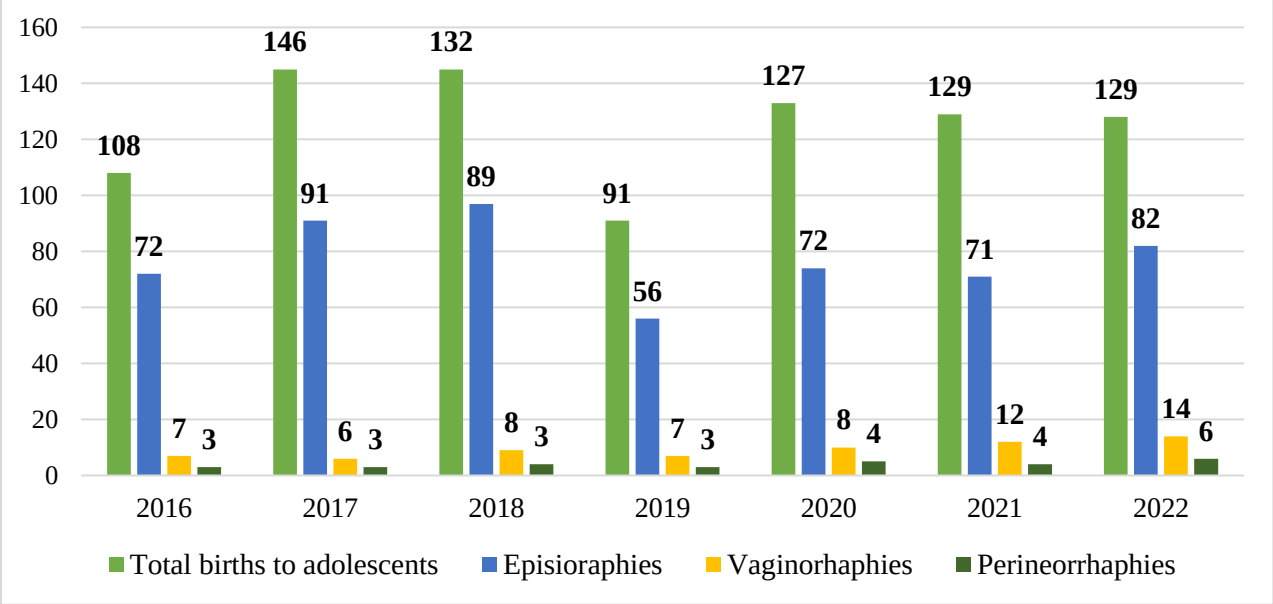


Figure 39. *Number of episioraphyas, perineorhaphys and vaginorrhaphys in adolescents.*

The number of episioraphyas, perineorhaphys and vaginorrhaphyas in the age group 10-15 years. for the period analyzed is presented in Figure 40.

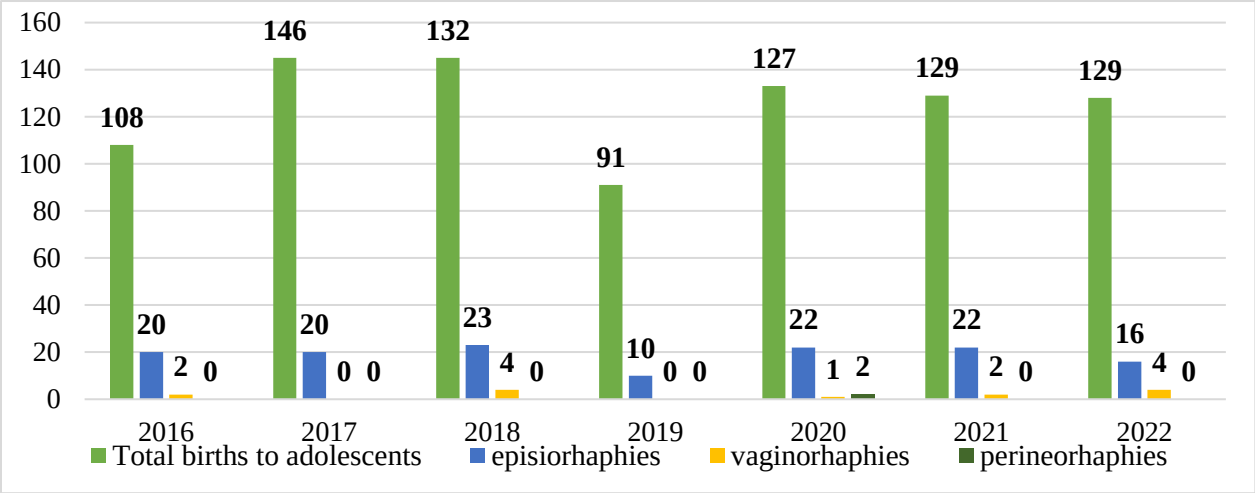


Figure 40. *Number of episioraphys, perineorrhaphys and vaginorrhaphyas in the age group 10-15 years.*

The number of episioraphyas, perineorhaphys and vaginorrhaphyas in the age group 16-18 years. for the analyzed period is presented in Figure 41.

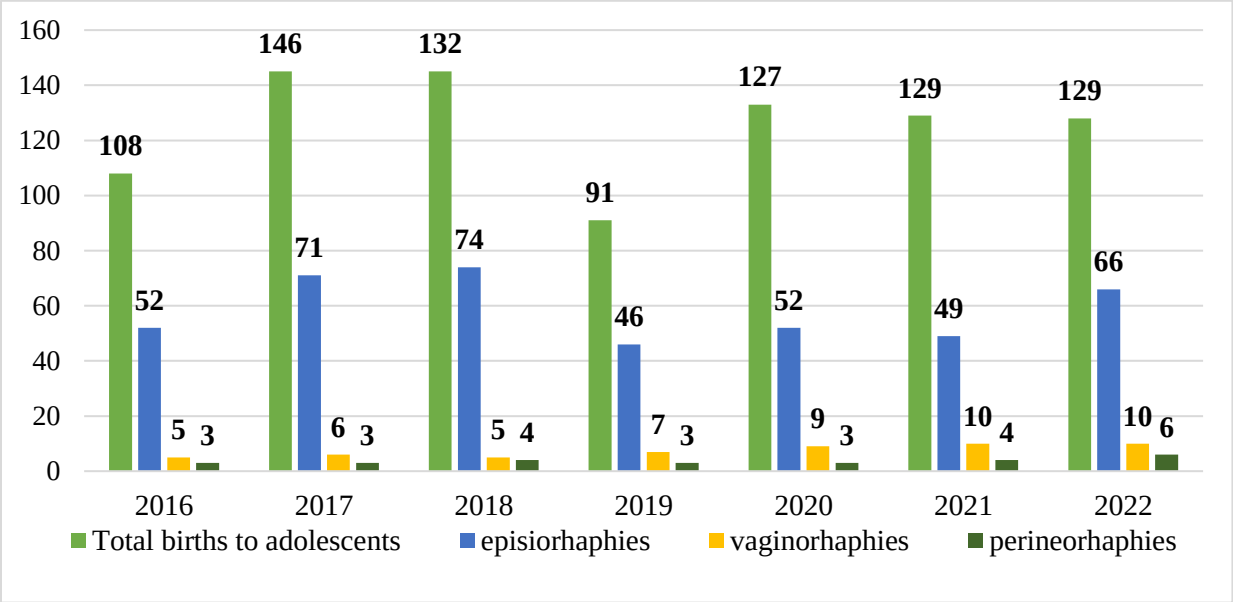


Figure 41. *Number of episioraphys, perineorhaphys and vaginorrhaphyas in the age group 16-18 years.*

The number of labyrhaphys is presented in Figure 42.

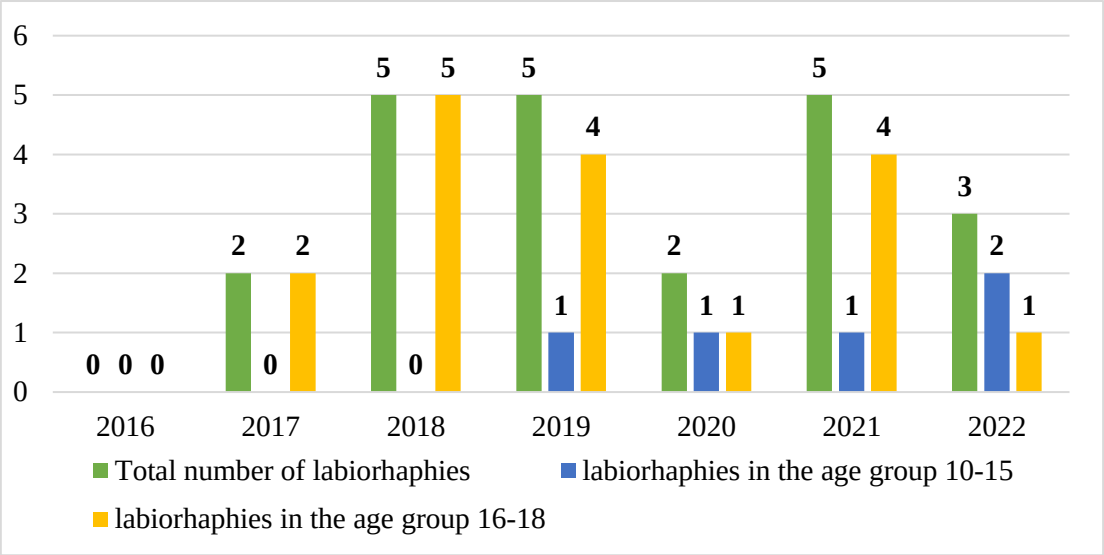


Figure 42. *Number of labyrphia.*

Labiorhaphys are at a very low level - up to 5% and mostly in the subgroup 16 - 18 years old.

The number of trachelorrhages is presented in Figure 43.

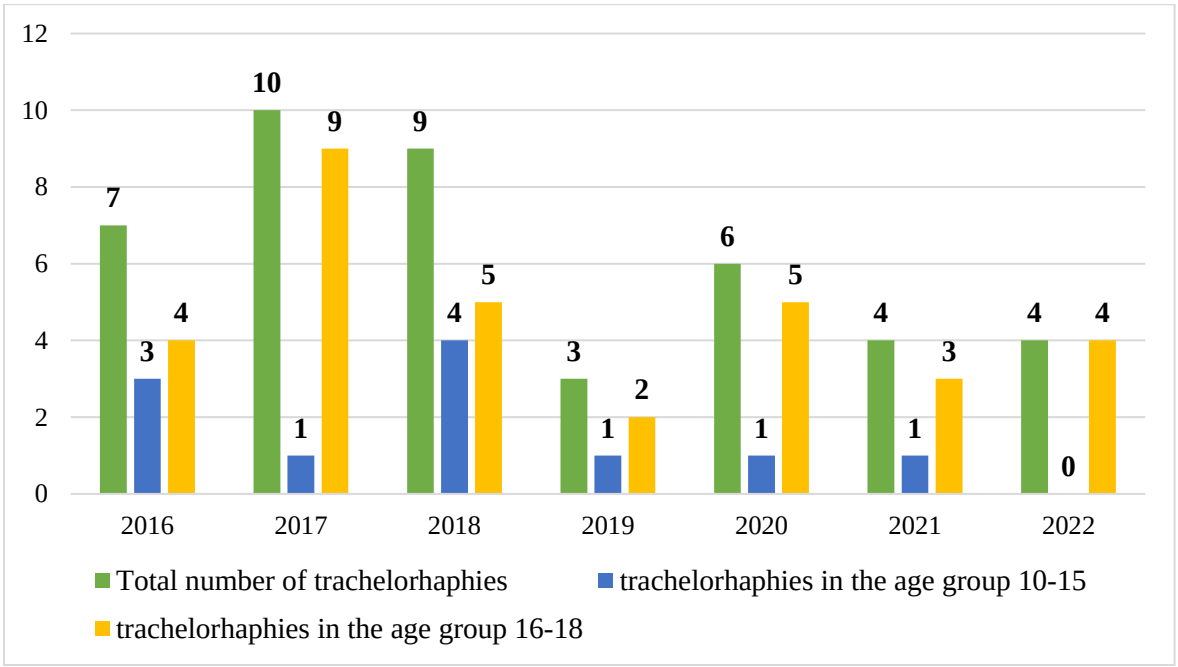


Figure 43. *Number of trachelorrhages.*

The number of forced forceps in the individual groups is shown in Figure 44.

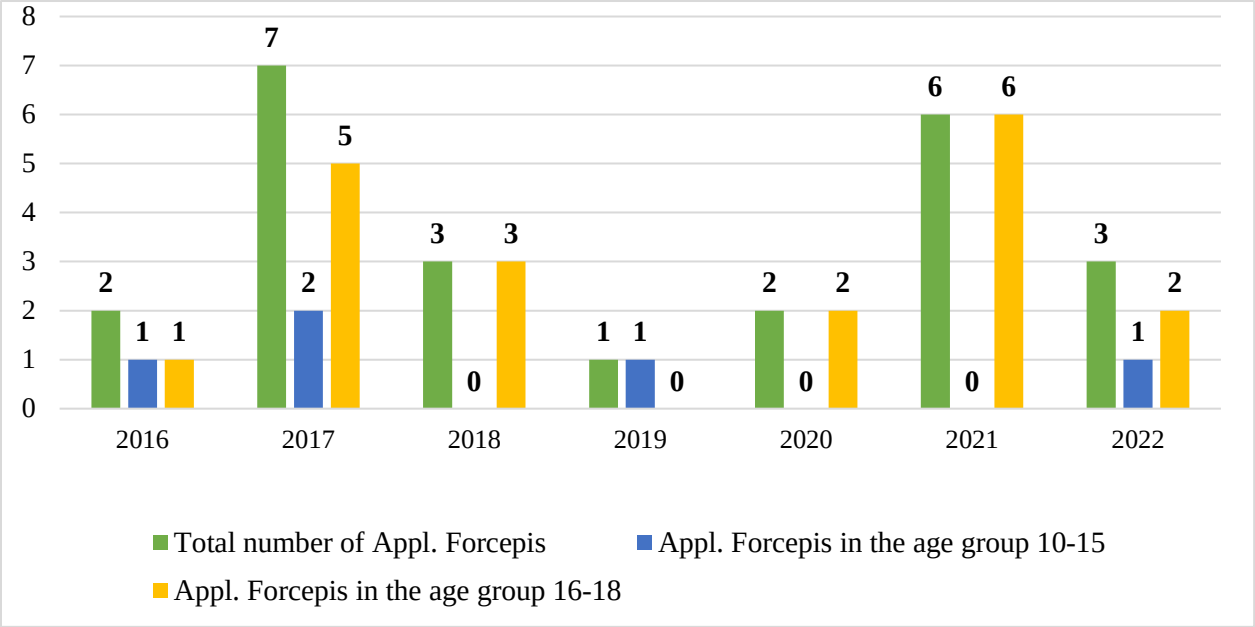


Figure 44. *Number of forced forceps in the different groups.*

All imposed forceps are for obstetric indication – acute intrapartum asphyxia at the end of the second stage of labor. This surgical intervention is of limited application and after the analysis of the emergency of Sectio Caesarea, it is confirmed that the low percentage of F. is not due to its avoidance from use and its replacement by S.C.

The number of instrumental revisions of the uterine cavity in the individual groups is presented in Figure 45.

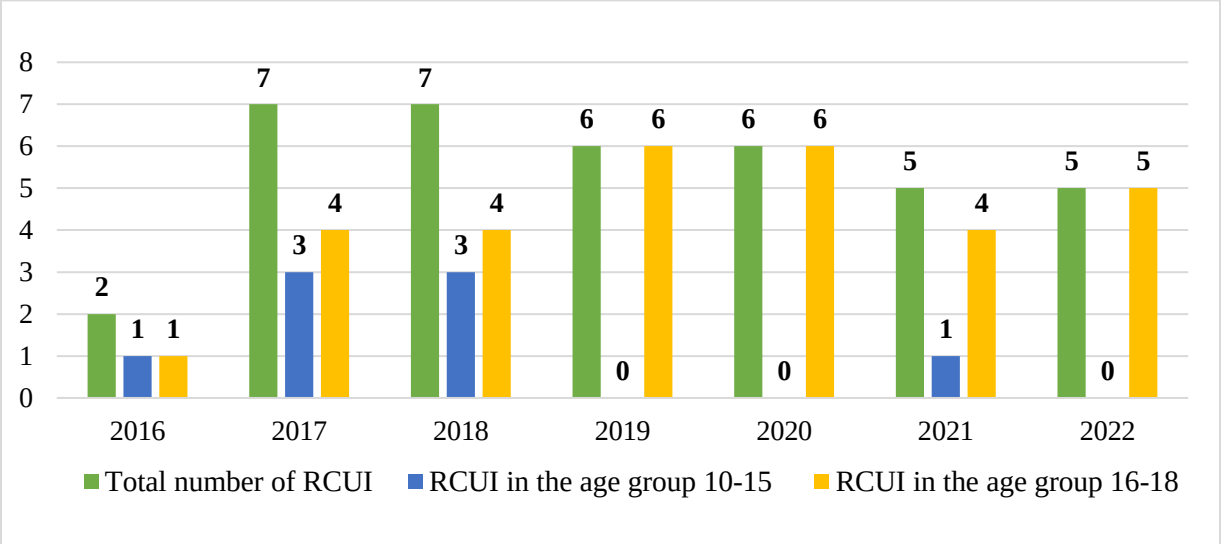


Figure 45. *Instrumental revaluations of the uterine cavity in the different groups.*

Until 2018, RCUI was performed equally in the two clinical subgroups, and then, until 2022, mainly in 16-18-year-olds.

Surgical interventions for vaginal birth in the control group are presented in Figure 46.

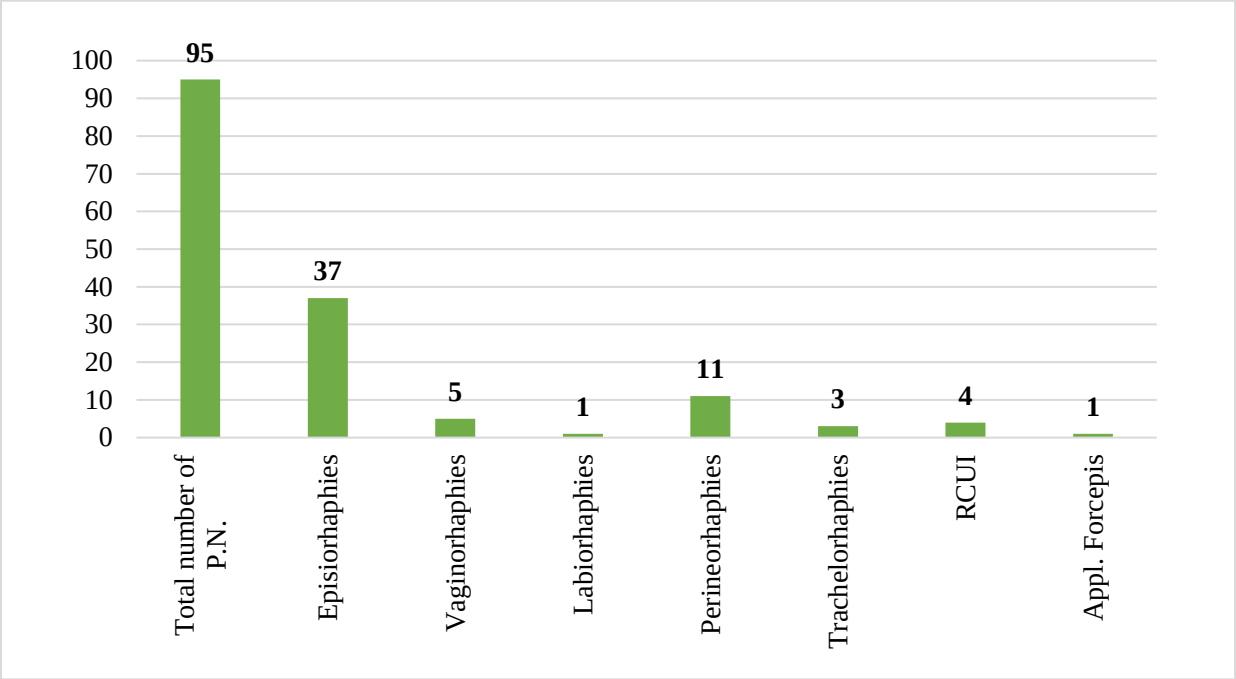


Figure 46. *Surgical interventions for vaginal birth in the control group.*

Episiotomies are 38.95%, perineorhaphys – 11.58%, and vaginorrhaphys – 5.26%.

SURGICAL INTERVENTIONS (total for the entire period 2016-2022)

Number of surgical interventions in normal births in the two subgroups (10-15 and 16-18) adolescent patients.

In groups 10-15, surgical interventions were performed in 88.5% of patients with normal births (n=200). In groups 16-18, surgical interventions were performed in 86.27% of patients with normal births (n=679).

Table 25. *Number of surgical interventions in normal births in the two subgroups (10-15 and 16-18) adolescent patients.*

Opera.interv.	Adolescent (10-15) N=200	Adolescent (16-18) N=679	Distinction
Episiotomy	**66.5%**	**60.38%**	*p = 0 .5200*
Vaginopineorrhaphy	**7.5 %**	**11.48%**	***p = 0.0372***
Labyrhaphya	**2.5%**	**2.5%**	*p = 0.8556*
Trachelorrhaphy	**5.5%**	**4.71%**	*p = 0.3249*
RCUI	**4%**	**4.41%**	*p = 0.4400*
Appl. Forceps	**2.5%**	**2.79%**	*p = 0.6540*

- Statistically significant is the difference between the number of vaginoperineorrrhophys (***p = 0.0372***) in adolescent patients 10-15 years old. (**7.5%)** and in adolescent patients in the age group of 16-18 years, where the percentage of performed vaginopineorrhages is **11.48%.**

Number of surgical interventions in normal births in the entire group (10-18) adolescent patients.

In groups 10-18, surgical interventions were performed in 86.79% of patients with normal births, and the difference between the two subgroups in the number of all surgical interventions performed was statistically significant (Table 25).

Table 26. *Percentage of surgical interventions in normal births in the subgroups of the whole group (10-18) adolescent patients.*

Opera.interv.	Adolescent (10-15) N=1024	Adolescent (16-18) N=1024	Distinction
Episiotomy	**15.13%**	**46.63%**	***p < 0.0001***
Vaginopineorrhaphy	**1.70 %**	**8.87%**	***p = 0.0050***
Labyrhaphya	**0.56%**	**1.93%**	***p = 0.0035***
Trachelorrhaphy	**1.25%**	**3.52%**	***p = 0.0229***
RCUI	**0.79%**	**3.41%**	***p = 0.0440***
Appl. Forceps	**0.56%**	**1.93%**	***p = 0.0350***

Table 27. *Number of surgical interventions in normal births in the whole group (10-18) adolescent patients and the control group (20-24) patients.*

Opera.interv.	Adolescent (10-18) N=1024	Control group (20-24) N=95	Distinction
Episiotomy	**61.77%**	**30.83%**	***p < 0.00001***
Vaginopineorrhaphy	**10.58 %**	**4.17%**	***p = 0.0072***
Labyrhaphya	**2.5%**	**0.83%**	***p = 0.0455***
Trachelorrhaphy	**4.89%**	**2.5%**	***p = 0.0328***
RCUI	**4.32%**	**3.33%**	*p = 0.4400*
Appl. Forceps	**2.73%**	**0.84%**	***p = 0.0654***

- A significant difference was found between the performed episiotomies (***p < 0 .00001***) in adolescent patients (10-18) **61.77**% and in patients in the age group 20-24 years, where the percentage was **30.83**%. The difference between the number of vaginopineorrrhophys (***p = 0 .0072***) in adolescent patients (10-18) **10.58** is also statistically significant% and in patients in the age group of 20-24 years, where the percentage of performed vaginopineorrhages is **4.17**%. The same was observed in the performed labyrhaphys (***p = 0.0455***), in adolescent patients (10-18) **2.5**% and in patients in the age group of 20-24 years, where the percentage of labyrhaphys performed was **0.83**%. The difference was also statistically significant in the trachelorrhaphys performed (***p = 0.0328),*** in adolescent patients (10-18) **4.98**% and in patients in the age group of 20-24 years, where the percentage of trachelorrhaphys performed is **2.5**%.
- A significant difference was also found in the number of Appl. forceps (***p=0.0654***), in the group of adolescent patients (10-18) it was performed in **2.73**%, and in patients in the age group of 20-24 years, the percentage was **0.84**%.

Table 28. *Control group - Surgical interventions - modification.*

Opera.interv.	Control group (1st birth)	Control group (2nd and subsequent birth)	Distinction
Episiotomy	**52.08%**	**18.18%**	***p < 0 .0001***
Vaginopineorrhaphy	**12.05 %**	**15.15%**	*p = 0.4272*
Labyrhaphya	**2.08%**	**0%**	***p = 0.0552***
Trachelorrhaphy	**2.08%**	**3.03%**	*p = 0.3249*
RCUI	**2.08%**	**3.03%**	*p = 0.4400*
Appl. Forceps	**2.08%**	**0%**	*p = 0.6540*

A statistically significant difference was found in the control group (***p < 0.0001)*** in the number of episiotomies performed in patients with first birth - **52.08%** and in patients with

more than 1 birth - **18.18%.** The difference in the number of labyrphias performed is also statistically significant (***p = 0.0552***).

BLOOD LOSS IN NORMAL CHILDBIRTH

There was no statistically significant difference between the amount of blood loss after normal childbirth in adolescent patients in both age groups 10-15 (M = 167.39 SD=43.85), 16-18 (M = 165.39 SD=43.95) and the control group 20-24 years. (M = 161.58 SD=41.54), *p=0.11997.,*

COMPLICATIONS

For the period 2016-2022. in the clinical group, complications in the course of childbirth are observed in **54.45%.** In the age period of 10-15 years, complications are observed only in **10.03%** of the admitted patients, with the most common complication - 21.20%, falling on fetal asphyxia, followed by preeclampsia/eclampsia - 17.05%. The difference in the percentages compared to those upon admission to the medical institution (11%) comes from symptoms/syndromes diagnosed in the course of childbirth.

CESAREAN SECTION - INDICATIONS

Table 29. *Indications for cesarean section in the group of adolescent pregnant women.*

Indication for S.C.	2016	2017	2018	2019	2020	2021	2022	Total
PFD	0	4	0	3	3	3	1	14
PFD+	4	3	6	0	2	4	0	19
Antecedent S.C.	4	3	0	3	2	2	1	15
Breech presentation	3	2	4	3	4	4	1	21
Fetal asphyxia	3	3	6	2	2	4	2	22
Preeclampsia	1	2	3	1	4	0	3	14
Eclampsia	0	0	1	1	2	1	1	6
Placental abruption	2	1	2	0	0	0	1	6
Placenta previa	0	2	2	0	0	0	1	5
Dystocia	0	0	3	1	1	0	0	5
IUGR	0	1	2	1	2	0	1	7
Transverse position	0	1	1	0	1	0	0	3
Oblique position	0	0	1	0	2	0	0	3
Maternal heart disease	0	0	1	1	0	0	0	2
Other concomitant disease	2	0	1	1	0	0	1	5

Presenting umbilical cord	0	0	0	1	0	0	0	1
DRT	0	0	0	0	0	1	0	1

We note a different profile of the indications for operative delivery by laparotomy and uterotomy.

The indication PFD is leading and is associated, exclusively, with anatomical dystocia.

The indication "PFD+" at the birth of full-term babies includes intraoral asphyxia – in 10 cases, preeclampsia/eclampsia – in 2, breech presentation – in 1, IUGR – 2, preceding S.C. – in 3 cases and BPHT – 3.

The profile of the indications for S.C. in premature babies is completely different. Here we have asphyxia – 10, preeclampsia/eclampsia – 10/5, breech presentation – 9, IUGR – 8, fetal asphyxia + preeclampsia – 5, placental abruption – 6.

The indications systematized in the table are more than those performed by S.C., because we have, predominantly, more than one preoperative diagnosis .

The distribution of elective and emergency Sectio caesarea according to diagnosis upon admission is presented in Figure 47.

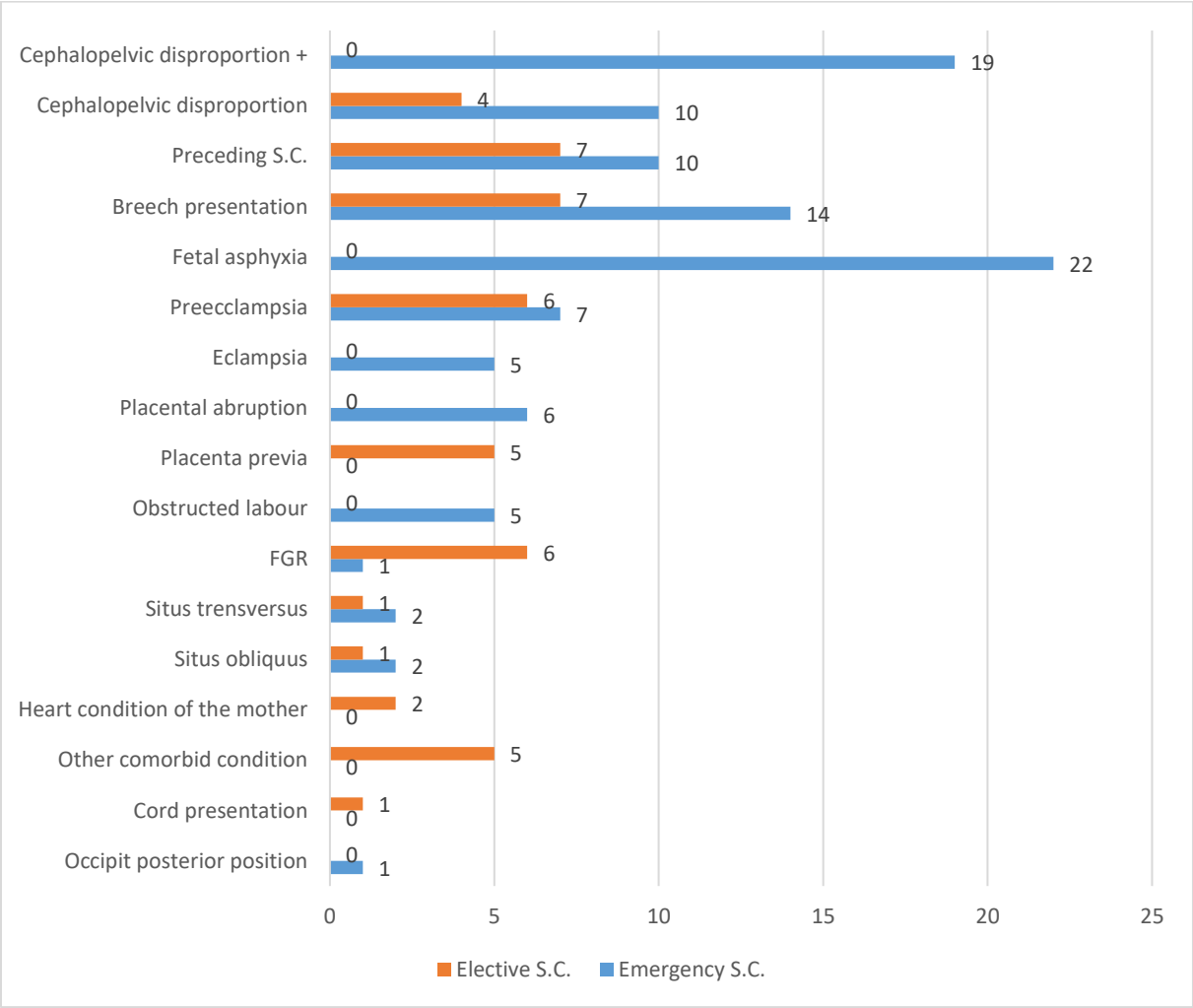


Figure 47. *Distribution of indications for delivery according to the diagnosis upon admission to adolescent women.*

The distribution of elective and emergency Sectio caesarea according to diagnosis upon admission of the control group is presented in Figure 48.

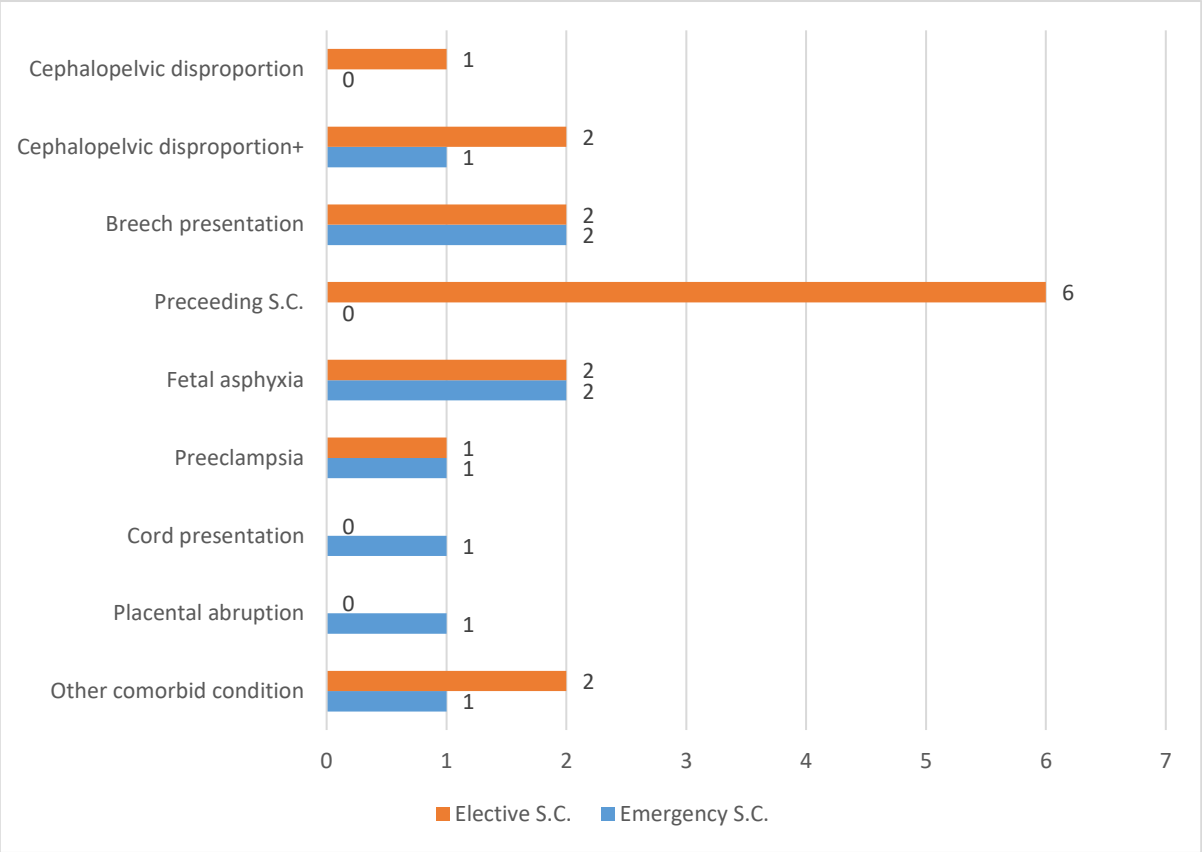


Figure 48. *Distribution of indications for delivery according to the diagnosis upon admission to the control group.*

ELECTIVE AND SELECTIVE CAESAREAN SECTION

The percentage of operative deliveries of the total number of births by year is presented in Figure 49.

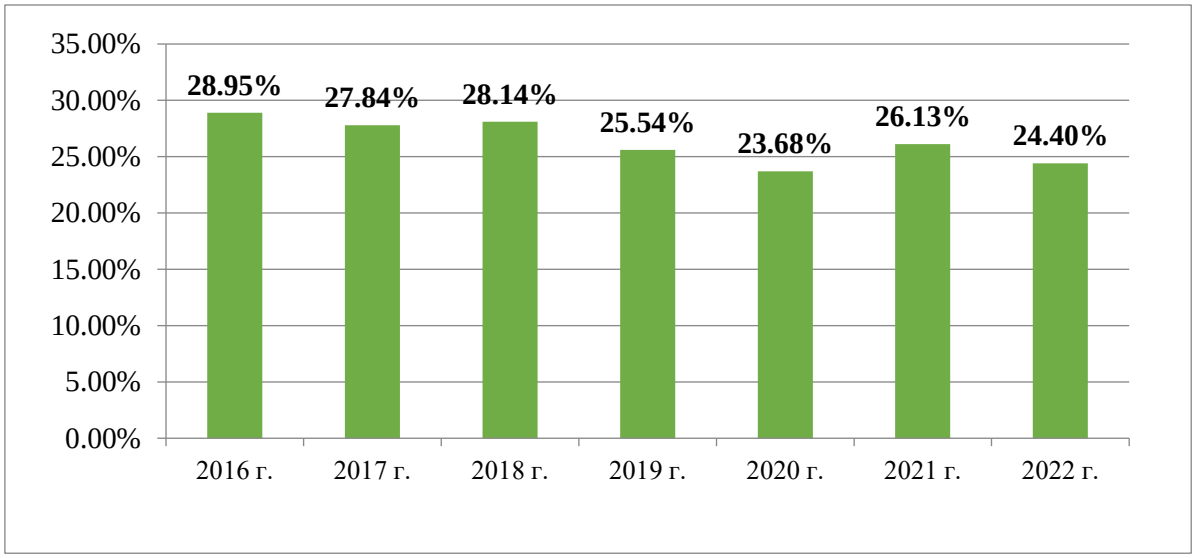


Figure 49. *Percentage of cesarean section, to the total number of births for the period 2016-2022*

The percentage of operative deliveries in adolescence versus operative deliveries in the RE is presented in Figure 50.

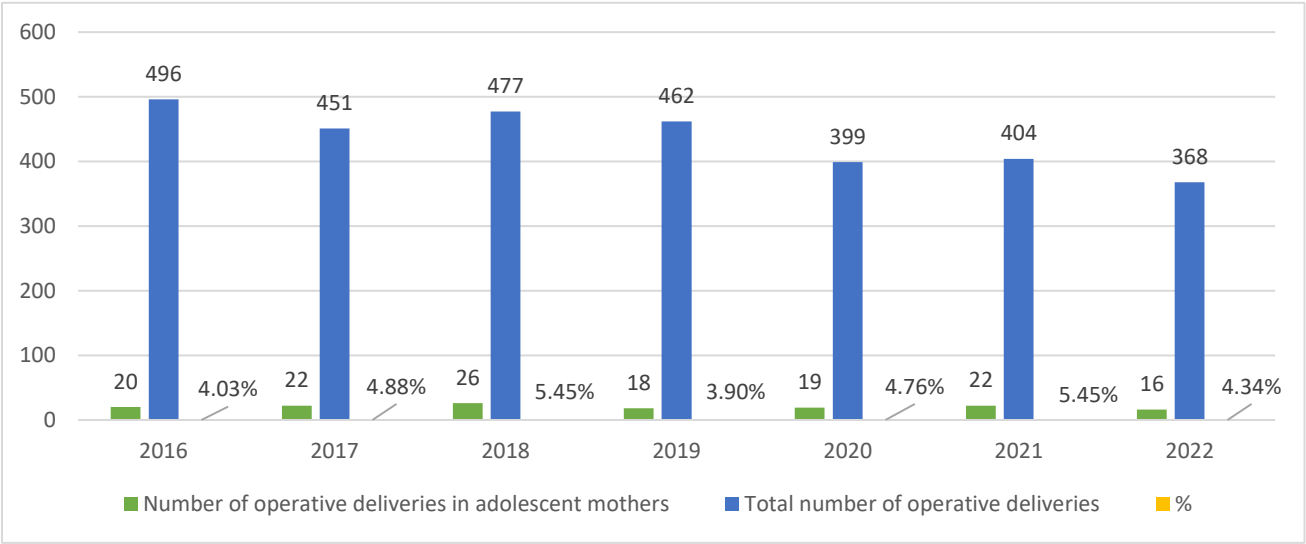


Figure 50. *Percentage of cesarean sections in adolescence to the total number of cesarean sections for the period 2016-2022.*

Table 30. *Frequency of cesarean section in different groups of women.*

S.c.	Adolescent (10-15 years)	Adolescent (16-18 years old)	Control group (20-24y)
Planned	19.44%	31.48%	64%
Urgent	**80.55%**	68.51%	36%

Adolescent patients between the ages of 10 and 15 have a high rate of emergency operative delivery (80.55%), followed by patients between 16 and 18 years of age (68.51%)

Out of 1024 live births in A., 873 were born full-term and 151 - premature (see Figs. 52, 53, 54 and Tab. 30 and 31).

Of these 1024 births, 144 were surgical. Up to 15 years old. 36 have occurred, and by the age of 18. – 108 S.C. These 144 also include 15 Resectio.

Or – the percentage of S.C. in the subgroup up to 15 years old. is 15.19% /36 out of 237 P./, and in the subgroup up to 18 years old. – 13.72% / 108 of 787 P., 15 ReS./.

In 1024 live births of A., 144 S.C/ReS were 14.06%. We report one S.C per dead fetus, which determines 13.96% of operative births in all those who gave birth to A.

The planned ones are 41 /7 and 34/ - 28.47%, and the emergency - 103 / 29 and 74 / - 71.52%.

In the subgroup 10-15 years old. The planned ones are 7 – 19.44%, and the emergency – 29 or 80.55%.

In the subgroup 16-18 years old. the planned ones are 34 – 31.48%, and the emergency – 74 or 68.51%

The fifteen Resectios accounted for 10.34% of all S.C. in A.

In the control group we have 25 S.C, / 6 – Resectio/ , out of 120 births – 20.83%, .16 planned and 9 emergency – 64% and 36%, respectively.

Of the 151 premature births (14.75% of 1024 births), 26 were born by S.C. (125– per vias naturales) - 17.22% or 18.06% of all S.C. in A.

The number of operative deliveries by year is shown in Figure 51.

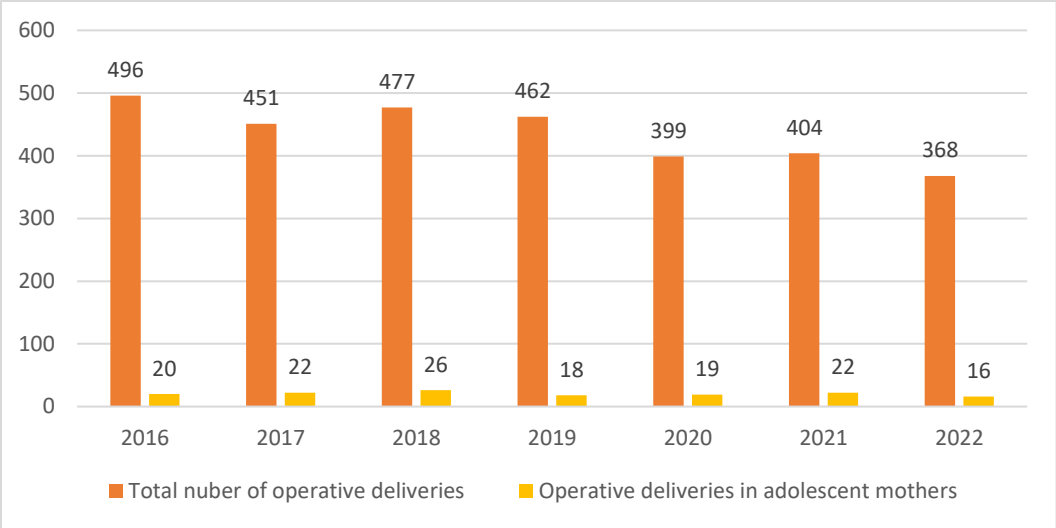
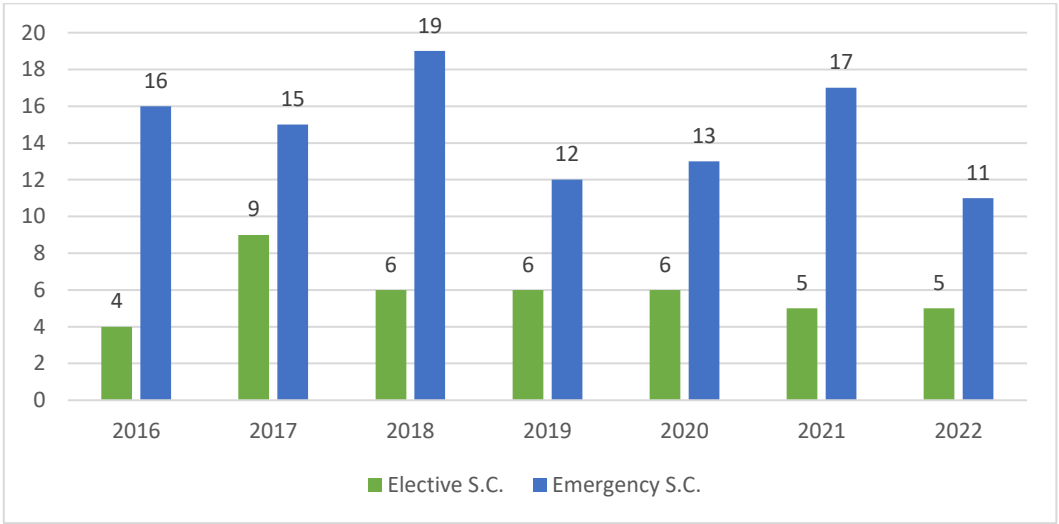


Figure 51. *Total number of caesarean sections in the maternity ward and number of caesarean sections in adolescence for the period 2016-2022*

The number of elective and emergency cesarean sections by year is shown in Figure 52.

Figure 52. *Planned and emergency cesarean section by year.*



The number of elective and emergency cesarean sections in the 10-15 group by year is shown in Figure 53.

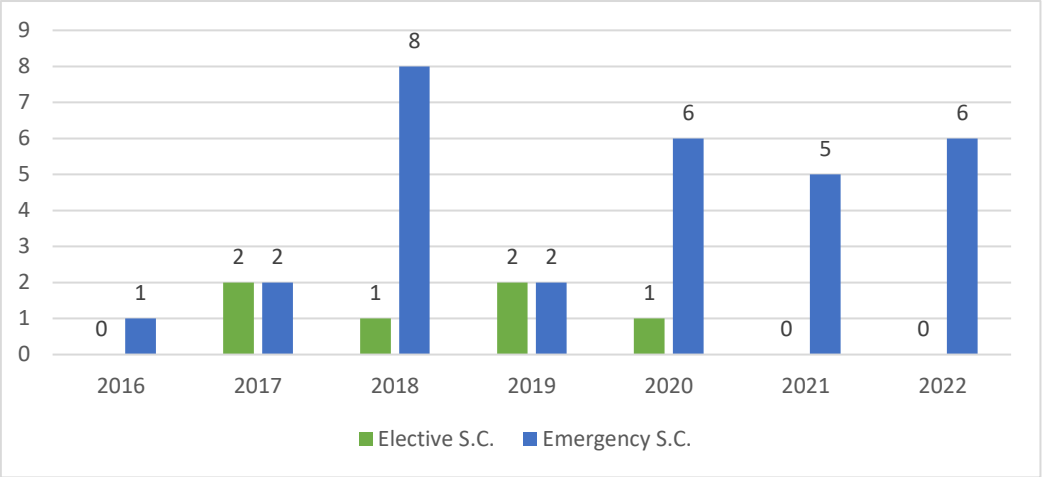


Figure 53. *Number of planned and emergency cesarean sections in the 10-15 age group, for the period*

2016-2022

The number of elective and emergency cesarean sections in the 16-18 age group, for the period 2016-2022 is presented in Figure 54.

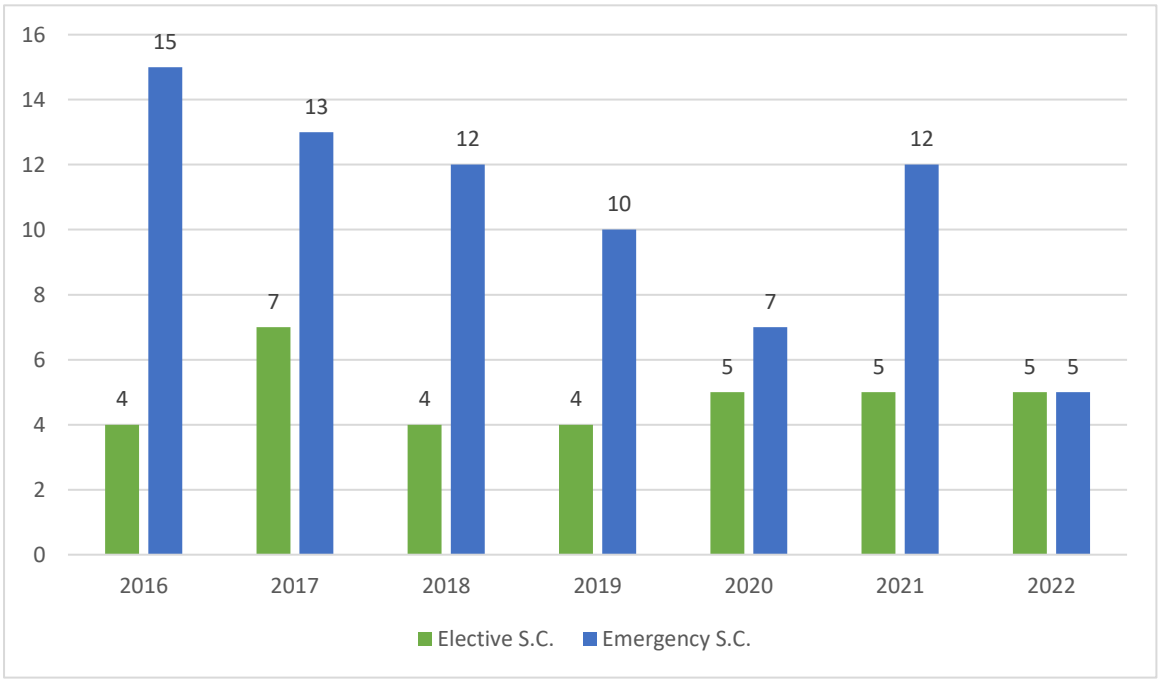


Figure 54. *Number of planned and emergency caesarean sections in the 16-18 age group, for the period*

2016-2022.

RESECTION

The number of Resectio in adolescence is presented in Figure 55.

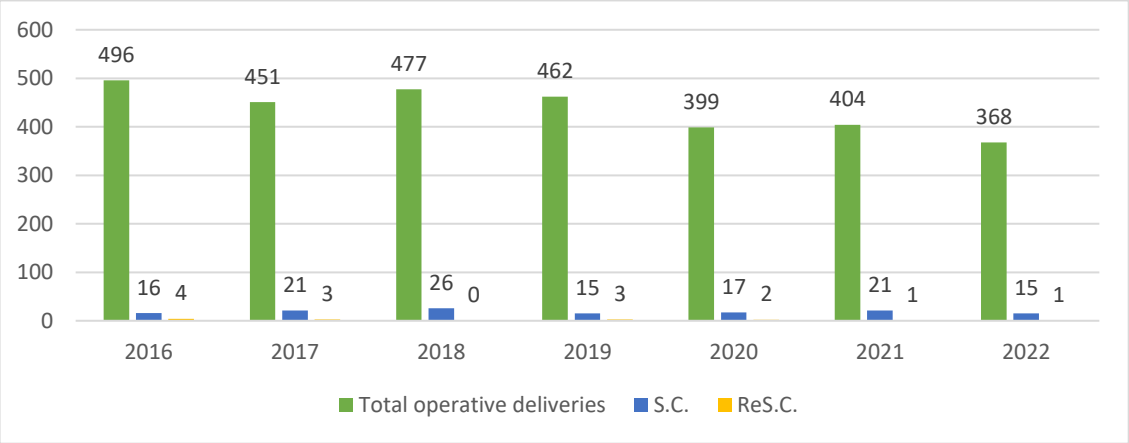


Figure 55. *Number of operative deliveries in adolescence.*

The percentage of operative deliveries in adolescence versus the total number of operative deliveries in the RE is shown in Figure 56.

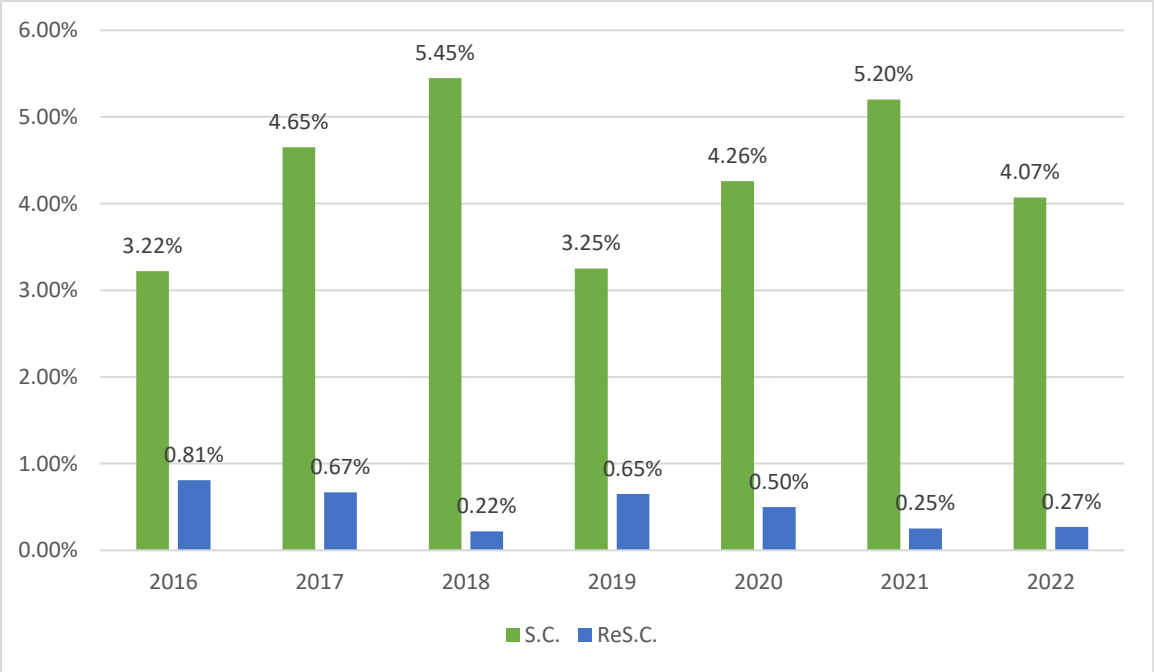


Figure 56. *Percentage of operative deliveries in adolescence compared to the total number of operative deliveries in the RE.*

Re-sectio deserves a separate analysis because of the significant medical and postoperative consequences for the practice of A. patients in the context of their transition to the next age groups and their incomplete reproductive plans.

Three patients are 16 years old, and the other 12 are 17 years old. All of them have experienced one operative birth within 26 months until the day of their admission for the next delivery to the health care facility, due to initial or declared labor.

Eleven have not visited the residential complex. The diagnoses of all high-risk births were made after admission to the ward.

Four were operated on as planned, and the other eleven - urgently.

In five cases, an unsuccessful trial of labor was performed, terminated due to dystocia and/or fetal asphyxia.

Seven were hospitalized after PPOM, and three of them with breech presentation of the fetus. A pregnancy is twin. Seven were operated on with a single preoperative diagnosis "Status post S.C". Fourteen of the newborns were full-term, and one was premature II degree – 1900.

The lower percentage of surgical deliveries in A. Here we also report a very high share of emergency interventions undertaken in the course of childbirth. /Fig. 54, 55, 56/

In the control group, the planned / elective Sectio Caesarea / Resectio / see Fig. 63 / prevail.

CAESAREAN SECTION FOR PREMATURE BABIES

Table 31. *Number of cesarean deliveries in premature babies for the period 2016-2022.*

S.C. in premature babies	2016	2017	2018	2019	2020	2021	2022	Control group
	2	4	5	6	5	2	2	3

Table 32. *Indications for delivery in premature pregnancies.*

Preeclampsia	+	+	+	+	+				
Eclampsia	+	+	+	+	+				
IUGR	+	+	+	+	+	+			
Fetal asphyxia	+	+	+	+	+	+	+	+	+
Pr. sacralis	+	+	+	+	+	+	+		
Placental abruption	+	+	+	+					
PPOM	+	+							
PFD	+	+							
Pl.praevia	+	+							
DRT	+								
St. post S.C.	+	+	+						
Bigemini	+	+							

Despite the small number of Sectio in premature babies, the following should be emphasized:

1. Nine (out of 26) were performed due to acute intrapartum asphyxia of the fetus, and another seven – due to breech presentation of the fetus.
2. Five are due to preeclampsia and the same number are complicated by eclampsia. With IUGR there are a total of six, always associated with preeclampsia/eclampsia , and four with Abruptio placentae. With PPOM with 2,000 votes, the number of voters in the country has increased.
3. Two were diagnosed with PFD associated with the main diagnosis - anatomical dystocia and BPHT, and three had only preoperative diagnoses - st.post S.C.
4. Three were delivered in a planned manner, and 23 – in an emergency.
5. Seven underwent Resectio, of which four were urgent.

APGAR after Sectio Caesarea

Significant is the difference in the assessment of the vital functions of the newborn on the Apgar scale (1 min and 5 min) between planned (M = 8.75 SD = 1.76) and emergency (M = 6.05 SD = 1.64) S.c (p = 0.0355).

Apgar per 1 min in elective cesarean section for the period 2016-2022 is shown in Figure 57.

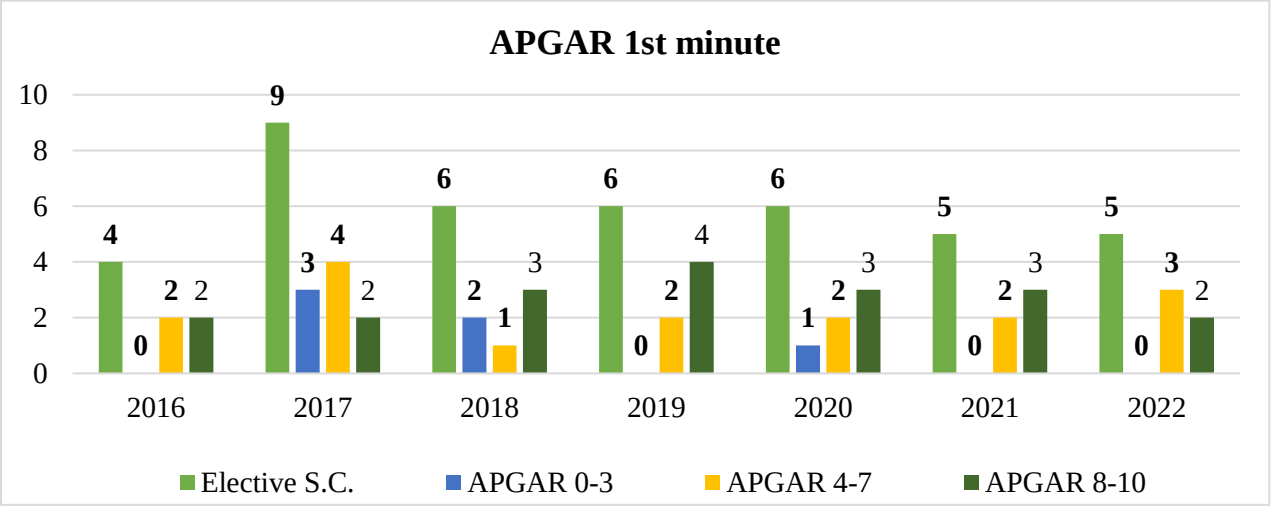


Figure 57. *APGAR score per 1 min. for planned cesarean section for the period 2016-2022, N=41.*

Apgar at 5 min in elective cesarean section for the period 2016-2022 is shown in Figure 58.

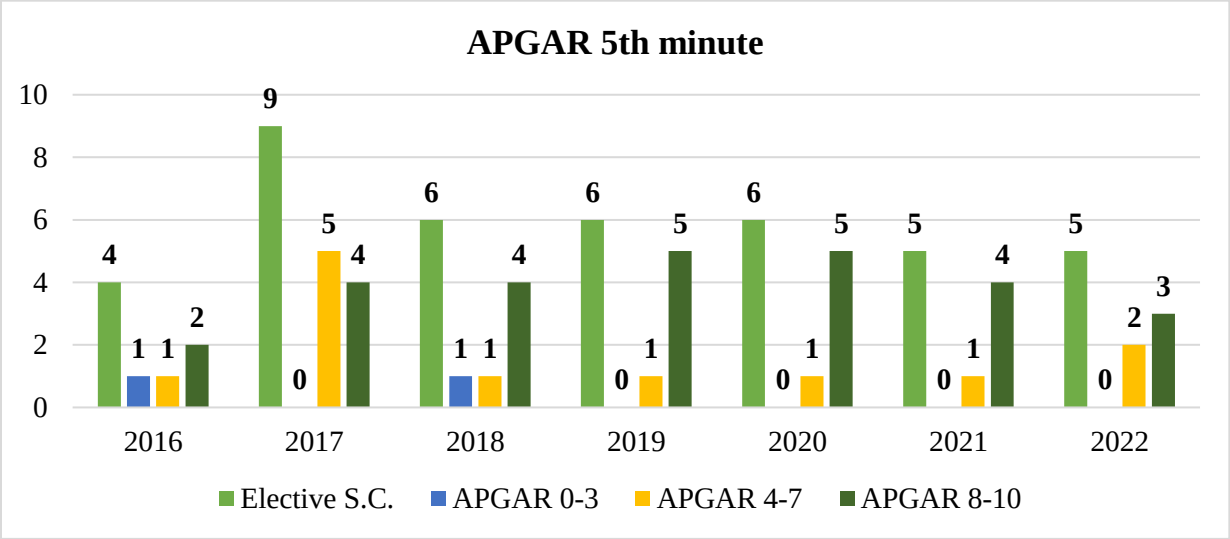


Figure 58. *APGAR score every 5 minutes for planned cesarean section for the period 2016-2022, N=41.*

Apgar per 1 min in emergency cesarean section for the period 2016-2022 is shown in Figure 59.

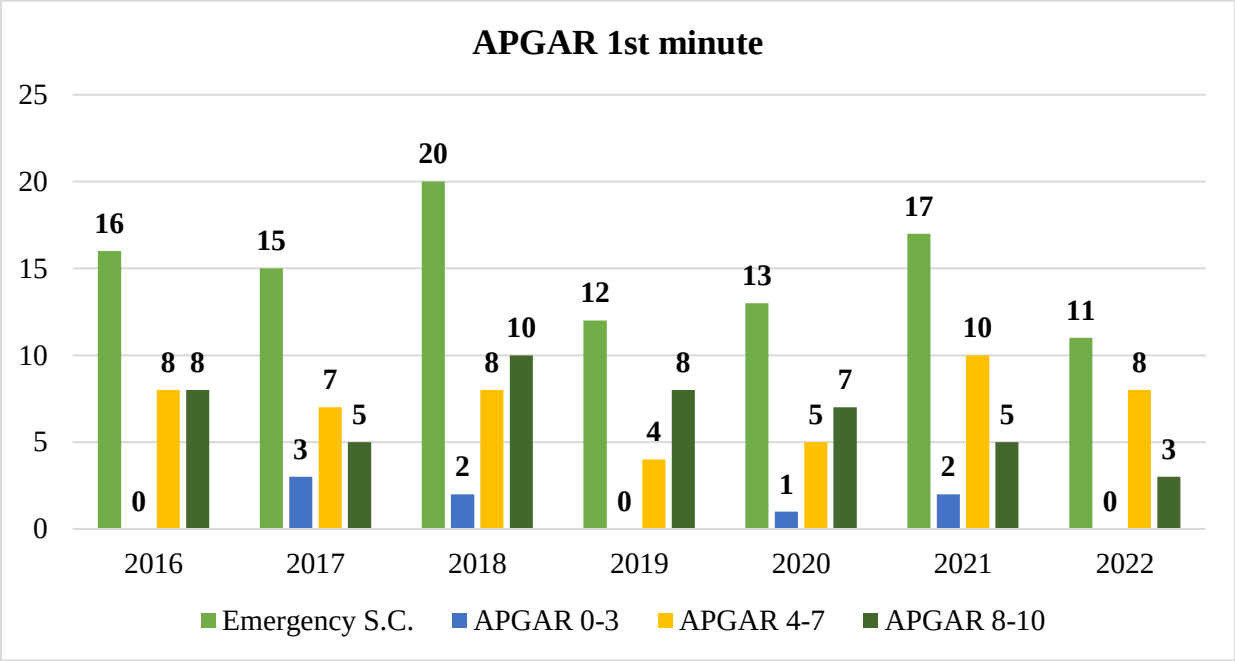


Figure 59. *APGAR score every 1 min. for emergency cesarean section for the period 2016-2022, N=104.*

Apgar at 5 min in emergency cesarean section for the period 2016-2022 is shown in Figure 60.

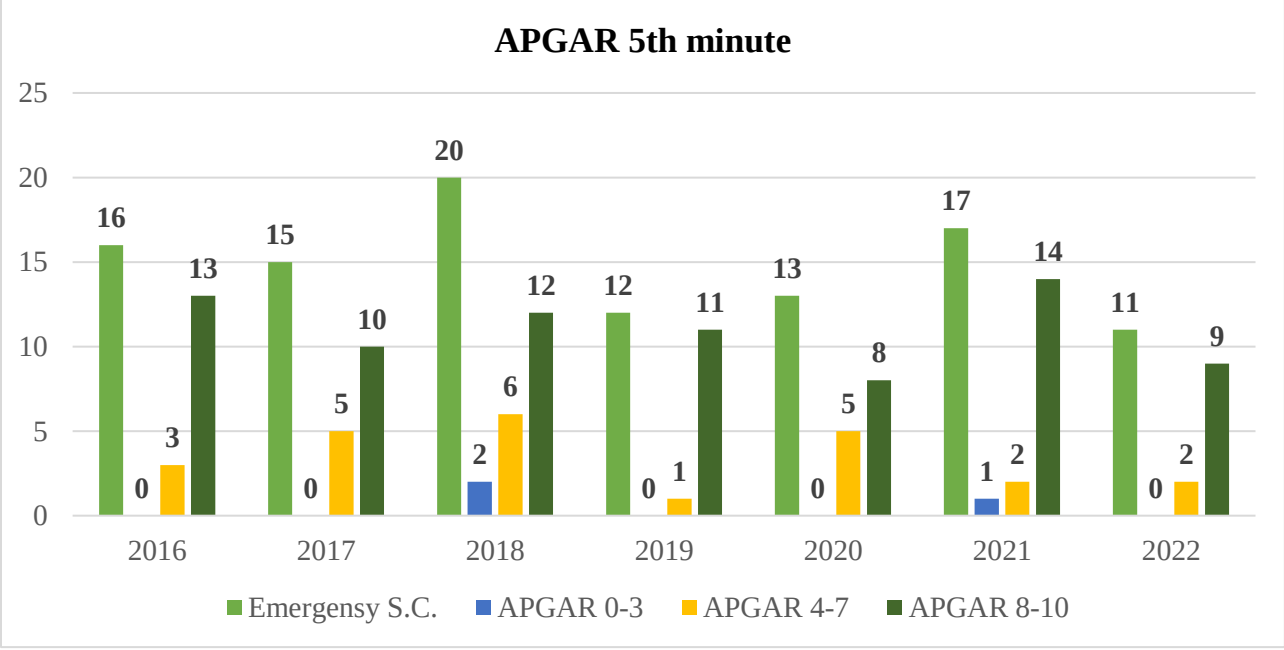


Figure 60. *APGAR score every 5 minutes for emergency caesarean section for the period 2016-2022, N=104.*

Apgar at 1 min and 5 min in the control group of elective cesarean section for the period 2016-2022 is presented in Figure 61.

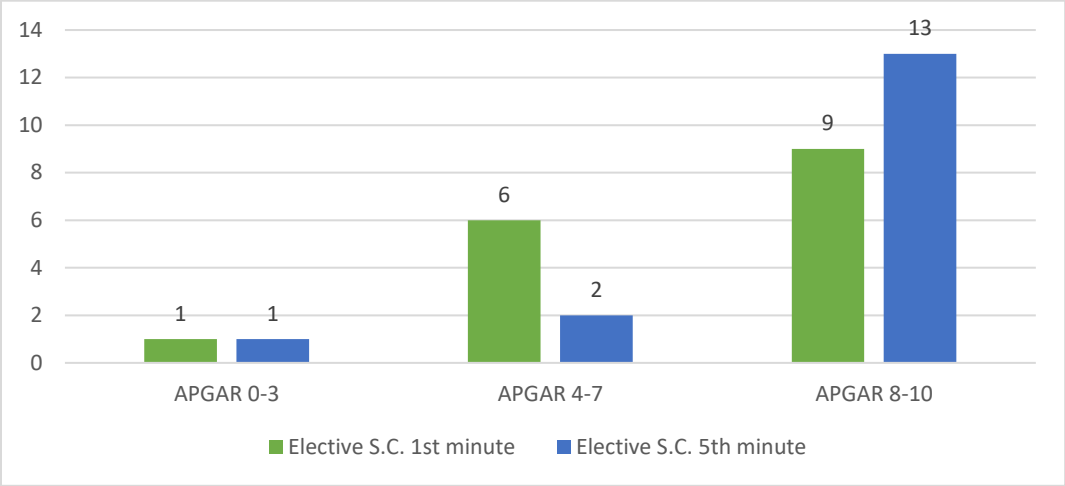


Figure 61. *APGAR score at 1 and 5 min. in the control group of planned caesarean section for the period 2016-2022.*

Apgar at 1 min and 5 min in the control group of emergency cesarean section for the period 2016-2022 is presented in Figure 62.

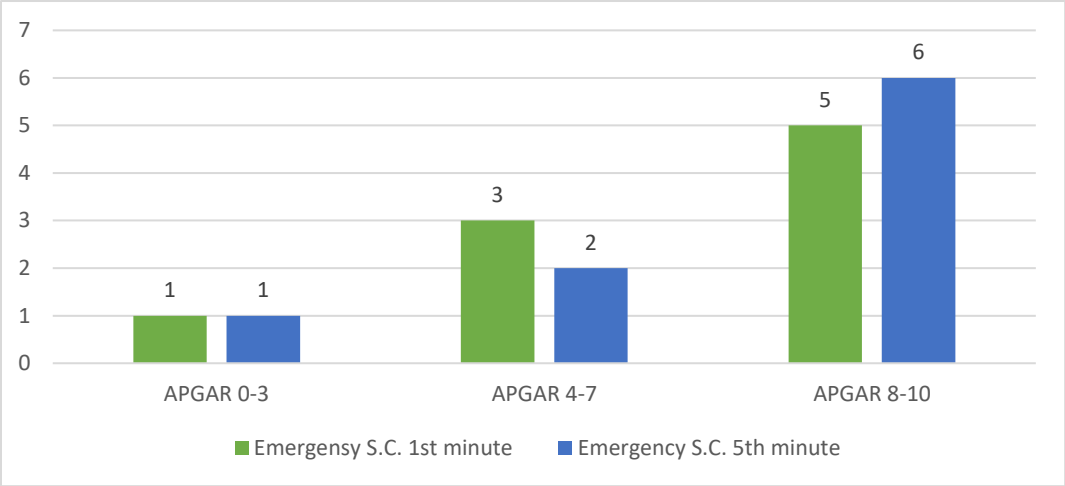


Figure 62. *APGAR score at 1 and 5 min. in the control group of emergency caesarean section for the period 2016-2022.*

Planned and emergency caesarean sections in the control group for the period 2016-2022 are presented in Figure 63.

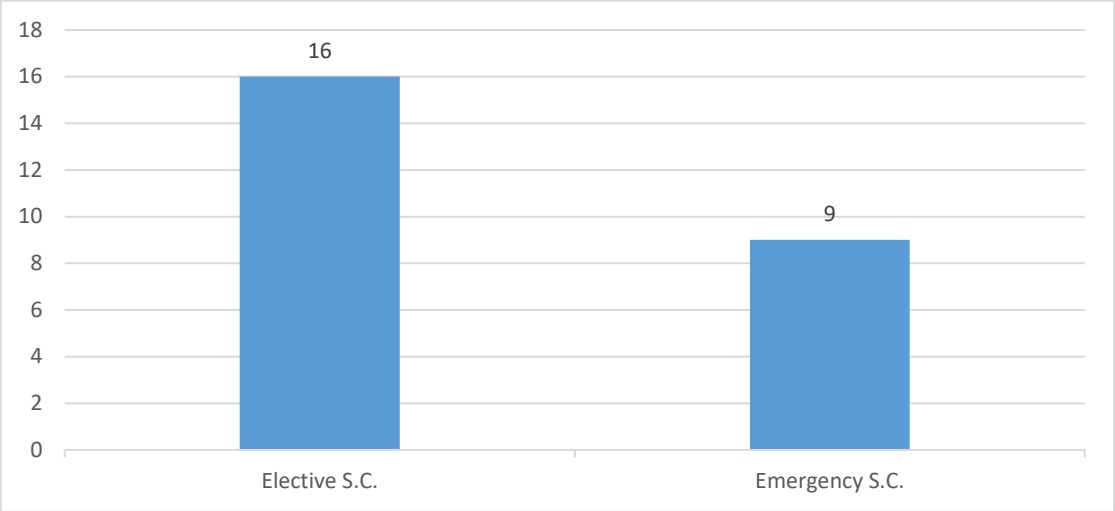


Figure 63. *Planned and emergency caesarean section in the control group for the period 2016-2022.*

It was said above that in the period 2016 – 2022 in UMHAT-Burgas there were 144 Sectio Caesarea, of which 15 ReSectio of A.

After 2020, after we had accumulated enough practical experience, we began to apply VBAC to adolescent girls. Below are the births per vias naturales after Sectio Caesarea. We emphasized, in the relevant section, that in five patients diagnosed with Status post Sectio Caesarea, a trial of labor was undertaken, which was terminated according to indications and Resectio was started. For the rest – as follows:

	Diagnosis	**Pelvic score**	**Years Passed by S.C.**	**Fetal weight**	**APGAR 1`**	**APGAR 5`**
1.	**Gr.m.l. VIII. Status post S.C.**	3	2	2050	6	7
2.	**Gr.m.l. X. POM. Status post S.C.**	12	1	2800	9	10

3.	**Gr.m.l. VII-VIII. F. mortus. PPOM. Status post S.C.**	12	1	1300	0	0
4.	**Gr.m.l. X. Status post S.C.**	10	1	2700	9	10
5.	**Gr.m.l. IX-X. PPOM. Status post S.C.**	4	3	2050	6	7

Two are prematurity births - at 16 and 17 years old, two are for full-term fetuses - 15 and 17 years old, respectively and one - for a dead fetus at 27 weeks, /third pregnancy at 15 years old/.

Three were admitted with a high pelvic score (10, 12, 12), and the others - with 3 and 4. Two were admitted with PPOM /partus prematurus progrediens/. All of them were prescribed stimulation of labor, on time, according to the standard of the Department.

Vacuum extraction was also applied to one of the full-term fetuses.

All of them underwent DIMC - no violations in the integrity of the uterine cicatrix from the previous operative births were found.

There is a decrease in ReSectio by 25% and a 50% success rate in TOLAC.

BLOOD LOSS

Table 33. *Total blood loss in ml. by year, after cesarean section and after vaginal delivery SD*

	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Counter. Group**
Blood loss S.C. ml	393,75	319	342	345.83	302.63	329.54	325	330
Blood loss P.N. ml	174.78	168.17	167.45	163.40	163.53	173.28	163.67	163.15
Hb S.C. g/l	114.31	115.4	115.25	115.25	109.51	109.26	108.63	109.92

Hb P.N. g/l	111.70	113.06	110.5	110.50	107.74	107	110.26	110.47
Leu S.C.	13.76	12.98	12.74	12.74	13.74	12.67	12.76	11.71
Leu P.N.	16.6	16.58	15.97	15.97	15.24	15.01	14.61	15.47

A statistically significant difference was found in the mean values of the amount of blood loss in ml in adolescent patients after S.C. (M = 304 SD=96.27) and after P.N. (M = 167.75 SD=4.71), ***p< .00001.***

Average patient stay

10-15 years old - 3.75 days

16-18 years old - 3.61 days

Control group – 3.75 days.

There was no difference in the mean length of hospital stay between the two clinical subgroups and the control group.

DATA ACCORDING TO THE INTEGRITY OF THE AMNIOTIC SAC

Table 34. *Average weight of a newborn in POM/POM*

	2022	2021	2020	2019	2018	2017	2016	Control group
Wed. Weight in POM	3071,08	2832,05	2935,67	2628,21	2895	2835,58	2987,66	3220,10
POM (%)	25.70%	25.82%	24.34%	21.05%	18.71%	20.71%	29.13%	82,5%
Wed. Weight at ZOM	2973,83	2946,87	3002,17	2912,66	2970,75	2993,88	2933,51	3035,23
ZOM (%)	75.3%	74.18%	75.66%	78.95%	81.29%	79.29%	70.87%	17,5%

No statistically significant difference was found between the mean weight of the newborn in adolescent patients with POM (M = 2628 SD = 1480) and with OM at term. (M =2973 SD=1502), *p=0.*1772.

Table 35. *Number of leukocytes in preserved and ruptured amniotic sac, depending on visits to the antenatal clinic.*

	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Control group**
POM- visited the residential complex/did not visit	9/27	22/23	20/29	9/14	11/27	20/19	9/28	7/14
Zom - visited the residential complex / did not visit	12/80	52/72	45/77	32/55	51/63	55/57	42/65	20/79
Leu for ZOM	16.35	16,28	16.53	15,41	15.10	14.26	14.40	14,19
Leu at POM	16.30	16,22	16.14	16,73	14.93	15,82	14.43	17,03

No statistically significant difference was found between the mean Leu value in adolescent patients with POM (M = 24.21 SD=13.23) and COM (M = 33.14 SD=28.27), *p=0.*1472.

LEUKOCYTES IN FULL-TERM AND PREMATURE PREGNANCIES

Table 36. *Average number of leukocytes upon admission to the Maternity Ward, in the clinical group.*

	Leu/full-term	Leu/Premature
2022	14,53	14,22
2021	14,55	13,52
2020	14,99	15,43
2019	15,98	15,50
2018	16,61	14,27
2017	16,20	17,22
2016	16,02	16,21
Control group	14,72	17,63

No statistically significant difference was found between the mean Leu value in adolescent patients with full-term (M = 35.2 SD=32.32) and preterm pregnancies (M = 24.36 SD=13.70), p=0.1287.

We conclude that the leukocyte values upon admission to the RE are not a sufficiently reliable criterion for assessing the presence of an infectious process with obstetric etiology.

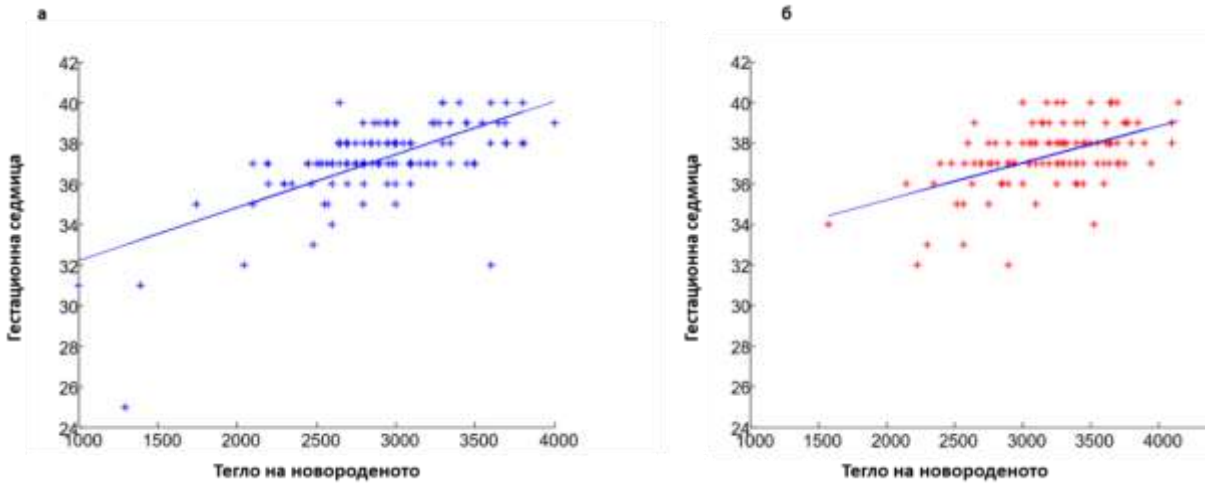


Figure 64. Distribution of newborn weight according to gestational week in adolescent patients (**a**) and control group (**b**)

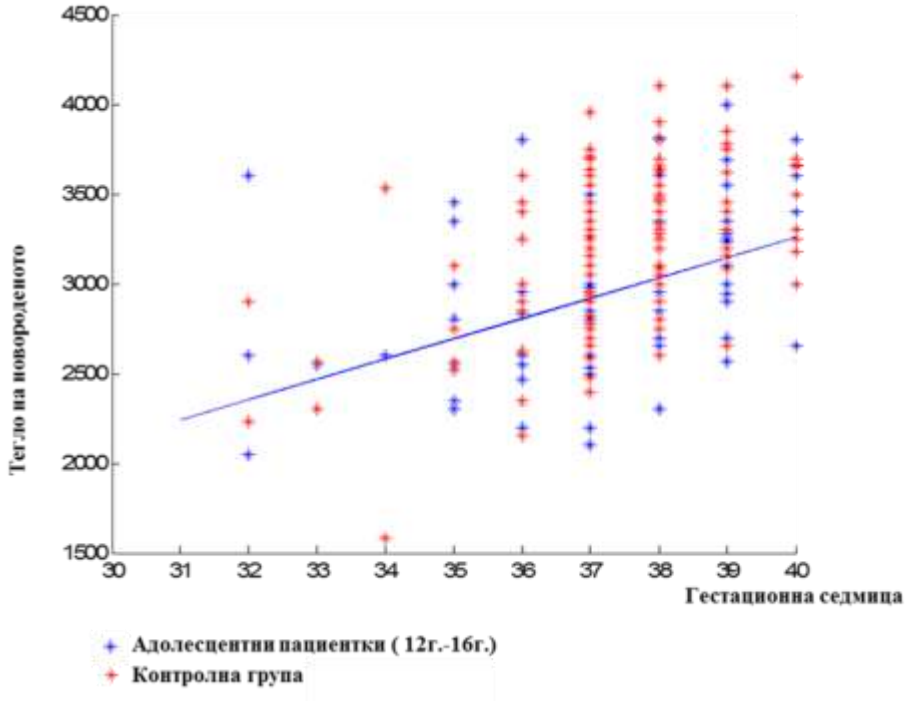


Figure 65. *Distribution of newborn weight according to the gestational week in the two groups of patients.*

It is necessary to conclude that newborns from adolescent mothers are small for their gestational age.

MEDICAL-SOCIAL PAYMENTS

The total amount allocated for a single pregnancy under Article 5a of the Social Assistance Act for pregnant women aged 10-18 years in the period **2017-2022** is **BGN 1,751,000**, of which **BGN 137,850** were allocated for pregnant women who visited UMHAT Burgas, which represents **7.87%** of the total amount allocated. An additional **BGN 19,200** was allocated under the same procedure in **2016** for a total of **128** adolescent pregnant women.

The total amount allocated for a single pregnancy under Article 5a of the Social Benefits Act for pregnant women aged 10-15 years in the period **2017-2022** in the country is **BGN 437,950.Of** these, **BGN 32,100** were allocated for pregnant women who visited UMHAT Burgas, which represents **7.33%** of the total amount allocated. An additional **BGN 4,650** was allocated under the same procedure in **2016** for a total of **31** adolescent pregnant women aged **10-15** years.

The total amount allocated for pregnancy under Article 5a of the Social Assistance Act for pregnant women aged **16-18** years in the period **2017-2022** in Bulgaria is **BGN 1,314,150** , of which **BGN 105,750** were allocated for pregnant women who visited UMHAT Burgas, which represents **8.05%** of the total amount allocated. An additional **BGN 14,550** was allocated under the same procedure in **2016** year for a total of 97 adolescent pregnant women aged 16-18 years.

The received one-time pregnancy benefits in the amount of BGN 150. in accordance with Article 5a of the Child Welfare Act are presented in Figure 66.

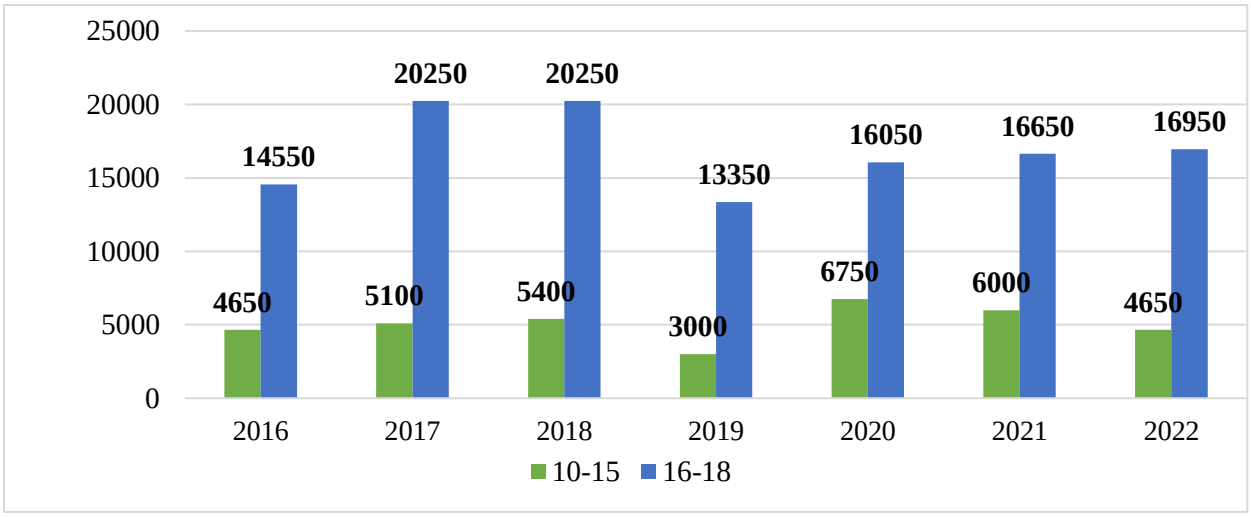


Figure 66. *Received one-off pregnancy allowance in the amount of BGN 150 under Article 5a of the Social Assistance Act*

The one-off benefits received after childbirth under Article 6 of the Child Welfare Act are presented in Figure 67.

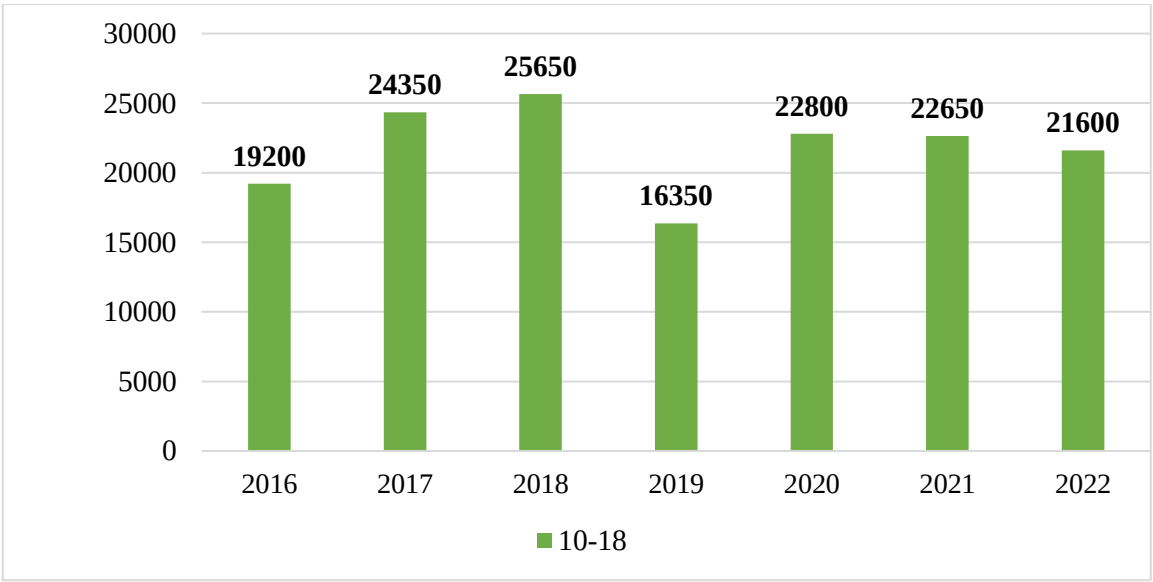


Figure 67. *One-off allowance after childbirth under Article 6 of the Social Assistance Act.*

The payments in BGN for the two clinical subgroups are presented in Figure 68.

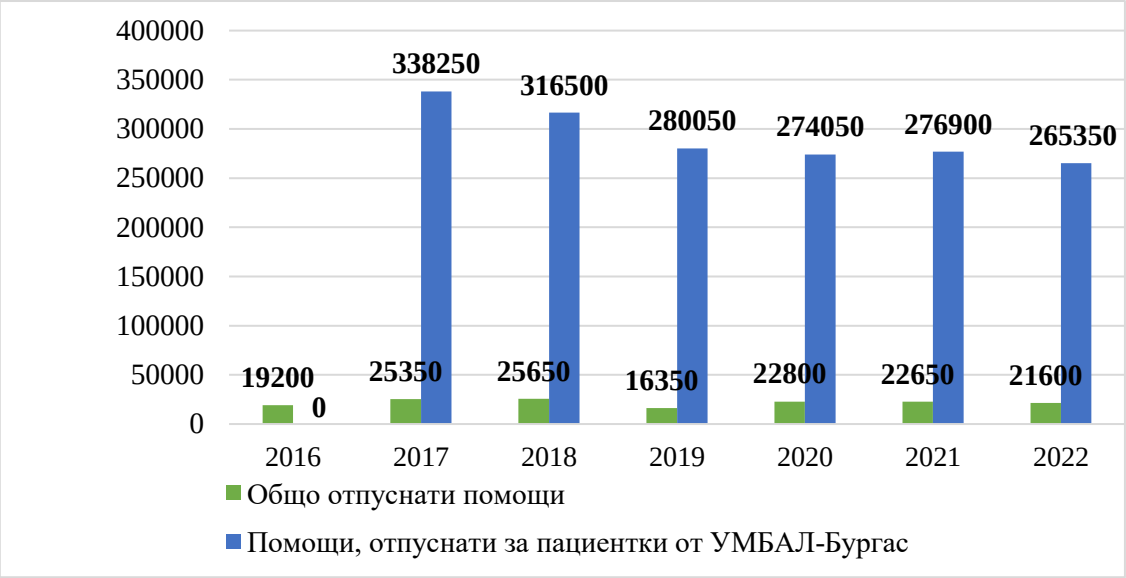


Figure 68. *Payments in BGN for the two clinical subgroups.*

The total amount of aid granted under Article 5a of the Law on Child Welfare for the period 2017-2022 for adolescent patients throughout Bulgaria amounts to **BGN 1,751,100**. The amount of benefits granted under Article 5a of the Law on Child Welfare for adolescent patients at the University Hospital – Burgas for the same period is **BGN 134,400**, which is **7.68%** of the total amount of aid granted to the country. In 2016. for adolescent patients of the University Hospital – Burgas have been granted benefits under Article 5a of the Law on Child Welfare in the amount **of BGN 19,200**. The total amount of benefits granted under Article 5a of the Law on Child Welfare for Adolescent Patients of the University Hospital – Burgas for the period 2016 – 2022 amounts to **BGN** 153,600.

The received one-time allowance for the birth of a first child in the amount of BGN 250 is presented in Figure 69.

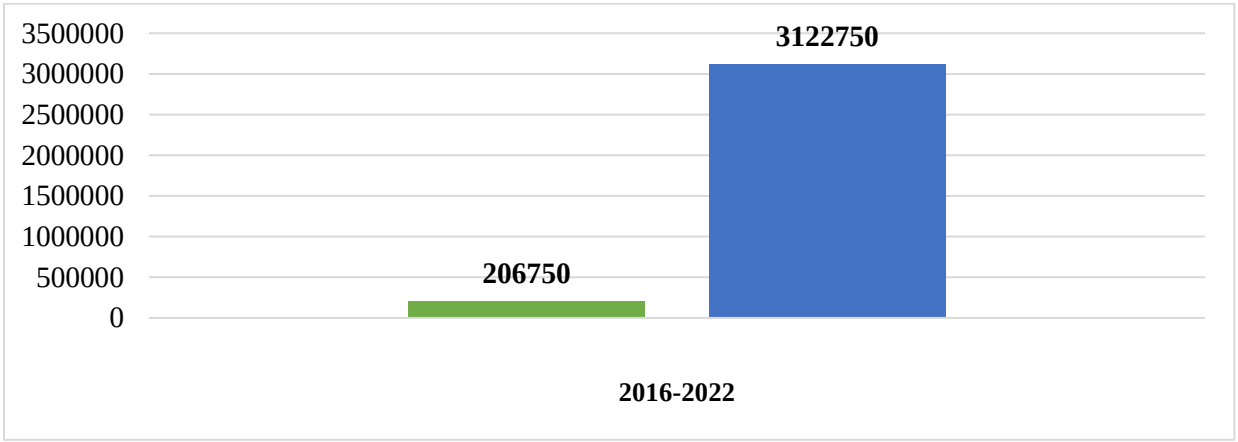


Figure 69. *Received a one-time allowance for the birth of a first child in the amount of BGN 250.*

The total amount of benefits granted for the birth of a first child under Article 6 of the Child Welfare Act for the period 2016-2022 for adolescent patients throughout Bulgaria is **BGN 3,122,750**. The amount of benefits granted under Article 6 of the Child Welfare Act for adolescent patients at the University Hospital – Burgas for the same period is **BGN 206,750**. which represents **6.62%** of the total amount of aid granted.

The received one-time allowance for the birth of a second child in the amount of BGN 600. is shown in Figure 70.

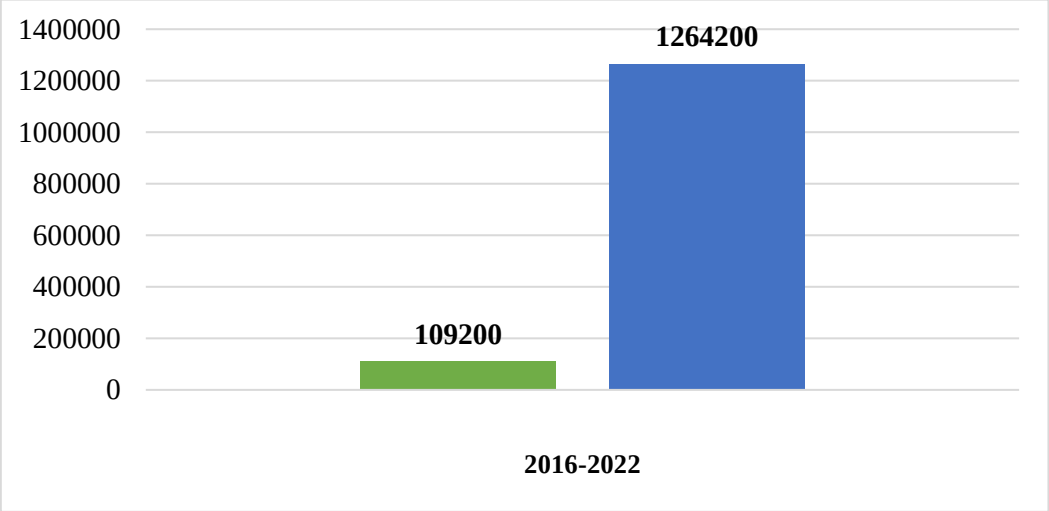


Figure 70. *Received a one-off allowance for the birth of a second child under Article 6 of the Social Assistance Act in the amount of BGN 600.*

The total amount of benefits granted for the birth of a second child under Article 6 of the Law on Child Welfare for the period 2016-2022 for adolescent patients throughout Bulgaria is **BGN 1,264,200**. The amount of benefits granted under Article 6 of the Law on Child Welfare for adolescent patients at the University Hospital – Burgas for the same period is **BGN 109,200**. which represents **8.62%** of the total amount of aid granted.

PAYMENTS FROM THE NHIF BY CLINICAL PATHWAYS

Table 37. *Payments made by the NHIF under the relevant clinical pathways for the period 2016-2022*

	2016	2017	2018	2019	2020	2021	2022		
Аборти преди 13 г.с.	2 482 лв.	1 606 лв.	1 530 лв.	3 060 лв.	3 068 лв.	1 180 лв.	3 660 лв.		
Цена на клиничните пътеки	146 лв.	146 лв.	170 лв.	170 лв.	236 лв.	236 лв.	282 лв.		
Аборти след 13 г.с.	690 лв.	460 лв.	840 лв.	560 лв.	1 700 лв.	1 020 лв.	0 лв.		
Цена на клиничните пътеки	230 лв.	230 лв.	280 лв.	280 лв.	340 лв.	340 лв.	340 лв.		
							януари-април	май-октомври	ноември-декември
P.N.	62 640 лв.	84 100 лв.	108 750 лв.	77 350 лв.	125 020 лв.	121 260 лв.	44 000 лв.	94 250 лв.	36 018 лв.
Цена на клиничните пътеки	580 лв.	580 лв.	750 лв.	850 лв.	940 лв.	940 лв.	1 100 лв.	1 450 лв.	1 566 лв.
S.C.	11 600 лв.	13 920 лв.	19 500 лв.	15 300 лв.	17 860 лв.	20 680 лв.	6 720 лв.	8 000 лв.	1 080 лв.
Цена на клиничните пътеки	580 лв.	580 лв.	750 лв.	850 лв.	940 лв.	940 лв.	960 лв.	1 000 лв.	1 080 лв.

Figure 71. *Payments from the NHIF under clinical pathways 5.1 and 5.2.*

CONCLUSIONS

The following conclusions are made after the study:

1. Adolescent pregnancy is high-risk, possessing special medical and social characteristics that require a united, differentiated approach and attention from many municipal, regional and state institutions. The findings here give a clear idea, in dynamics, of the emerging medical problems that have emerged in the last few years and is a starting point for future steps and measures that need to be taken for the better.
2. 67.47% of the sample reported no comorbidities, and among the most common reported disease was anemia (13.76%), followed by obesity – 4.04% and preeclampsia/eclampsia – 3.37%.
3. Miscarriages are more common in adolescent pregnancies – 8.06% than those for medical reasons – 1.24%.
4. Those who visited the residential complex gave birth to children with a higher body weight compared to those who did not attend.
5. The stillbirth rate is 1.44% - much lower than the 10-11% cited in the literature review.
6. After data from correlation analysis, it was concluded that there was a positive correlation between the gestational week and the weight of the newborn in both the control group and adolescent patients.
7. We report a high percentage of breech presentations, which correlates with the percentage of premature births - 12%.
8. In adolescent patients between the ages of 10 and 15, a higher percentage of premature births is observed - 18.99%, compared to those aged 16 - 18 years - 13.46%.
9. Births per vias naturales were accompanied by twice as high surgical interventions - episio-, vaginoperine-, labio- and trachelorrhaphys, as well as applicatio forcepis, compared to the control group, and TOLAC was successful in 50% of attempts.
10. The percentage of Sectio Caesarea / Resectio was significantly lower in adolescent girls, both in the control group and especially in all births. The predominance of selective operative births over elective ones is emphasized. In premature babies we have 17.21% Sectio, while Sectio Caesarea in premature

babies in the control group is 43.80% with similar, good, APGAR score indicators at the 1st and 5th minute.

11. The present paper does not confirm the data for a lower APGAR score of a full-term fetus at the 5th minute of the newborn after adolescent birth.
12. A significant difference was found between the weight of the newborn in the two subgroups of adolescent patients (10/15 and 16/18) and the control group (20/24) – the presence of a higher probability of giving birth to a child with a lower body weight for his gestational age.

DISCUSSION

Adolescent pregnancy, by definition, is pregnancy in girls between the ages of 10 and 19, with the majority of them desired pregnancies, as confirmed in the current study [59]. Approximately 15% of women under 18 gave birth globally in 2015–2020, and 90% or more of these births occurred in low- and middle-income countries [155]. One in five adolescent girls has given birth globally and the risk rises to about one in three adolescent girls in developing countries [167]. Although adolescent pregnancies are a global problem for both developed and developing countries, according to the WHO, approximately 21 million girls aged 15-19 become pregnant annually. Of these, 12 million give birth. About 5.6 million ended in abortion, of which 3.9 million were reported as unsafe in developing regions of the world, thus directing the global burden more towards developing countries around the world [167]. Sub-Saharan Africa leads the rankings of adolescent pregnancy compared to European and North American nations [155]. Early marriages, substance abuse, sexual abuse, lack of contraceptives, relatives with a history of adolescence birth, early sexual activity, lack of health services, limited maternal education, poverty, lack of parental support, child from a broken family, religious beliefs, lack of financial autonomy, social media, and pornography are among the few risk factors for adolescent pregnancy [20].

Girls with teenage pregnancies are at increased risk of preeclampsia, PPROM, increased incidence of pregnancy-induced hypertension, anemia, sexually transmitted diseases, operative vaginal births (forceps/vacuum), postpartum depression, and maternal death [81, 46]. In addition to the medical point of view, in the psychosocial aspect, they suffer from doubts about coping with the new reality, seeking support, financial constraints, inability to continue their education and, often, stigmatization by society [68]. Among pregnant women in adolescence,

adverse neonatal outcomes, such as LBW, prematurity, stillbirth, early neonatal death, low gestational age [135]. These pregnancies can be reduced by providing sex education, easy access to contraceptives, using condoms, and reducing marriages before age 18.

Mothers in adolescence are prone to preeclampsia, a progressive hypertensive disorder of pregnancy, which can manifest itself with multi-organ involvement, leading to adverse consequences for the mother and the perinatal period, especially in primary adolescents [30, 27]. A prospective study was conducted by Medhi et al. for one year (2014) in Northeast India at a tertiary care hospital; The study included a population size of 165 adolescent primigraformes (15-19 years) who completed 28 weeks of gestation with a singleton pregnancy born at this institution, and 330 adult primigraspecies (20-25 years) who gave birth under the same conditions in the hospital. The conclusion was that adolescents (11.52%) were more likely to have preeclampsia compared to older women (6.06%) [103].

A systematic review and meta-analysis conducted by Macedo et al. over 50 years of age with 291,241 adolescents in 30 countries concluded that the overall prevalence of preeclampsia/eclampsia was 6.7%, which is highly dependent on the socio-demographic status of the adolescent woman [92]. Preeclampsia can be associated secondarily with an immature uterus and the lack of a regular ovulatory menstrual cycle, which can cause defective decidualization, leading to defective deep placentation causing remodeling of the spiral arteries, ultimately leading to preeclampsia [30]. The birth of the fetus is the only definitive treatment for preeclampsia [164]. If preeclampsia occurs before 37 weeks of gestation, fetal prematurity can be significantly complicated. Vigilant screening and monitoring of signs and symptoms is necessary to avoid severe complications of preeclampsia in women diagnosed with preeclampsia.

Premature rupture of membranes, by definition, occurs before birth, before 37 weeks of gestation. The etiology of PPROM can be multifactorial, including racial and socioeconomic status, smoking, sexual activity, nutritional deficiencies, vaginal bleeding, cervical parameters, and genital tract infections [89]. Adolescent women are more prone to PPROM because they have immature uterine and cervical circulation, making them more prone to underdiagnosed infections leading to PPROM by increasing inflammatory markers such as interleukins and prostaglandins, leading to chorioamniotic and decidual inflammation [56]. Markovich and others. conducted a prospective study over four years (2011-2014) involving 300 pregnant women aged 13-35 years, with 150 women aged 13-19 years in one group and the remaining 150 women aged 20-35 years in another group. They all have healthy pregnancies at the

beginning, but later develop PRROM. The results of this study showed that adolescent women had a significantly high PPROM. It was also noted that it was high among adolescent women [97]. The diagnosis of PRROM can be made by direct examination with a speculum, observation of amniotic fluid leakage, nitrazine test, crystallography and ultrasound with a particularly low amniotic fluid index [104]. The use of antibiotics by the mother, the use of corticosteroids according to gestational age, the use of magnesium sulfate for fetal neuroprotection, the use of tocolytic drugs and the optimal time and method of delivery can help in the good management of PPROM.

Anemia is defined by the WHO as a decrease in hemoglobin or red blood cells associated with a reduced capacity to carry oxygen. A pregnant patient may be classified as severe anemia if her haemoglobin is below 7 g/dL, moderate anemia if it is between 7 and 9.99 g/dL, and mild anemia if it is below 11 g/dL [172]. Pregnant adolescents are at greater risk of anemia, since a higher iron intake is essential for a certain state of rapid growth when they are in the process of major biological modifications. This can lead to iron deficiency, leading to physical and cognitive impairment in both adolescents and fetuses [134]. According to a cross-sectional study conducted by Pinho-Pompeu et al. in Brazil for nine years (2005-2013), including pregnant women aged 10-19 years, it was noted that the prevalence of anemia in these women was 41.27% (189), of which 65.60% were mildly anemia, 33.86% were moderately anemic, and 0.52% were severely anemia. The study also showed that 87.24% of teenage girls received treatment, and among those who did not receive treatment, they had premature births, newborns of little gestational age, and stillbirths as an expected consequence [122]. According to the WHO, prophylactic supplementation of 40 mg of elemental iron is recommended from the beginning of pregnancy to three months after birth in all pregnant women [171].

In the study, it was noted that most patients suffer from anemia.

Gonorrhea, chlamydia, trichomoniasis, syphilis, hepatitis B, HIV, herpes simplex virus 1 and 2, and human papillomavirus infections are some of the common STIs seen during pregnancy [38]. In one way or another, these STIs can be harmful to the mother and fetus through vertical transmission. Adolescents are particularly prone to STIs due to a lack of early sexuality education, substance abuse, social and gender inequality, and false beliefs [9]. In a study conducted by Asavapiriyanont et al. at Rajavithi Hospital, Bangkok, for eight months with 121 pregnant teenage girls, it was found that 28.1% suffered from STIs (chlamydia, 19.8%; gonorrhea, 1.7%; hepatitis B, 3.3%; trichomoniasis, 1.7%; herpes simplex virus, 0.8%; genital warts, 0.8%). No cases of syphilis or HIV have been found. Non-STIs, such as bacterial

vaginosis and candidiasis, have also been observed in significant numbers in these patients, concluding that STIs, especially chlamydia, are common among adolescent women [15]. All pregnant women under the age of 25 during their first prenatal visit should be screened for hepatitis B surface antigen (HBsAg), syphilis, gonorrhea, and chlamydia, as many sexually transmitted diseases can be asymptomatic [166]. Timely diagnosis and treatment of adolescents with STIs is strongly recommended in order to avoid severe consequences for the mother and fetus from the progression of the disease.

Table 38. *Summary of studies related to the adverse maternal effects of adolescent pregnancy.*

Referrals	Type of examination	Population selected for the study	Time frame of the study	Region	Conclusion
Macedo et al. (2020) [92]	Systematic review and meta-analysis	291,241 juniors	50 years (1969–2019)	30 countries	The overall prevalence of preeclampsia/eclampsia is 6.7%, which strongly depends on the socio-demographic status of the adolescent woman.
Marković et al. (2020) [97]	Prospective study	300 pregnant women aged 13-35 years (150 women aged 13-19 years and 150 women aged 20-35 years)	4 years (2011–2014)	University Clinical Center "Tuzla", Clinic of Gynecology and Obstetrics	Adolescent women had significant premature rupture of membranes. It was also noted that premature rupture of membranes in terminated deliveries was also high among adolescent women.
Pinho-Pompeu et al. (2017) [122]	Cross-examination	Pregnant women aged 10 to 19 years	9 years (2005–2013)	University of Campinas (UniCamp), Brazil	The prevalence of anemia in women is very high in adolescent women, with a greater number of women with mild anemia compared to moderate and severe anemia.
Medhi et al. (2016) [103]	Prospective case-control study	165 first-born adolescents (15-19 years) who completed 28 weeks of gestation	1 year (2014)	Northeast India	Adolescent women are more likely to have preeclampsia compared to older women.

		with a singleton pregnancy, who gave birth in this institution, and 330 adult first-borns (20-25 years) who gave birth to the adolescent			
Asavapiriyanont et al. (2016) [15]		121 pregnant teens	Eight months (October 2006 to May 2007)	Royal Hospital, Bangkok	More than a quarter of pregnant women had STIs, including chlamydia, gonorrhea, hepatitis B, trichomoniasis, herpes simplex virus and genital warts, with the highest number of cases associated with chlamydia.
Conde-Agudelo et al. (2005) [35]	Cross-examination	854,377 Latin American women under 25 years old	18 years (1985–2003)	Latin America	Adolescents under the age of 15 are at greater risk of maternal and early neonatal mortality.

Premature, as defined by the WHO, is the birth of babies before 37 weeks of gestation, subcategorized based on gestational age as extremely premature (<28 weeks), very premature (28-32 weeks), moderate to late premature (32-37 weeks) [168]. Prematurity in adolescent women is associated with a low number of prenatal visits, late onset of prenatal care, and low educational attainment [98]. Vale de Almeida et al. evaluated the association between teenage pregnancy and prematurity at two years (2011-2012) using data collected from Brazil's national survey involving 23,894 postpartum women and their newborns, and found that younger adolescents had the highest risk of miscarriage compared to older adolescents. It has also been found that premature birth is a serious problem for the health of the mother and child [10]. Prematurity leads to acute respiratory, immunological, gastrointestinal, central nervous system, vision and hearing problems, and long-term motor, cognitive, behavioral, auditory, visual, health, socio-emotional and growth problems [74]. According to WHO guidelines, in order to reduce morbidity and mortality secondary to preterm birth, maternal interventions should be

provided, such as steroid injections before the baby is born, antibiotics for the mother when the water breaks before the onset of labor and magnesium sulfate to prevent neurological damage to the baby later in the future, as well as interventions for the newborn baby such as thermal care. kangaroo maternal care, feeding assistance, safe use of oxygen, and other treatment modalities to aid newborn respiration [168].

The WHO defines LBW as birth weight below 2500 g (up to and including 2499 g) in a newborn. VLBW (<1500 g) and ELBW (<1000 g) are two types of low birth weight [169]. Marvin-Dowle et al. investigated the association between maternal and neonatal outcomes in adolescents in a population cohort study over four years (2007-2010) among primary women aged ≤19 years (n=640) and 20-34 years (n=3951) as a reference group in Bradford, northern England. It was noted that extremely low birth weight was significantly higher in the adolescent group (≤19 years) compared to the reference group. VLBW and ELBW were also higher in the junior group [100]. The determinants of LBW in adolescent pregnancy are non-acceptance of pregnancy, fewer than six prenatal consultations, lack of standardized nutritional care, and preterm birth [23]. LBW is strongly associated with prenatal and neonatal mortality and morbidity and delayed cognitive development. An increased chance of chronic diseases later in life are all the risks associated with pregnancy [73]. To reduce the prevalence of LBW, emphasis should be placed on early identification of pregnancy, regular, easily accessible and affordable prenatal care, improvement of maternal nutrition, management of pregnancy-related disorders such as preeclampsia and provision of appropriate maternal care, perinatal clinical services and social support provided [142].

Table 39. *Summary of studies on adverse neonatal pregnancy outcomes in adolescents.*

Referrals	Sample type	Population selected for the study	Time frame of the study	Region	Conclusion
Zhang et al. (2020) [180]	Cross-examination	238,593 women, divided into a group of adolescents	4 years (2013–2017)	Hebei, China	Adolescent women had a higher risk of stillbirth and neonatal death

		(10-19) and a group of adults (20-34)			compared to the adult group.
Vale de Almeida et al. (2020) [10]		23,894 women after childbirth and their newborns	2 years (2011–2012)	Brazil	Younger adolescents had the highest risk of spontaneous preterm birth compared to older adolescents.
Ogawa et al. (2019) [115]	Multi-center cross-section	30,831 women under 25 years of age with singleton pregnancies	6 years (2005–2011)	Japan	Low Apgar scores are significantly higher in adolescent mothers compared to women aged 20-24 years.
Neal et al. (2018) [112]		Adolescent mothers	10 years (2005–2015)	45 countries	The risk of neonatal mortality for the age of the mother under 16 years of age is higher in all regions. Socio-economic, health services and demography do not play a big

					role in reducing mortality.
Marvin-Dowle et al. (2018) [100]	Population-based cohort study	Primary women aged ≤19 years (n=640) and 20-34 years (n=3951) as a reference group	4 years (2007–2010)	Bradford, Northern England	Extremely low birth weight was significantly higher in the adolescent group (≤19 years) compared to the reference group. It was also noted that very premature and extremely premature births were also higher in the adolescent group.
Yadav et al. (2018) [174]	Retrospective Cohort Study	4,101 births of teenage (15-19) and adult (20-29) pregnancies	1 year (2005–2006)	Nepal	There was no significant difference in Apgar's low scores between the two groups.

Families' emotions towards adolescent pregnancies range from resentment and frustration to abandonment, silence, acceptance and forgiveness. Suicidal thoughts, guilt, loneliness, anxiety and stress are among the psychological problems faced by mothers in adolescence. They also face difficulties in returning to school, low socio-economic level, and social stigmatization [64]. Teenage mothers are more prone to antenatal and postpartum depressive states and depression, and babies of teenage mothers are more prone to developmental delays and behavioral problems later in life.

CONCLUSION

Adolescence pregnancy is a global problem affecting almost all countries in the world. All significant consequences of adolescent pregnancy leading to adverse maternal outcomes such as preeclampsia, premature rupture of membranes, anemia, sexually transmitted diseases and maternal morbidity and mortality, as well as adverse neonatal outcomes, such as preterm births, low birth weight, low Apgar outcomes, stillbirths and neonatal mortality.

Various steps can be taken to avoid adolescent pregnancy, such as educating adolescents about contraception, including long-acting reversible contraceptives, sexual abstinence, reducing child marriage, and raising awareness at community level about the problem. Despite comprehensive knowledge about the prevalence of adolescent pregnancy and its adverse effects, it is still prevalent worldwide. Effective strategies need to be developed globally to reduce the prevalence and negative impacts of such pregnancies. More studies should be carried out and national and regional programs should be established to identify and prevent, in depth, other adverse effects in the mother and newborn, in order to reduce morbidity and mortality of both mother and newborn.

Adolescent pregnancy is also a serious, with long-term consequences, social problem.

Pregnancy and birth complications are the number one cause of death for girls aged 15-19 years worldwide [14]. Approximately 21 million teenagers give birth each year. While global teenage pregnancy rates have been declining since 1970, in developed countries such as the United States, Canada, and Western Europe, teenage pregnancy rates remain high [165]. In developing countries, these adolescent pregnancies are more likely to be planned within the framework of the marriage union [114]. In developed countries, however, adolescent pregnancies are usually unplanned and occur in unmarried women. In addition, teenage pregnancy increases the risk of infant mortality, preterm birth, low birth weight, placental abruption, and eclampsia [111, 13]. Teenage births are also associated with reduced educational or educational prospects, decreased job prospects, menarche at an early age, lack of access and interest in sex education. [160]. Teens giving birth to children are at increased risk of living in poverty, being excluded from their peers and community, and having increased barriers to education and life prospects after birth.

Adolescence pregnancy is often associated with poor outcomes for both mother and child. The effect of maternal age on obstetric and neonatal outcomes has been studied in different parts of the world with different results. In contrast to our findings, previous research

has found an increase in critical outcomes in the mother and newborn, such as LBW [33, 40], stillbirth, preterm birth, and maternal death [71, 35]. Mothers in adolescence were at higher risk of eclampsia, puerperal endometritis and systemic infections compared to mothers aged 20-24 years in a multinational WHO study involving 29 low- and middle-income countries [59]. Another study by Aka et al. found that adolescent pregnancy was associated with adverse pregnancy outcomes [79].

Mothers in adolescence are more likely to have a poor pregnancy outcome due to social health determinants. For example, poor pregnancy outcomes in adolescent mothers are associated with rural residency, insufficient education and low socio-economic status [14].

SCIENTIFIC CONTRIBUTIONS

On the basis of the overall scientific work, the following contribution conclusions are drawn:

Confirmatory in nature:

1. The specific culture of poverty, social isolation and self-isolation, low level of education, early onset of sexual life, the level of social maturation and the absence of educational and social variability predetermine the onset of adolescent pregnancy. Obstetric public healthcare, which is not adapted to the problem, only deepens the subsequent medical and socio-cultural negative consequences on health care as a whole, as well as on the spending of public funds. In this sense, adolescent pregnancy should continue to be classified as

high-risk, and comprehensive policies should be undertaken at national and regional level to reduce it to acceptable levels.

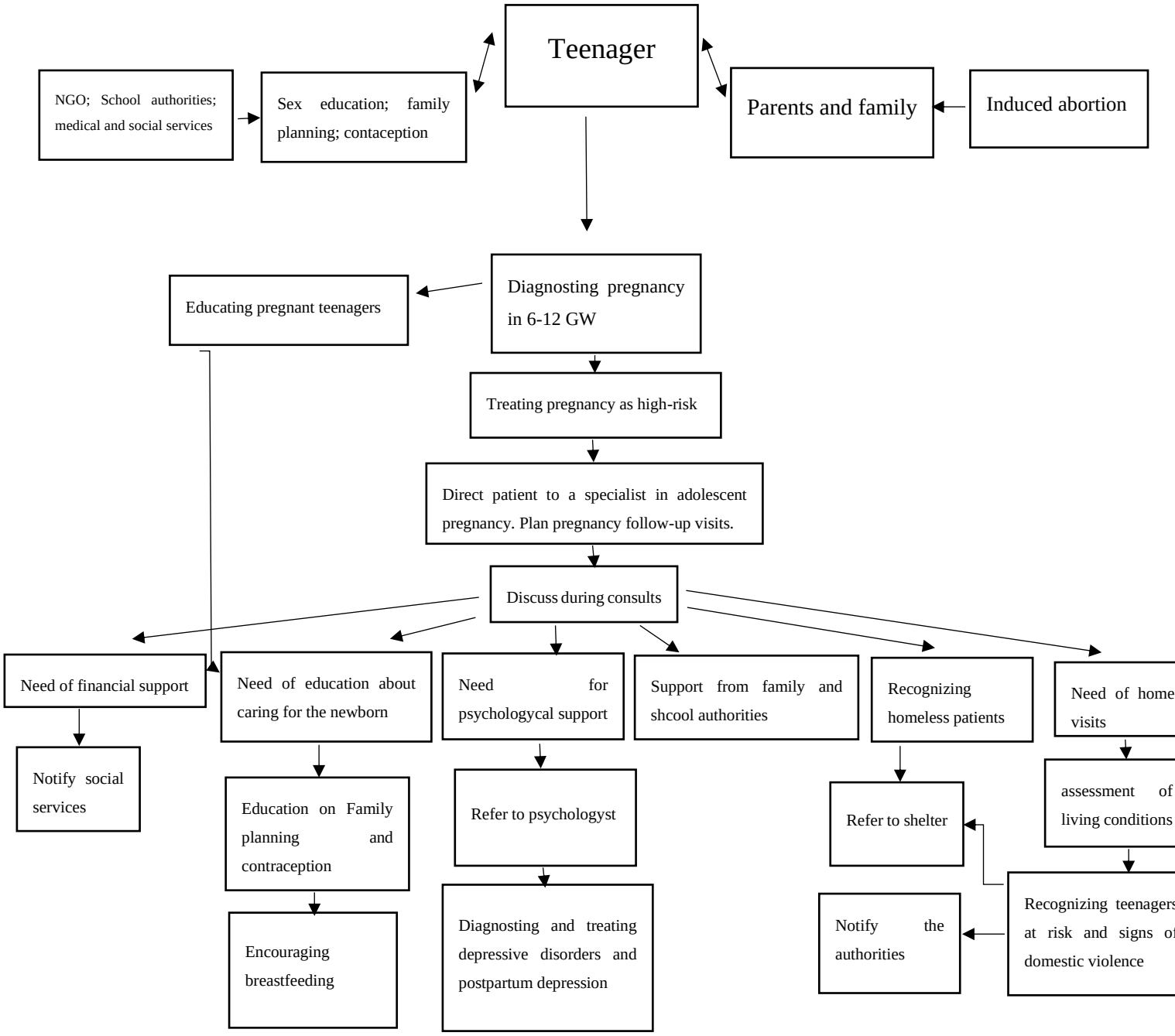
2. It is categorically confirmed that pregnant adolescents are shorter in stature and lower body weight. It has also been found that anemia, obesity, preeclampsia and STIs are among the most common comorbidities in adolescent pregnancy.
3. Early coverage for observation in the gastrointestinal tract results in a higher body mass of the newborn after 37 weeks of gestation.
4. There is an increased and realized risk of premature birth in adolescent pregnancy and as a direct consequence - the birth of a premature fetus, clearly - in women who have given birth under 15 years of age. The medical problems that follow the birth of children who are small for their gestational age should not be underestimated.
5. Low percentage of Sectio Caesarea. In the same context – a high percentage of selective Sectio and significantly lower levels, compared to the control group, in premature births.
6. The correlative analysis applied showed a positive correlation between g.s. and newborn weight in both juvenile patients and in the control group.
7. 65% of premature births occurred in the conditions of PPM. In newborns – prematurely, those with grade I prematurity predominate – 50% in the first clinical subgroup and 43% in the second.
8. It has been proven, again, that the sexual activity of the minor is correlated with the increasingly premature menarche. Most of all, in socially isolated or self-isolating social groups, this phenomenon leads to early sexual initiation and pregnancy. In the absence of search and lack of specialized medical supervision, there is a risk of developing miscarriage, pregnancy infections and preeclampsia, with all negative short-term and long-term consequences for individual and public health.
9. The problems in this social group include the absence of sexual culture and access to contraceptives, the lack of early diagnosis of pregnancy, followed by the non-diagnosis and non-treatment of etiological diseases and STIs, STIs, preterm births, prematurity and the inextricably linked high infant morbidity and mortality.

With an original character:

1. Low rates of abortion on demand – 10.17%. , miscarriages – 8.06% and those for medical reasons – 1.24%.

2. Absence of a statistically significant difference in the number of visits to the gastrointestinal tract in the clinical and control groups.
3. Miscarriages are 82.69% in the first trimester and 17.31% in the second.
4. Stillbirth rate in the clinical group – 1.44%, compared to 1.22% of all births during the analyzed period. Only one of them was on term. Antenatal intrauterine asphyxia of the fetus prevails over infections of pregnancy.
5. In the clinical subgroup 10 – 15 years. a spontaneous birth is diagnosed /Bishop score > 9/, on average, at 36 weeks, while in the other subgroup and in the control group – at 37 weeks.
6. A high percentage of births that took place in full, of spontaneous labor activity – 70.02%, markedly more pronounced in the subgroup of 10-15-year-olds.
7. The results of the study show 4.04% breech care, which is the same as the percentage in all pregnancies. In premature births we have 10.59% breech order.

   50% of breech births are delivered per vias naturales with high APGAR values at the first and fifth minute in full-term women, 84.62% are delivered by S.C.
8. A longer I and II period of birth is found in adolescent women.
9. Operative activity in normal birth is high – 86.79%. Selective episiotomy, vaginopineorrhaphy and outgoing forceps dominate.
10. 17.21% of juvenile births of premature babies were delivered by Sectio Caesarea, while the percentage in the control group was 43.80%.
11. There was no difference in blood loss and the duration of hospital stay after childbirth in adolescent women and the control group.
12. An algorithm for behavior in adolescent pregnant women in separate social groups has been developed, with the ultimate goal of reducing the levels of adolescent pregnancies. We recommend early enrolment in the NIC, prevention and treatment of sexually transmitted infections, reduction of antenatals, intra- and postnatal complications, protection of mental health, including through prevention and termination of domestic violence, as well as contraceptive measures to postpone and/or prevent subsequent pregnancy.


Teenager
NGO; School authorities; medical and social services
Sex education; family planning; contaception
Parents and family
Induced abortion
Diagnosting pregnancy in 6-12 GW
Educating pregnant teenagers
Treating pregnancy as high-risk
Direct patient to a specialist in adolescent pregnancy. Plan pregnancy follow-up visits.
Discuss during consults
Need of financial support
Notify social services
Need of education about caring for the newborn
Education on Family planning and contraception
Encouraging breastfeeding
Need for psychologycal support
Refer to psychologyst
Diagnosting and treating depressive disorders and postpartum depression
Support from family and shcool authorities
Recognizing homeless patients
Refer to shelter
Notify the authorities
Need of home visits
assessment of living conditions
Recognizing teenagers at risk and signs of domestic violence

SCIENTIFIC PUBLICATIONS

1. **Antonio Dushepeev**. ADOLESCENT PREGNANCY – A LITERATURE REVIEW. Burgas Medical Journal. 2023, (2), 19-25. ISSN: 2815-4649.

2. **Dushepeev Ant.**, Emil Kovachev, Zlatko Kirovakov, ADOLESCENT PREGNANCY AND ACCOMPANYING DISEASES. Burgas Medical Journal. 2023, (3), 4-10. ISSN: 2815-4649.