

Electronic Registry for maternal and Newborn Health

(Birth Registry) Three year report 2018-2020



Georgia

2021



Table of Contents

Highlights.....	3
General characteristics of the birth registry	6
Key indicators of reproductive health	9
Pregnancy	10
Pregnancy under 20 years of age	13
Antenatal care	16
Delivery.....	25
Premature delivery.....	31
Caesarean sections	33
Abortions	37
Infant rates	41
Appendix: examples of using Birth Registry data	45

Highlights

- In 2020, the share of pregnant women of the total number of women of reproductive age averaged 7%, with 1/3 of pregnancies ending in abortion.
- In 2018-2020, 94-96% of pregnant women attended antenatal care services. The share of timely initiation of antenatal care (gestation age up to 13 weeks) was 86%. Timely initiated antenatal care visits were mainly performed by pregnant women living in urban areas, with the highest rates in Adjara and Samtskhe-Javakheti.
- In 2020, the share of pregnant women who had minimum number of antenatal visits recommended by the World Health Organization (8 or more visits) was 35%, the majority were of Georgian ethnicity. In 2018-2020, coverage with 6 antenatal care visits averaged 63%.
- In 2018-2020, about 5% of pregnant women did not attend antenatal clinics. The share of pregnant women living in rural areas is higher than the share of pregnant women living in cities.
- In 2020, pregnancy rate (delivery + abortion) in women aged under-20 decreased by 21%, compared to the previous year. The highest rates were observed in Azery origin population of Kvemo Kartli, and the lowest rates - in Tbilisi.
- Pregnancy rates in rural residents aged under - 20 are 3 times higher than in urban population. In 2020, pregnancies in women aged under-18 constituted 16% of pregnancies in women aged under-20.
- At the first antenatal care visit, only 59% of pregnant women had a normal body mass index (BMI = 18.5-25), while 35% were overweight or obese (BMI $\geq$ 25); 7% of pregnant women were underweight.
- Among diseases preceding or developing during the current pregnancy, complicating pregnancy, childbirth and puerperium, gestational diabetes was registered in 1.7%, eclampsia and preeclampsia - in 0.1%, anemia in pregnant women - in 14%. Anemia in pregnant women increases with the gestation age.
- Among countries of the WHO Regional Office for Europe, Georgia ranks second in terms of birth rate per 1000 women aged under- 20 years.
- Georgia, like many other countries, faces demographic challenges and threats they pose. Today the country is in the process of transition from the modern type of population reproduction to the newest type, which is characterized by a decrease of the birth rate and an increase of the mortality, the logical result of all this process is a decrease of the natural population growth, which leads to depopulation.
- Last years, a steady decline of the number of births is observed in Georgia.
- In 2020, the number of deliveries per 1000 women of reproductive age (according to the actual place of residence of the mother) was highest in Adjara and Kakheti, lowest in Mtskheta-Mtianeti and Guria regions.

- In recent years, the share of deliveries attended by skilled health personnel is almost universal (99.8%).
- In 2020, the share of timely deliveries is 86%. Among the countries of the WHO European Region and the CIS, Georgia took the intermediate place in terms of premature labour per 100 live births.
- In Georgia, the share of pathological deliveries¹ averaged to 42%, and in regions the value of the indicator is different: the highest rate - 59% was observed in Samegrelo-Zemo Svaneti region.
- In 2018-2020, the share of women with disabilities of the total number of the women who has given births was about 0.7%.
- Over the past 3 years, the share of preterm deliveries averaged to 8.3% of the total number of deliveries.
- In the country the share of cesarean sections was 41%, among them 64% were urgent. Cesarean section performed at request of the mother is high - 15%.
- In 2018-2020, referrals to other hospitals of postpartum women accounted to 0.1-0.2% of the total number of all postpartum women in the hospitals.
- According to the abortion rate per 1000 live births, Georgia is one of the leading countries among the European Region of the World Health Organization (WHO) and the CIS countries.
- In 2020, in Georgia, the total number of abortions and the abortion rate per 1000 women of reproductive age decreased.
- Abortion rate per 1000 women of reproductive age is the highest in Adjara and Shida Kartli regions. In women living in urban areas the rate is 66.4%.
- In 2020, in Georgia, the share of miscarriages of the total number of abortions is high - 39%.
- From 2018 to 2020, the share of medication abortions increased and the share of dilation and curettage decreased.
- Georgia, according to the abortions rate per 1000 live births, ranks the top second among the countries of the European region of the World Health Organization.
- In 2018-2020, the number of live births decreased by 9%.
- The share of congenital malformations in newborns in during last years was stable (about 2% of the total number of live births).
- In 2018-2020, referrals of newborn to the Intensive Care Unit (NICU) accounted for 8-10% of the total number of live births.

¹Pathological deliveries: caesarean sections, forceps, induced delivery, episiotomy, vacuum delivery, all delivery process complication.

- According to the latest available data from the World Health Organization, the stillbirth rate in Georgia ranks the 4th among countries of the European region and significantly exceeds the average rates of the WHO European Region and the CIS.
- In 2018-2020, the share of stillbirths with timely delivery (25%) and normal weight (27%) was high and increasing: the share of timely gestation (≥ 37 weeks) increased by 5%, the share of normal weight (≥ 2500 grams) increased by 7%; About 40% of them received antenatal care in Tbilisi.

General characteristics of the birth registry

Maternal and child health is a priority, which has an important place in the Sustainable Development Goals, developed by the UN General Assembly. To successfully deal with this challenge, one of the necessary steps is to strengthen and improve health systems by creating national and sub-national databases that reflect and identify barriers to full coverage and access to the health system, surveillance problems, and the quality-of-service delivery. To address this challenge, in the National Center for Disease Control and Public Health, with the support of UNICEF and the Norwegian Arctic University (UIT), an electronic Pregnant women and newborn health surveillance electronic module (so-called "Birth Registry") has been operating since 2016. The system is based on the experience of Norway as one of the registries with many years of history, and its main purpose is to study the important factors, the elimination of which will reduce maternal and child mortality in the country.

The registry includes all prenatal and obstetric facilities, and even in 2017 the coverage was 99%. The registry continuously reflects all the episodes starting from the beginning of a pregnancy and ending with its outcome, and is an excellent source for surveillance.

The module collects data on antenatal, perinatal and neonatal periods, which provide the basis for comprehensive epidemiological analysis, informed decision-making and improved quality of services for pregnant women and newborns. The registry has reduced bureaucratic procedures, such as the voucher issuing to get an enrollment in the antenatal state program. Until 2017, it was issued in paper form and any pregnant woman had to visit the Ministry of Health to get it. The birth registry allowed a replacing of the paper form with an electronic record, which significantly improved the quality of service.

The module is used for statistical reporting to the National Center for Disease Control and Public Health, as well as in components of the state program for antenatal care and inpatient care for pregnant women, delivery and postpartum care for women at high risk.

The data is being actively used by the Ministry of Health in the administration of social programs and this is the main source of perinatal reporting, on the basis of the analysis of which policy makers develop relevant evidence-based regulations and sanctions. Based on the information of the registry, in order to reduce the share of high caesarean sections, the Ministry has developed regulations for medical institutions, and as a result, since 2017, the trend of decreasing of the share of caesarean sections has been observed.

The information is permanently analyzed and evaluated by the center. Since 2019, in order to better assess the validity and quality of data, based on the recommendations of experts from the University of Tromsø, to identify the exact cause of inaccuracies in the quality indicators, it has been planned to compare the registry data with medical records in institutions. This activity also includes all cases of perinatal mortality, as an important goal is to establish a causal relationship between the period from antenatal care to delivery.

This activity includes two types of so-called "Big" and "Small" audits. The purpose of a small audit is to identify the cause of stillbirth, which is significantly related to antenatal care and complications observed during this period. In the case of adverse outcomes, the medical staff has the opportunity to edit the medical records, and the information entered in the birth registry during the visit becomes uneditable after a certain period, which makes it possible to establish causal relationships using the initially entered information.

The second, "big" audit is aimed on assessing the validity of birth registry information. Up to 1200 cases of delivery were randomly selected and obstetric, in some cases neonatal and antenatal services, medical records and outpatient cards were requested, . Both types of audits were conducted in parallel, and comparative information was collected according to a predefined questionnaire that included important variables for both obstetric and antenatal care. According to the results of the comparison, the quality of birth registry data was characterized by high credibility, since the registry data is almost 95% consistent with the data entered in medical records.

The implementation of a birth registry is also important for medical personnel, as access to detailed information about previous pregnancies is a prerequisite for a safe management of the current pregnancy.

Based on the information of the registry, it is possible to conduct many different scientific studies, which have repeatedly become the basis for data adjustment.

Based on birth registry data, numerous analyzes have been performed on pregnancy outcome, antenatal and postpartum complications, and newborn referrals. This is also a focus of the Ministry - this is the main source for the program of perinatal regionalization.

The birth registry is linked to the center's various systems, such as "immunization" module and "electronic birth / death registration system", which exchange important information and reflect services provided.

Monitoring of live births transferred to the neonatal intensive care unit is also noteworthy. Since the format of the birth registry does not include a list of relevant detailed variables, it is planned to develop a special registry that will focus only on the monitoring of livebirths that require intensive treatment. This information will be filled in by the link to the birth registry and will be one of the components of the registry.

The registry is planned to be linked to the "Healthcare system of 0–5-year-old children", which was established with the financial support of the United Nations Children's Fund and has already been piloted in several medical institutions. To ensure continuous monitoring, the system will provide a detailed analysis of the health status of the newborn and services provided using data from the birth registry.

Monitoring of newborn hearing screening is also a priority in the future plans. Only the initial hearing screening is recorded in the registry and this information is filled in by the medical institutions. A number of activities are planned, where the information will no longer be entered manually by the personnel, but will be filled in by the screening devices from the obstetric facilities, through which the primary screening will be conducted. To ensure continuous monitoring of newborns, which will undergo further hearing screening, responses will be reflected in a similar way in the system for 0-5 years children, which will provide complete data, if there is a hearing problem.

In the future, the reliable and valuable database, accumulated over the years in the registry, will also have a significant impact on health strategy, allowing the planning and implementation of effective health policies based on evidence-based information.

Key indicators of reproductive health

Table 1. Indicators of Reproductive Health, Georgia

	2018	2019	2020
Timely initiation of antenatal care	85.5%	85.5%	86.7%
Coverage with at least 1 antenatal care visit	94.3%	95.3%	96.0%
Coverage with antenatal care with less than 4 visits	13.2%	10.4%	10.8%
Coverage of antenatal care with 4 visits	81.1%	84.9%	85.2%
Coverage of antenatal care with 6 visits	48%	71%	69%
Coverage of antenatal with 8 or more visits ²	19.4%	38.2%	34.9%
No antenatal care visits	5.7%	4.7%	4.0%
Pregnancy in women under-20 years of age	3.9%	3.8%	3.6%
Number of deliveries	50,468	47,486	45,797
Share of preterm deliveries	7.9%	8.3%	8.7%
Normal deliveries	58%	59%	58%
Including episiotomy	3.8%	2.0%	8.0%
Pathological deliveries (caesarean sections, forceps, vacuum delivery, all delivery process complication)	21,432	19,369	19,054
Share of caesarean section of total number of deliveries	41.7%	39.9%	40.6%
Proportion of births attended by skilled health personnel	99.8%	99.8%	99.8%
Abortion	22 733	21 599	19 039
Including the share of induced abortions	62%	62%	61%

² According to the recommendation of the World Health Organization, the minimum number of antenatal follow-up visits was set at 8 visits. Accordingly, since February 1, 2018, the state program of antenatal services in Georgia has been expanded and now includes 8 visits.

Pregnancy

Figure 1. Number of pregnant women³, Georgia

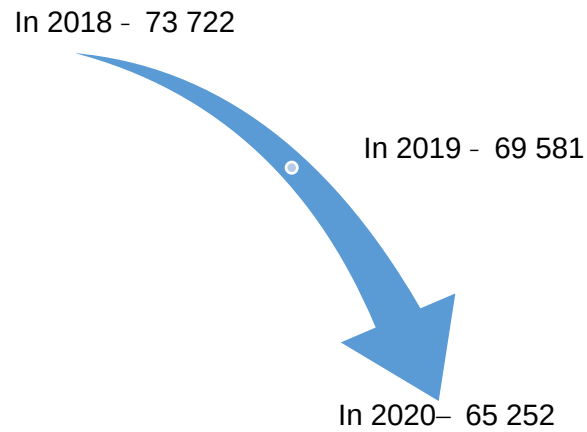
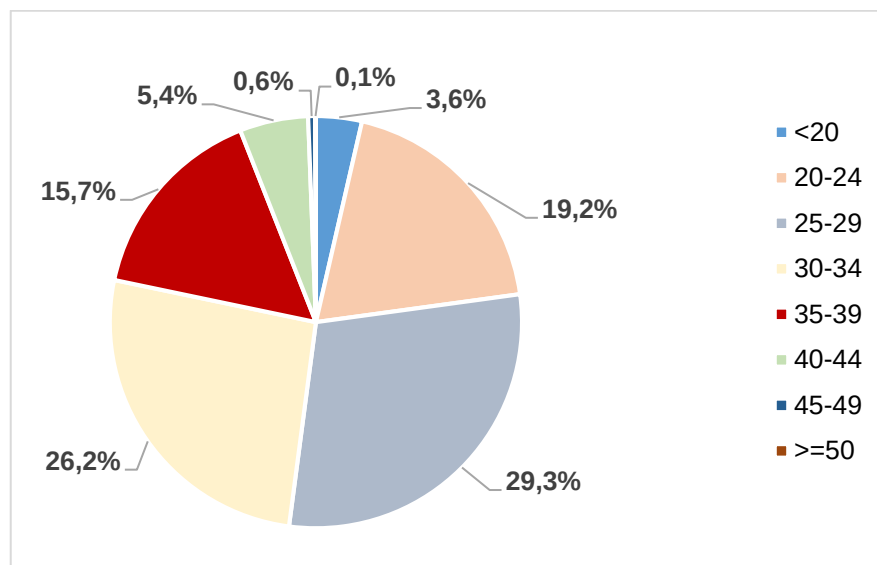


Figure 2. Percentage distribution of pregnant women by age group, Georgia, 2020



In 2020, the share of pregnant women of the total number of women of reproductive age averaged to 7%, while 1/3 of pregnancies ended in abortion.

³ Only completed pregnancy

Map 1. Percentage distribution of pregnant women by regions (with actual place of residence of pregnant women), share in women of reproductive age⁴, Georgia, 2020

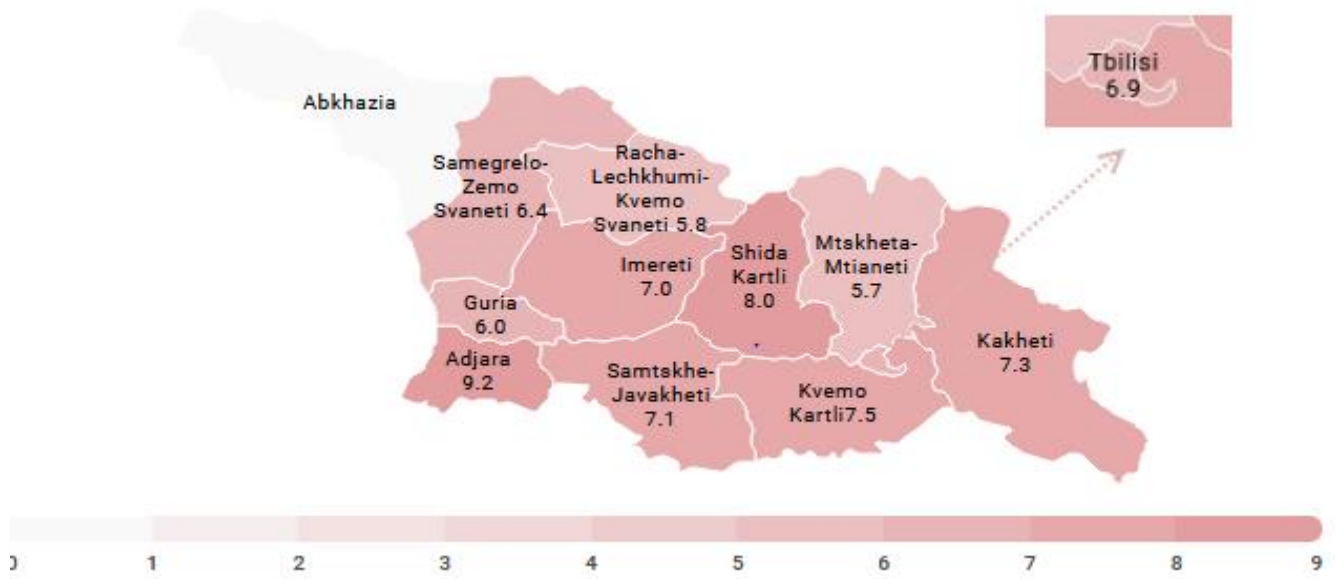
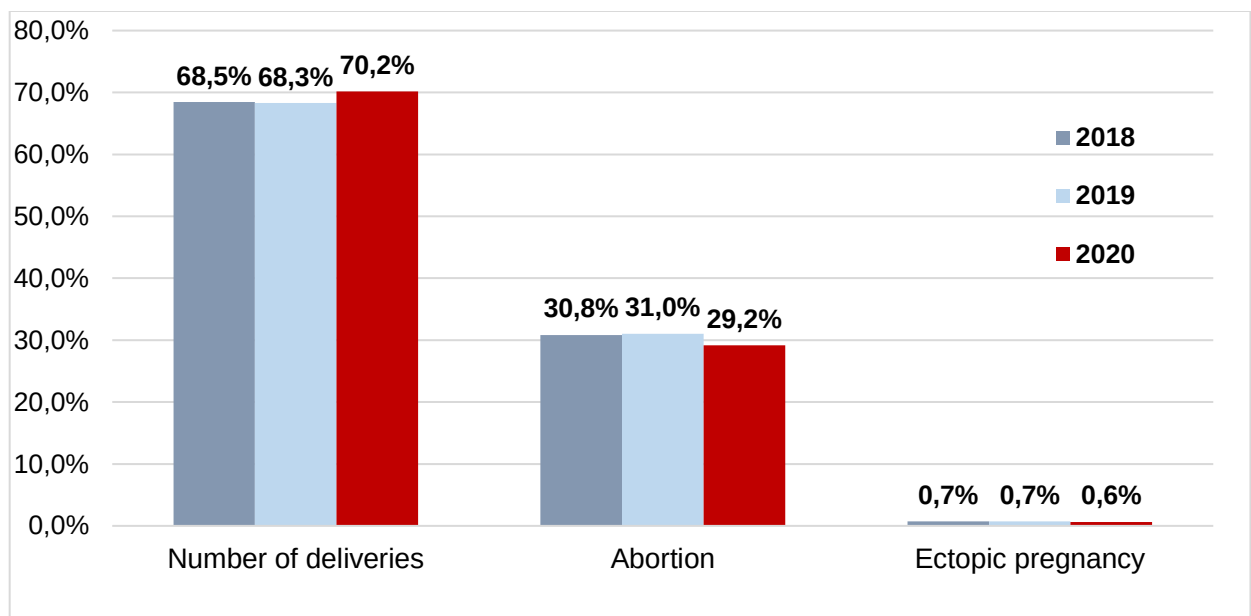
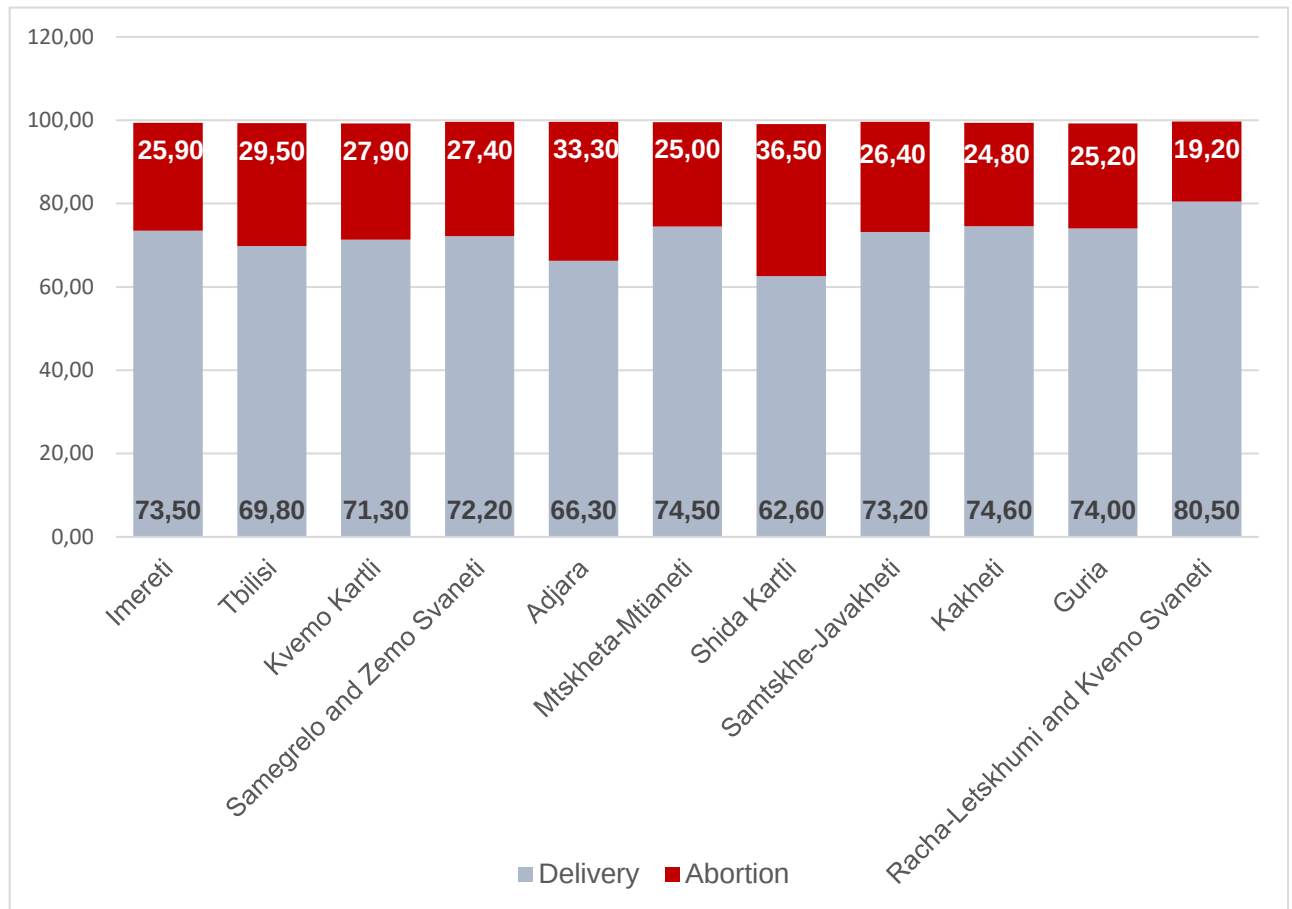


Figure 3. Pregnancy outcome (share of total number of delivered women), Georgia, 2020



⁴ The calculation of the number of women of reproductive age is based on the Census 2014

Figure 4. Pregnancy outcome by regions (share in total number of delivered women), Georgia, 2020



Teen Pregnancies⁵

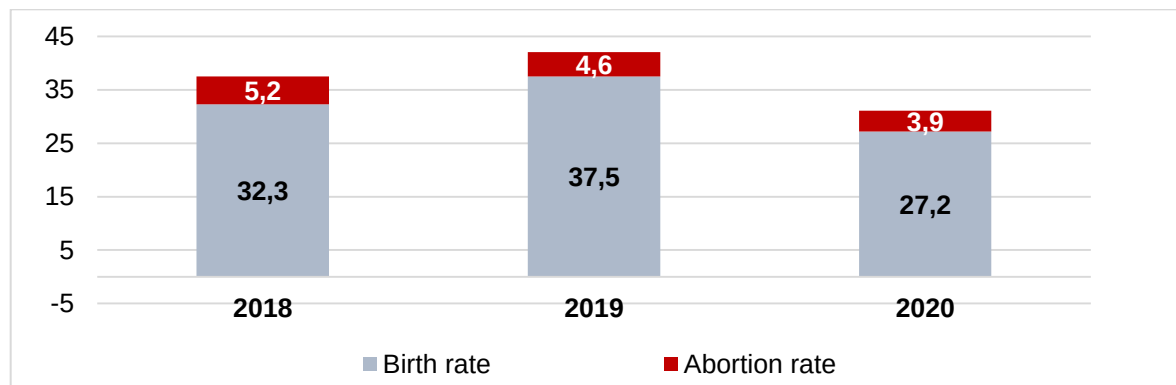
In 2020, sixteen percent of teen pregnancies were at the age under 18.

Figure 5. Distribution of teen pregnancies, Georgia, 2020

14 years old	15 years old	16 years old	17 years old	18 years old	19 years old
•6 (0.3%)	•7 (0.4%)	•78 (4.0%)	•230 (11.7%)	•582 (29.5%)	•1071 (54.3%)

In 2018 - 2020, the share of women delivered at the age under 20 was steadily about 4% of the total number of deliveries.

Figure 6. Pregnancy rates teen pregnancies per 1000 women aged under 20⁶, (completed pregnancies) by outcome, Georgia



Map 2. Distribution (%) of teen pregnancies by regions by according to the actual place of residence of pregnant women, Georgia, 2020

⁵ Total of births and abortions

⁶ Compliant with Geostat data

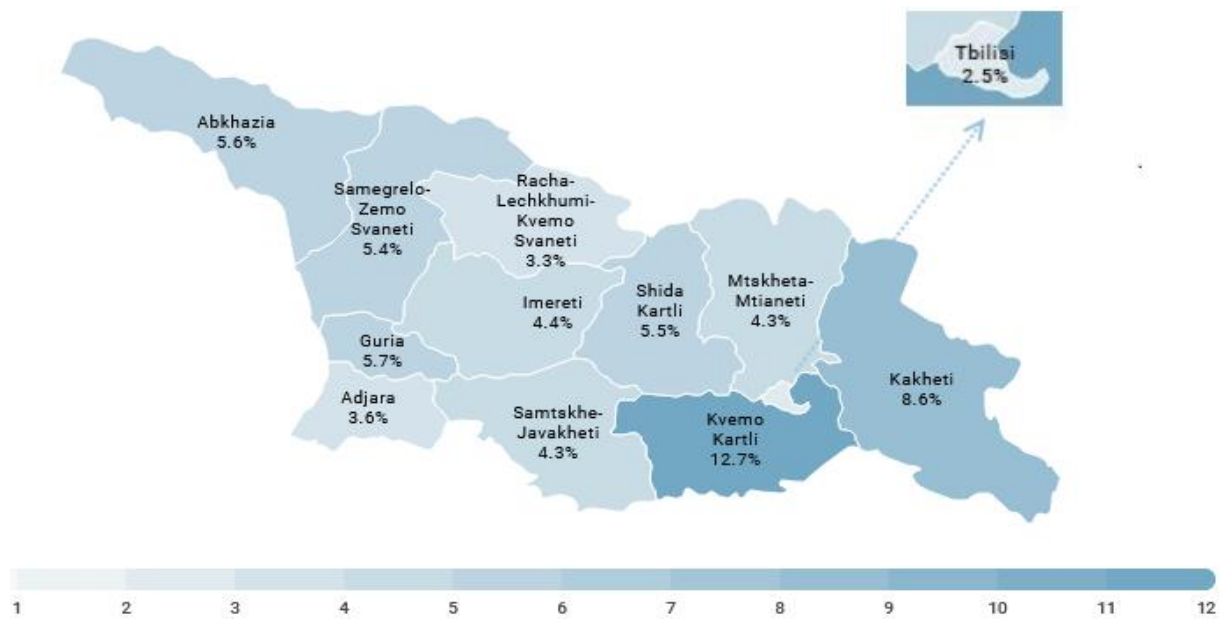


Figure 7. Percentage distribution of teen pregnancies by the place of residence of pregnant women, Georgia, 2020

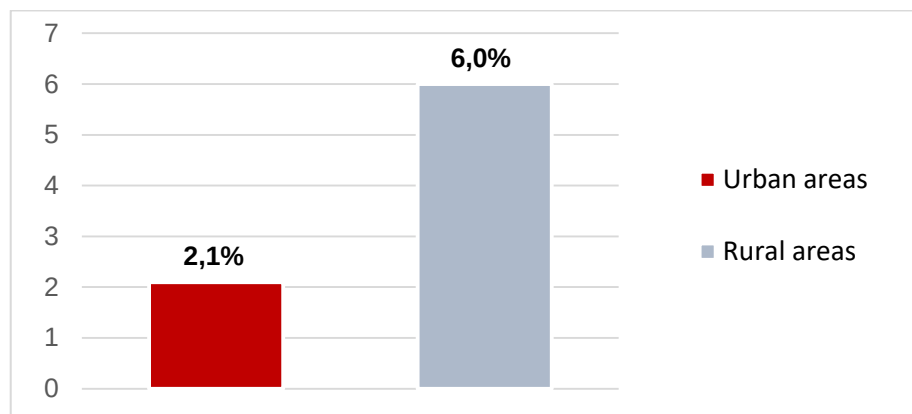
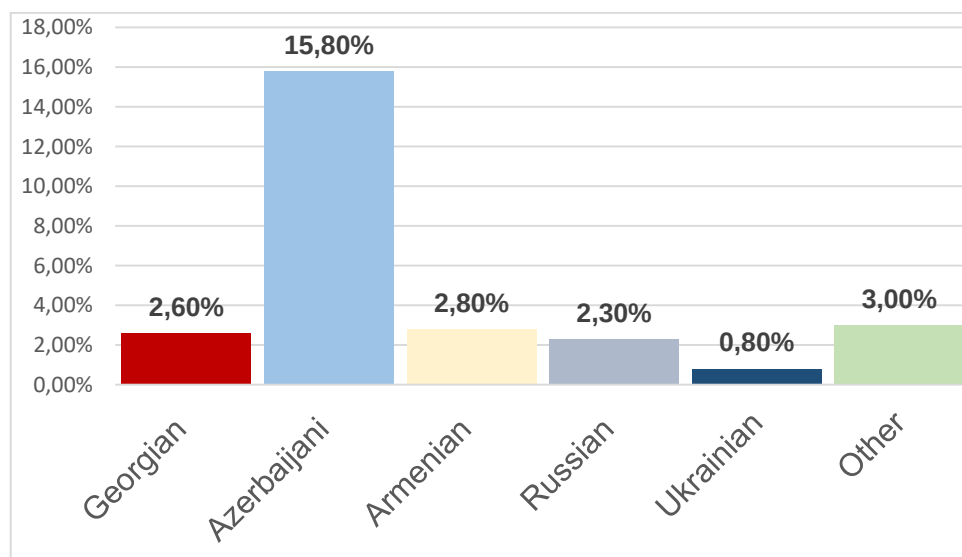
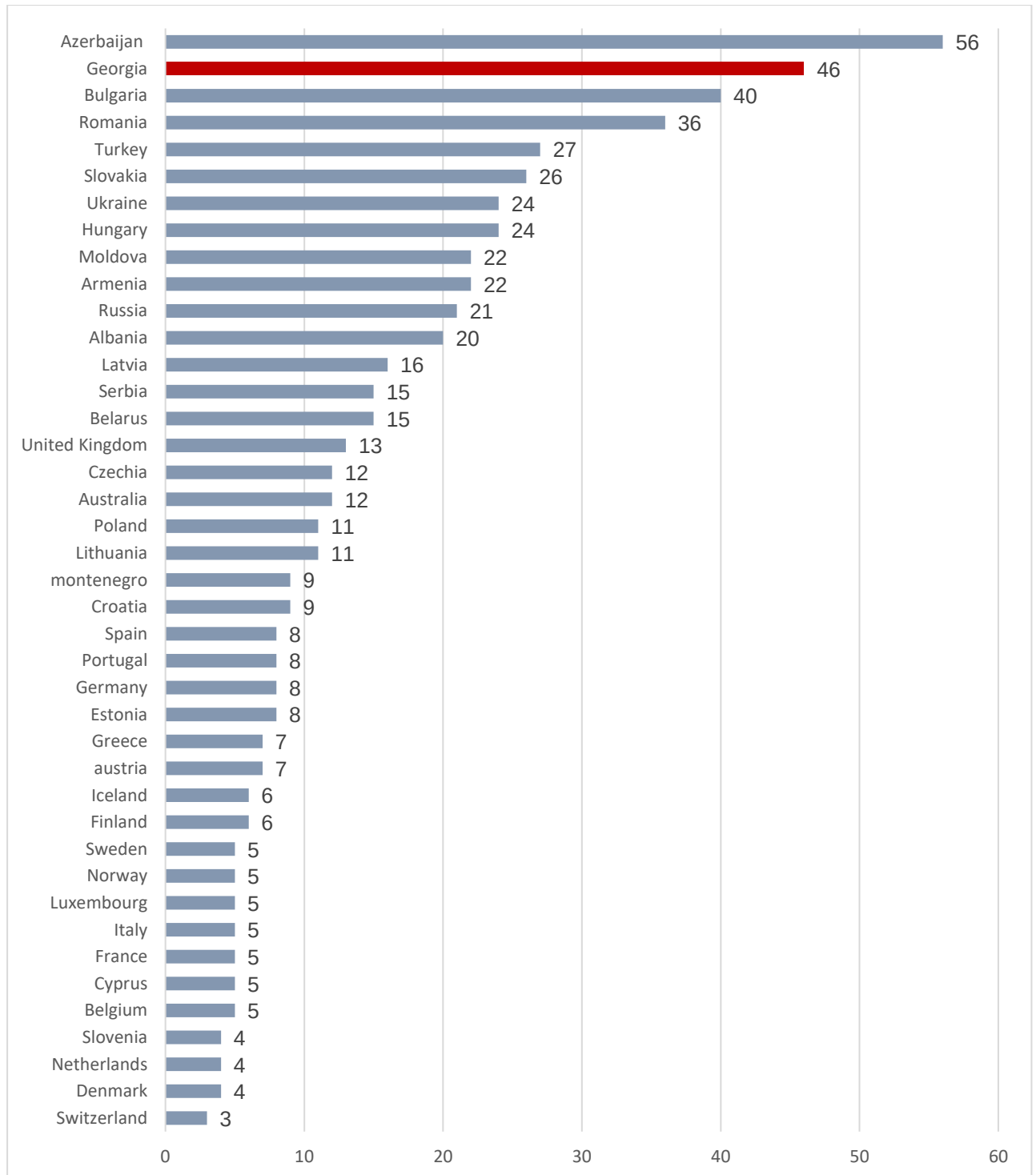


Figure 8. Percentage distribution of teen pregnancies under 20 by ethnicity, Georgia, 2020



Georgia ranks second in adolescent birth rate per 1000 births among the countries of the European region of the World Health Organization.

Figure 9. Adolescent birth rate (ages 15-19) per 1000 births, by countries



Source: <https://data.unicef.org/topic/child-health/adolescent-health/>

Antenatal care⁷

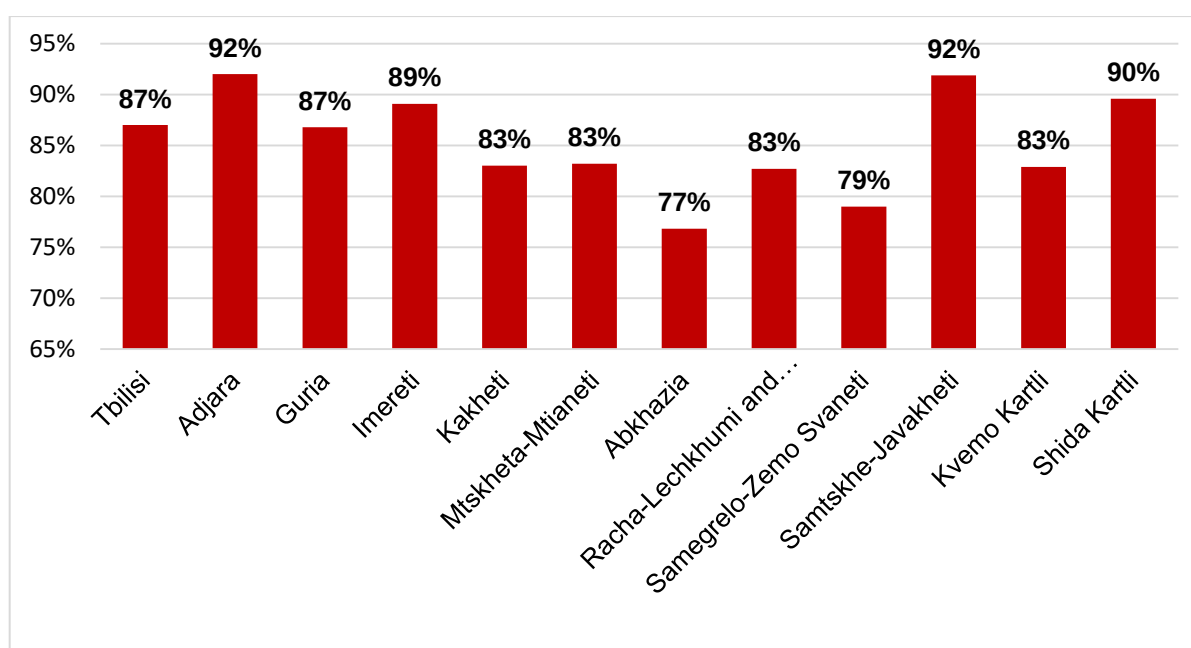
Number of pregnant women who received antenatal care⁸:

- 2018 – 47,609 (94.3% of the total number of delivered women);
- 2019 – 45,262 (95.3% of the total number of delivered women);
- 2020 – 43,979 (96.0% of the total number of delivered women).

Timely initiation of antenatal care (up to 13 weeks):

- 2018 - 85.5%;
- 2019 - 85.5%;
- 2020 - 86.7%.

Figure 10. Share of pregnant women with timely initiation of antenatal care by regions (by actual place of residence of pregnant women), Georgia, 2020



⁷ Percentage of timely initiated antenatal care and visits coverage from the total number of delivered women

⁸ Counted from the total number of delivered women

Figure 11. Share of pregnant women with timely initiation of antenatal care by place of residence, Georgia, 2020

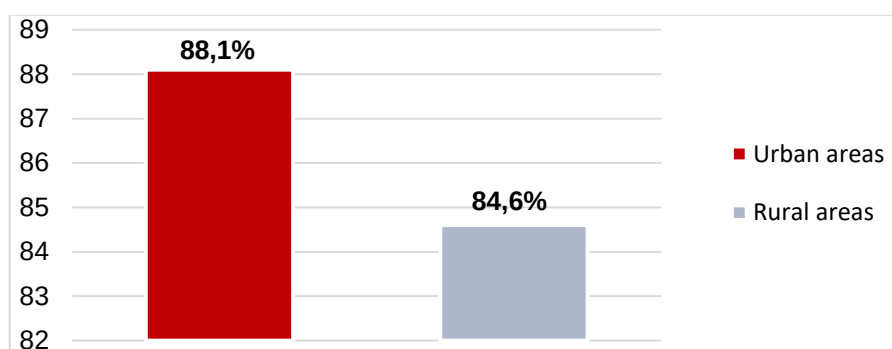
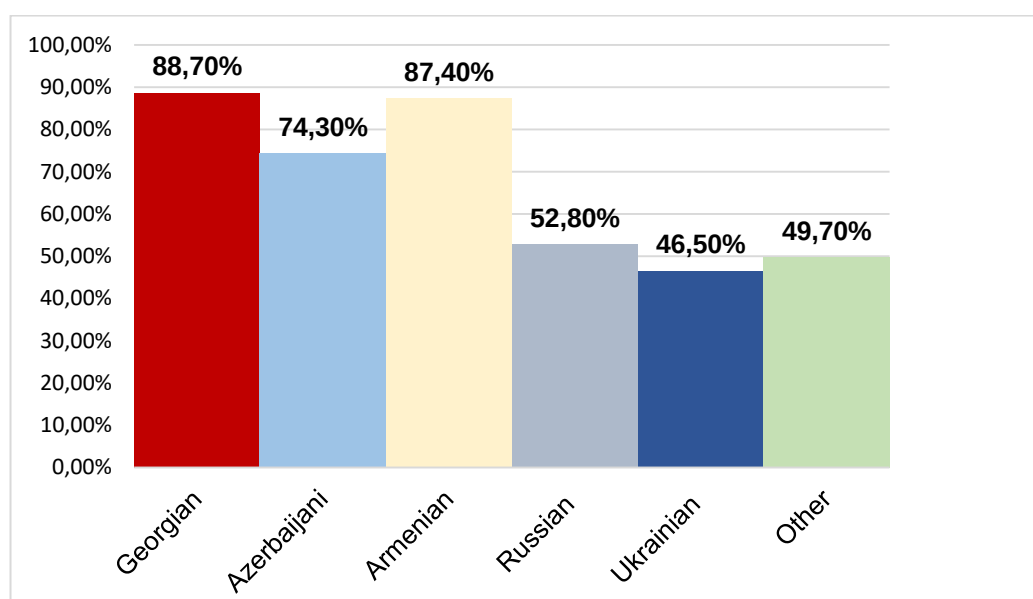


Figure 12. Share of pregnant women timely with initiation of antenatal care by the ethnicity of the pregnant women, Georgia, 2020



Coverage with at least 1 antenatal care visit (calculated from the total number of delivered women):

- 2018 - 94%;
- 2019 - 95%;
- 2020 - 96%.

Coverage with at least 4 antenatal care visits (calculated from the total number of delivered women):

- 2018 - 81%;
- 2019 - 85%;
- 2020 - 85%.

Figure 13. Coverage with 6, 8 or more antenatal care visits (share of the total number of deliveries), Georgia, 2020

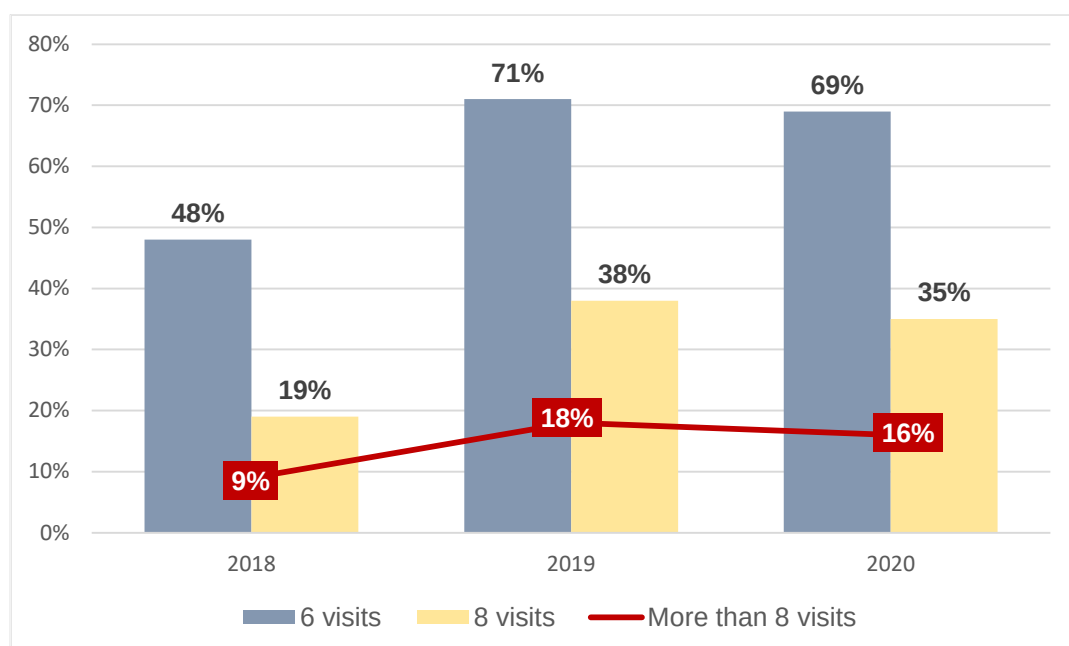


Table 2. Coverage with 6, 8 or more antenatal care visits (%) by regions, Georgia, 2020 (actual place of residence of pregnancy)

Region	6 visits	8 and more visits
Tbilisi	65.6%	33.6%
Adjara	81.8%	42.4%
Guria	76.1%	41.0%
Imereti	76.3%	40.7%
Kakheti	71.1%	41.9%
Mtskheta-Mtianeti	61.7%	26.8%
Abkhazia	50.8%	22.6%
Racha-Lechkhumi and Kvemo Svaneti	63.1%	26.2%
Samegrelo-Zemo Svaneti	50.7%	16.0%
Samtskhe-Javakheti	76.8%	30.5%
Kvemo Kartli	62.5%	27.6%
Shida Kartli	76.9%	47.8%
Georgia	69.0%	34.9%

Figure 14. Coverage with 6, 8 or more antenatal care visits (%) by the place of residence, Georgia, 2020

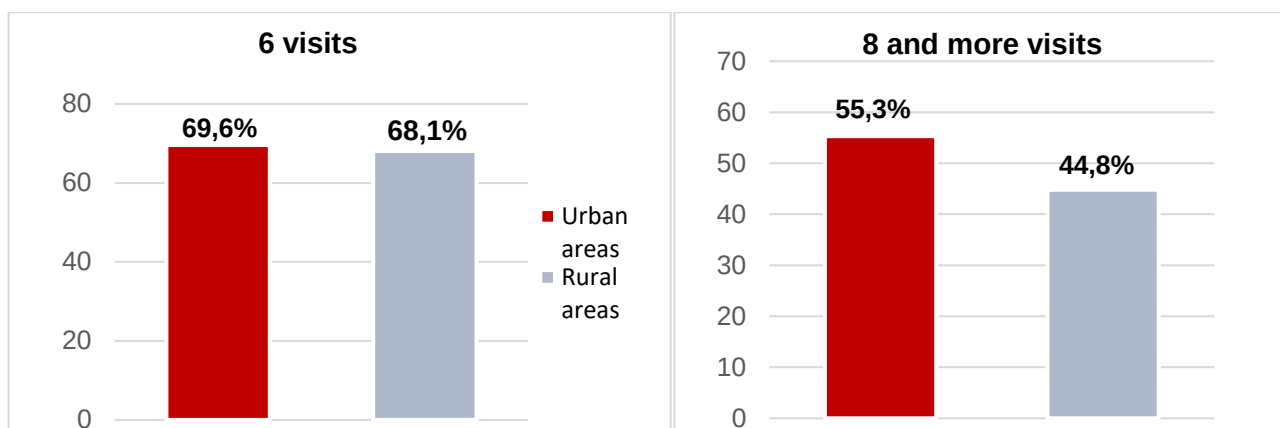
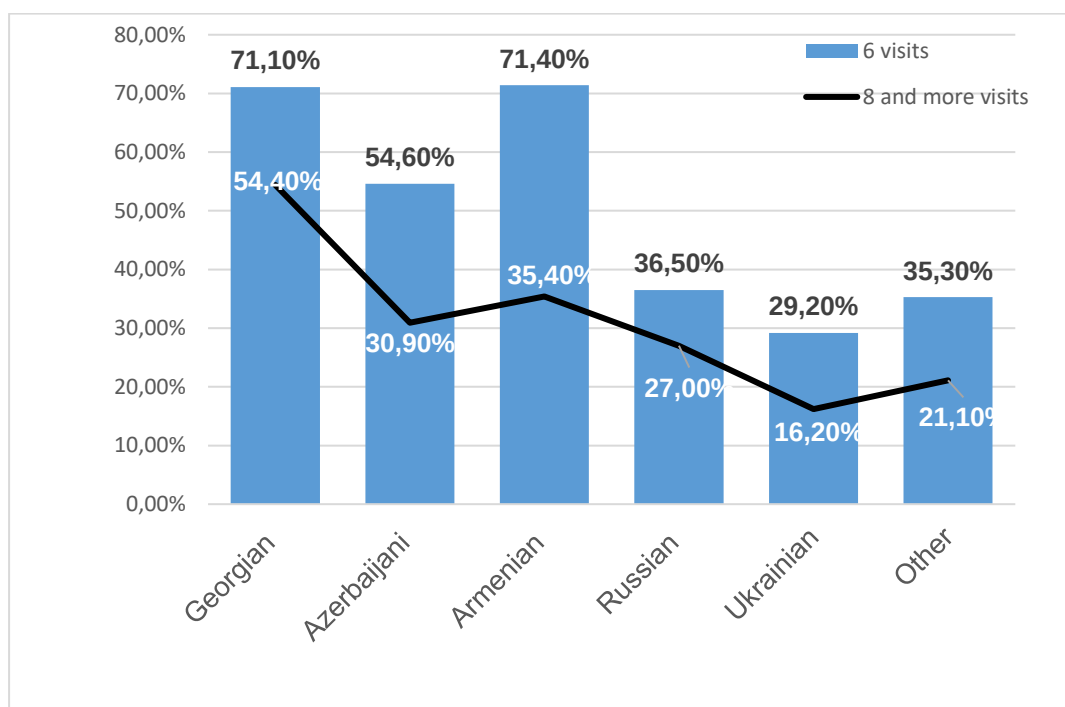


Figure 15. Percentage distribution of coverage with 6, 8 or more antenatal care visits by the ethnicity of the pregnant woman, Georgia, 2020

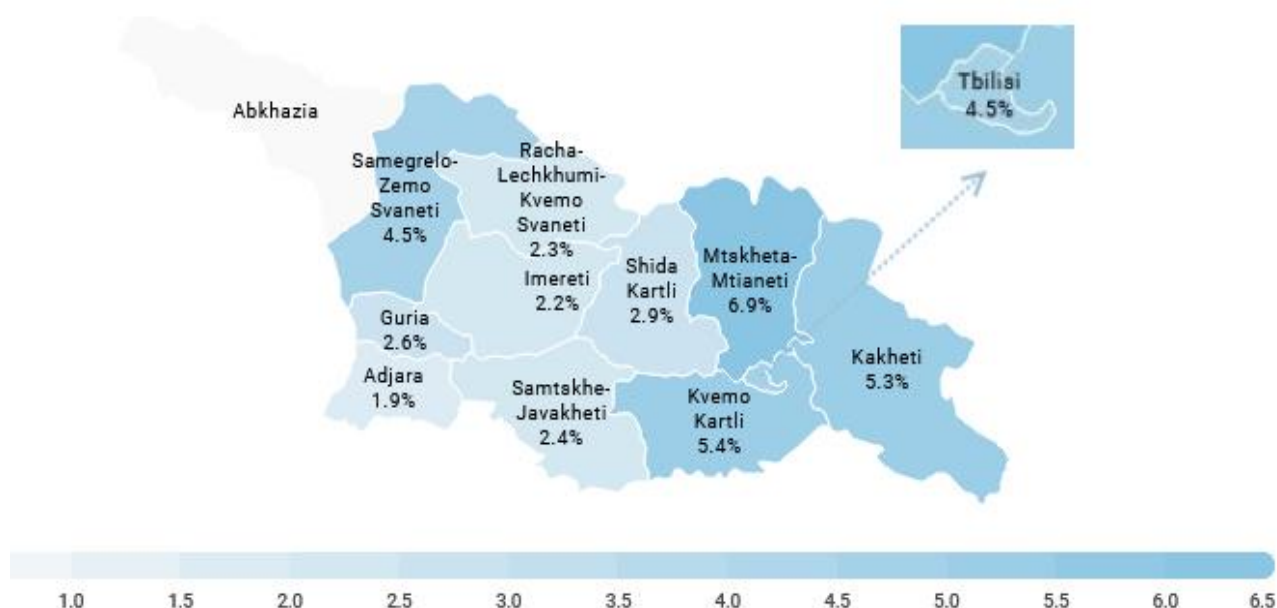


In 2020, there were 1,818 pregnant women with no antenatal care visits.

Share of pregnant women having no antenatal care visits:

- 2018 - 5.7%;
- 2019 - 4.7%;
- 2020 - 4.0%.

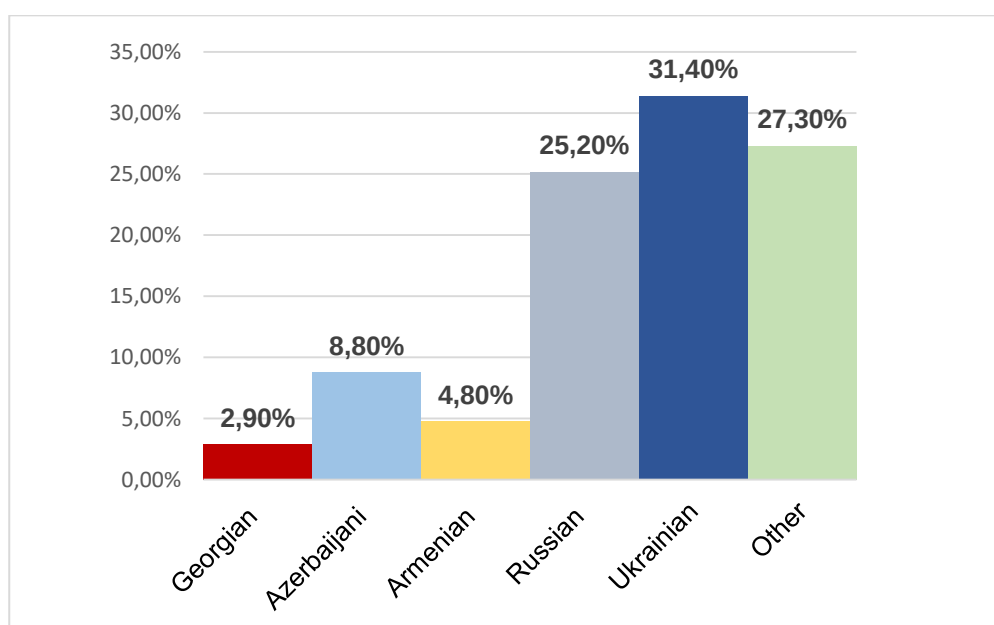
Map 3. Share of pregnant women with no antenatal care by regions, Georgia, 2020 (by actual place of residence of the pregnant women)⁹



Share of pregnant women with no antenatal care by the place of residence, 2020

- Urban residents - 3.7%;
- Rural residents - 4.4%.

Figure 16. Share of pregnant women with no antenatal care by ethnicity (within ethnical groups), 2020



⁹ Calculated by the outcome of pregnancy

Table 3. Body mass index (BMI) of pregnant women at the first antenatal visit, Georgia, 2020 (n = 42160)

	Number	%
Normal weight	24,715	58.6
Overweight	9,758	23.1
Obesity I	3,444	8.2
Obesity II	1,044	2.5
Obesity III	432	1.0
Underweight	2,767	6.6

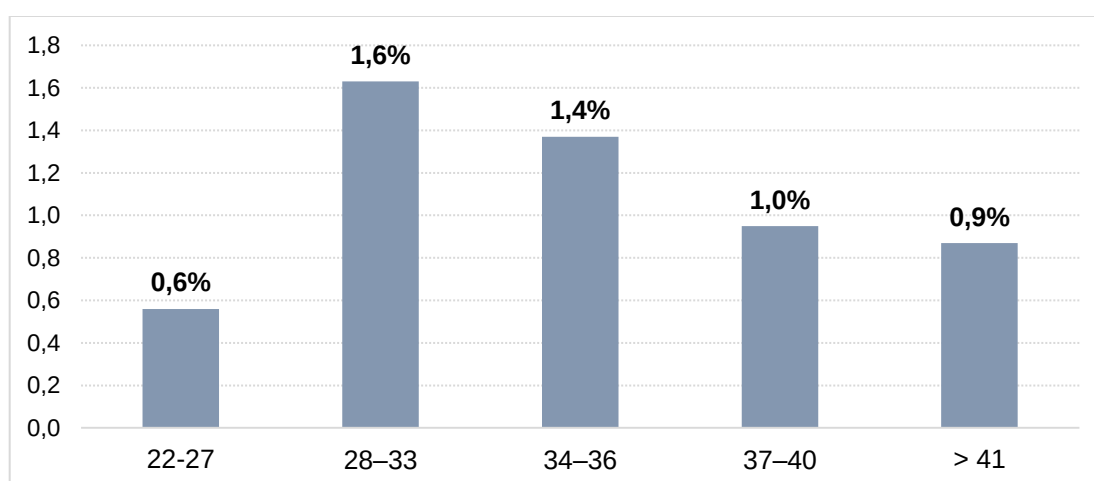
Table 4. Body Mass Index (BMI) in pregnant women

	Overweight and obesity (BMI≥25)		Obesity (BMI>30)	
	Number	%	Number	%
High-income countries	5,275,800	13.5%	2,552,100	17.5%
Upper middle-income countries	13,646,600	35.0%	5,507,100	37.7%
Lower middle income countries	15,237,800	39.1%	5,116,400	35.0%
Low-income countries	47,868,00	12.3%	1,425,400	9.8%

Source: World Health Organization

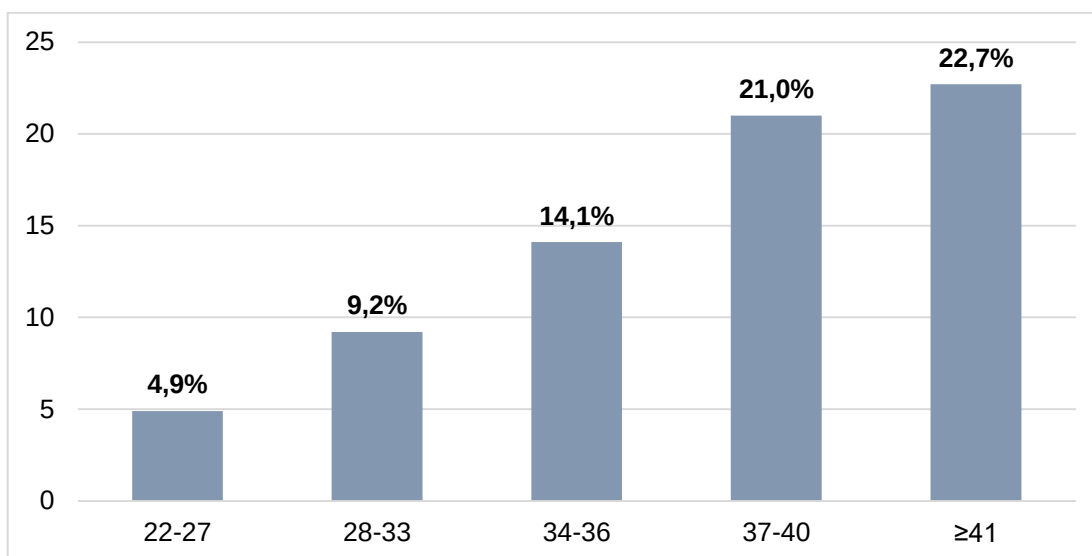
Gestational diabetes, quantitative and percentage rates:

- 2018 - 492 pregnant women (1% of the total number of delivered women);
- 2019 - 919 pregnant women (2% of the total number of delivered women);
- 2020 - 955 pregnant women (2.1% of the total number of delivered women).

Figure 17. Gestational diabetes (%) by gestational age (weeks), Georgia, 2020**Anemia in pregnancy, quantitative and percentage rates**

- 2018 - 5,441 pregnant women (10.8% of the total number of delivered women);
- 2019 - 5,028 pregnant women (10.6% of the total number of delivered women);
- 2020 - 9,303 pregnant women (20.3% of the total number of delivered women).

Figure 18. Anemia in pregnancy (%) by gestational age (weeks), Georgia, 2020



Eclampsia and preeclampsia in pregnancy, quantitative and percentage rates:

- 2018 - 33 pregnant women (0.07% of the total number of delivered women);
- 2019 - 43 pregnant women (0.09% of the total number of delivered women);
- 2020 - 75 pregnant women (0.16% of the total number of delivered women).

Figure 19. Mild preeclampsia in pregnancy (%) by gestational age (weeks), Georgia, 2020

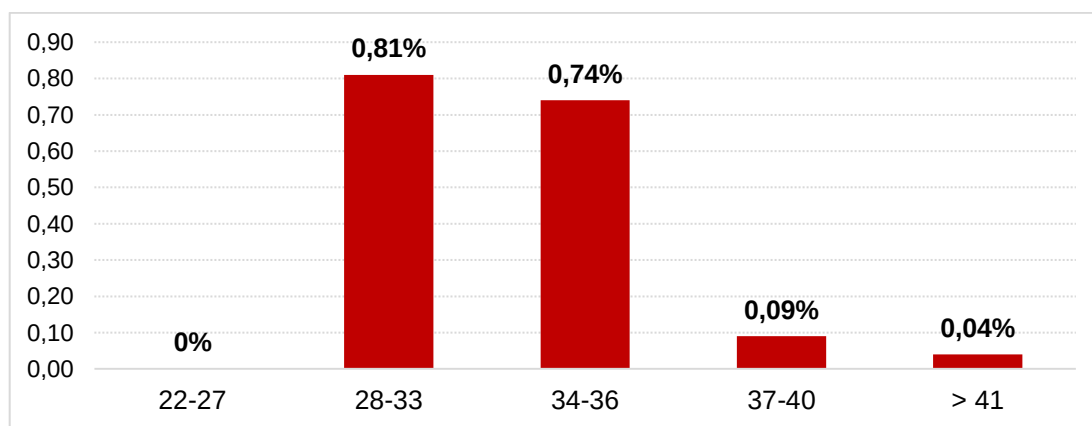
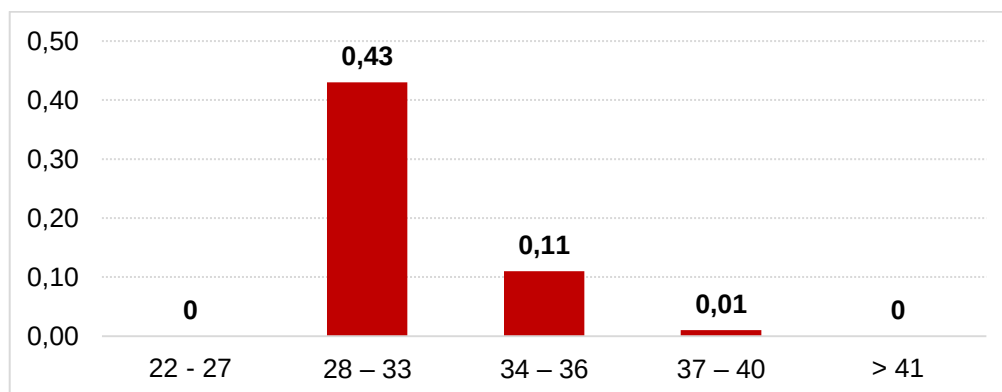


Figure 20. Severe preeclampsia in pregnancy (%) by gestational age (weeks), Georgia, 2020



HIV and syphilis testing in pregnancy :

- 2018 - 45,090 (89.3% of the total number of delivered women);
- 2019 - 42,561 (89.6% of the total number of delivered women);
- 2020 - 41,359 (90.3% of the total number of delivered women).

Figure 21. Percentage of Anti-D Antibodies Rh (D) - negative blood in pregnant women by gestational age (weeks), Georgia, 2020

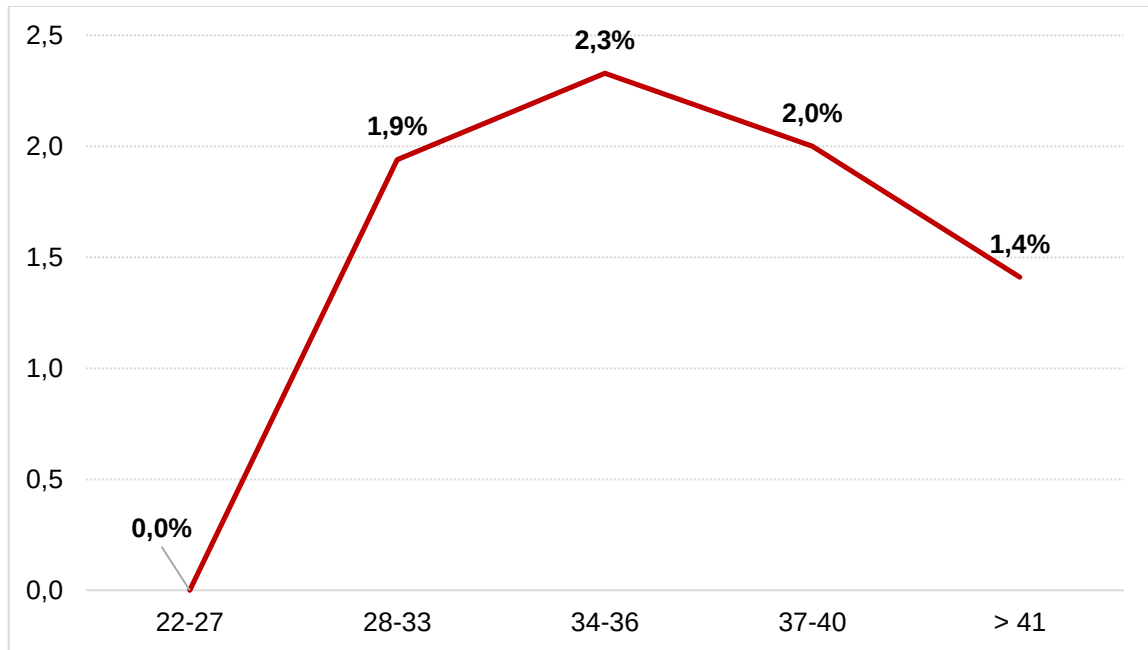
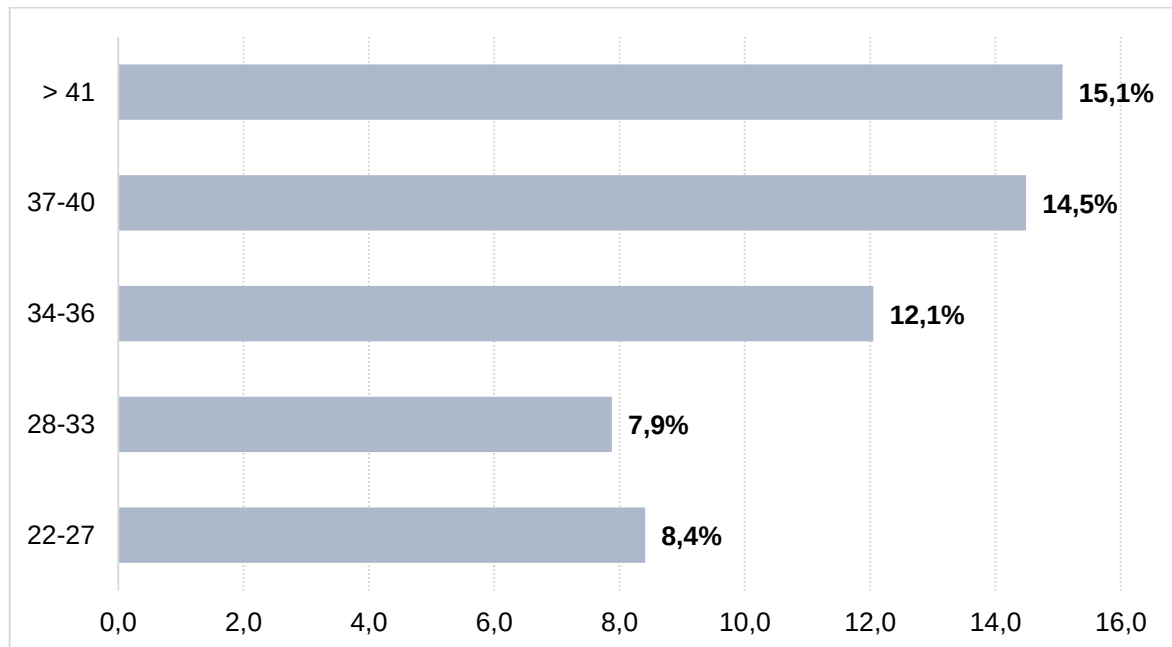


Figure 22. Asymptomatic bacteriuria (%) in pregnant women by gestational age (weeks), Georgia, 2020



Delivery

Georgia, like many other countries, faces demographic challenges and threats they pose. Today the country is in the process of transition from the modern type of population reproduction to the newest type, which is characterized by a decrease of birth rates and an increase of mortality, as a logical result of the above mentioned problems, is a decrease of the natural population growth, which leads to a depopulation.

In recent years, in Georgia, the number of births has been steadily decreasing.

Table 5. Number and percentage of deliveries, Georgia

	2018	2019	2020
The number of deliveries	50,468	47,486	45,797
Including%:			
Normal deliveries	58%	59%	58%
Including episiotomy	3.8%	2.0%	8.0%
Pathological deliveries	42%	41%	42%

Figure 23. Comparison of the average daily numbers of deliveries in 2018-2019 with 2020, Georgia

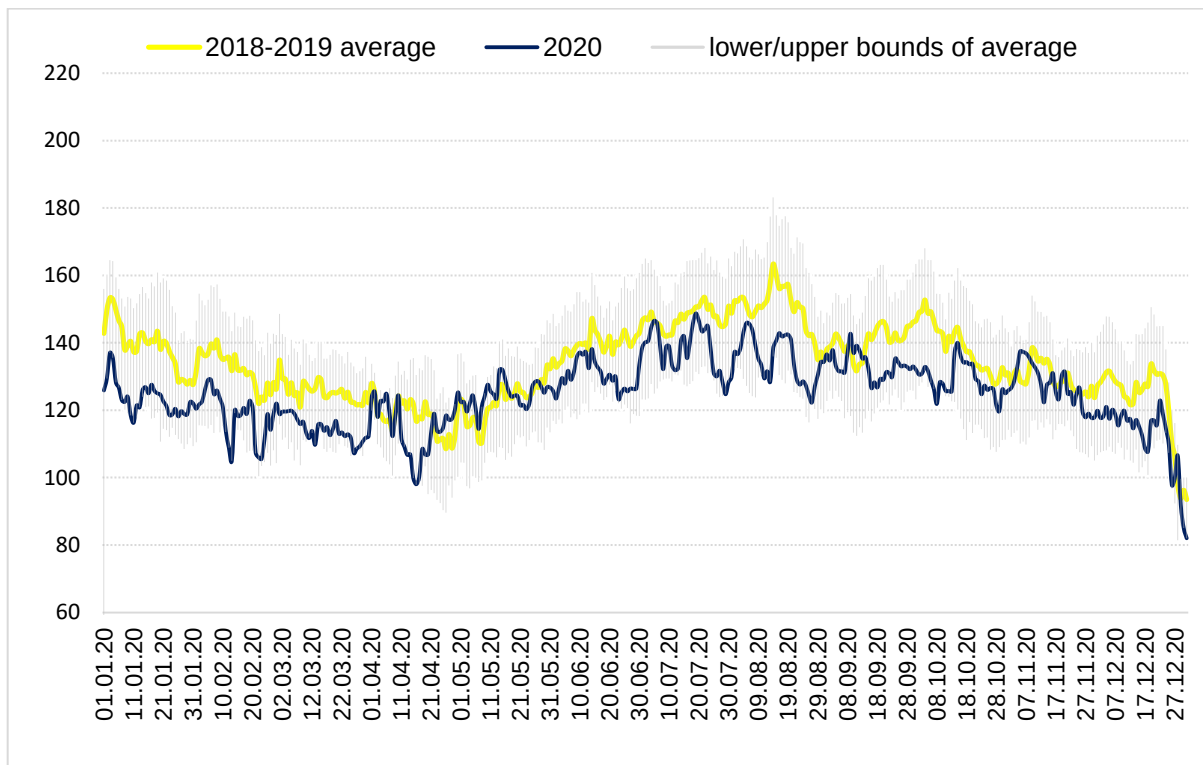


Figure 24. Comparison of the average numbers of deliveries in 2018-2019 with 2020 by months, Georgia

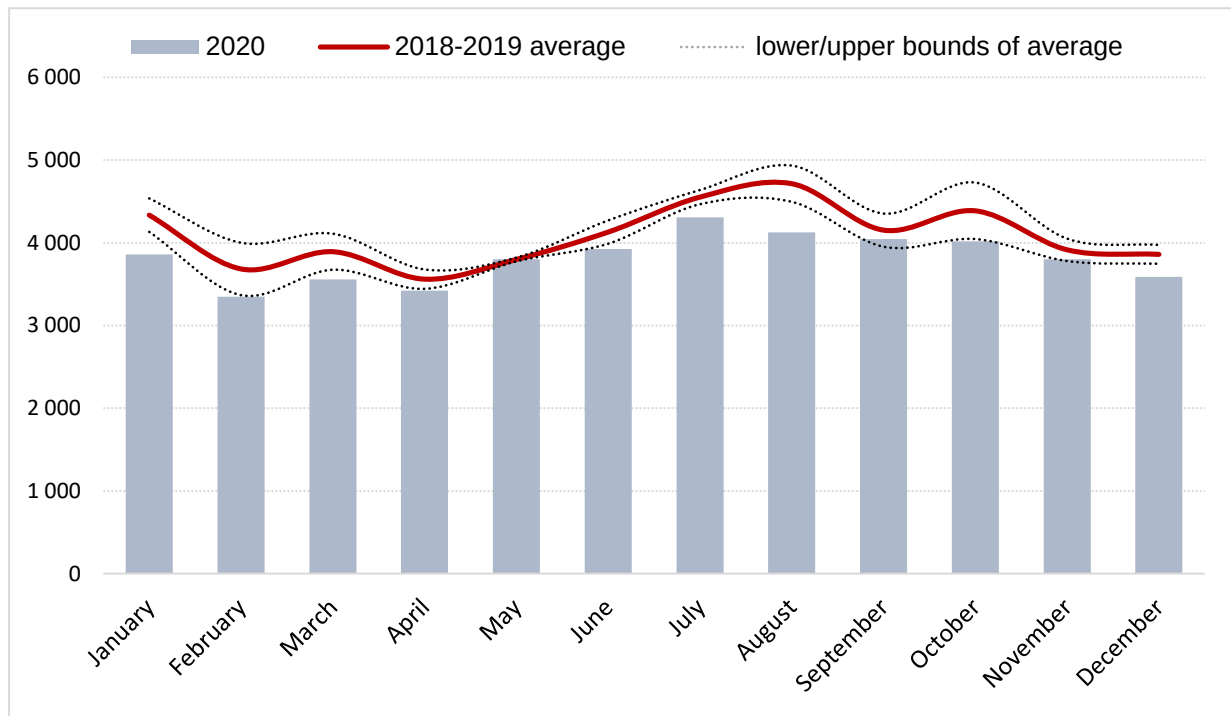
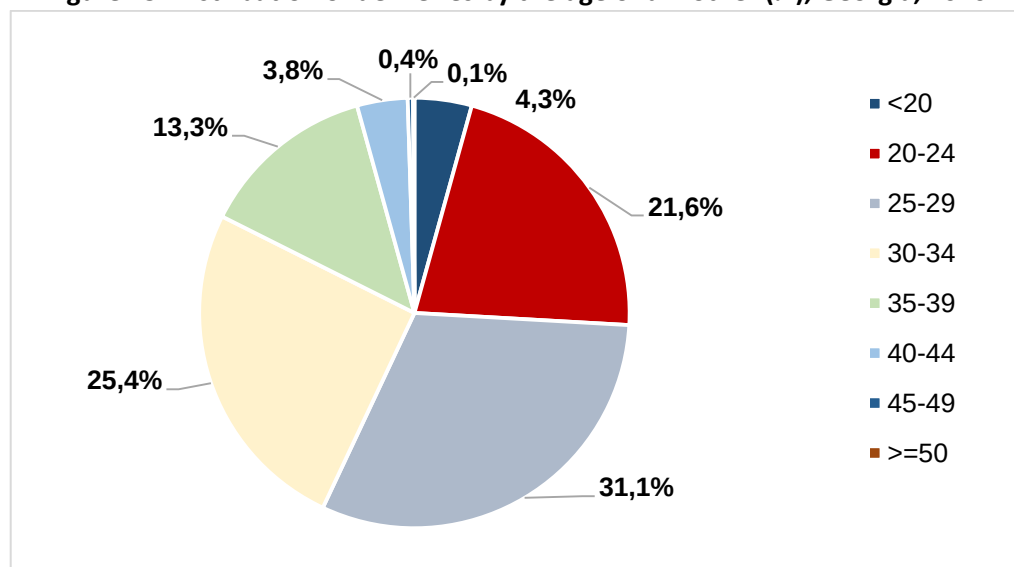


Figure 25. Distribution of deliveries by the age of a mother (%), Georgia, 2020



Map 4. Distribution of deliveries by regions (actual place of residence of the mother), rate per 1000 women of reproductive age, Georgia, 2020

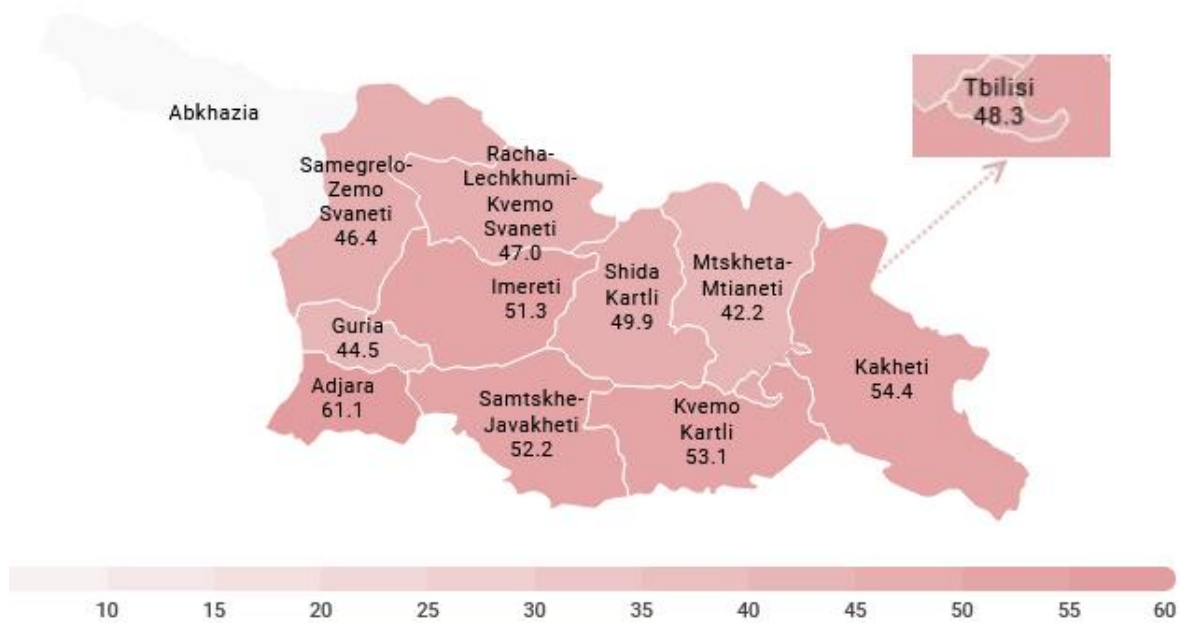


Figure 26. Distribution of deliveries by place of residence of pregnant women, Georgia, 2020

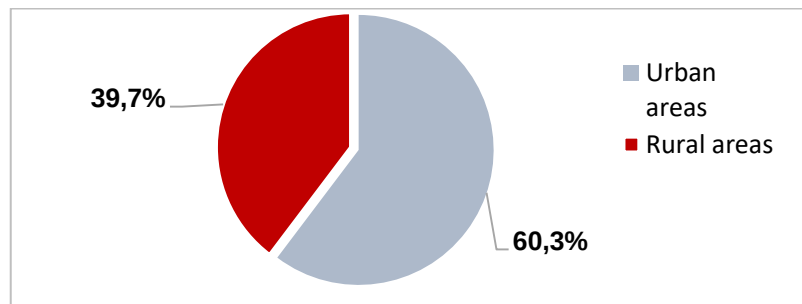


Figure 27. Quantitative distribution of deliveries by ethnicity of the pregnant women, Georgia, 2020

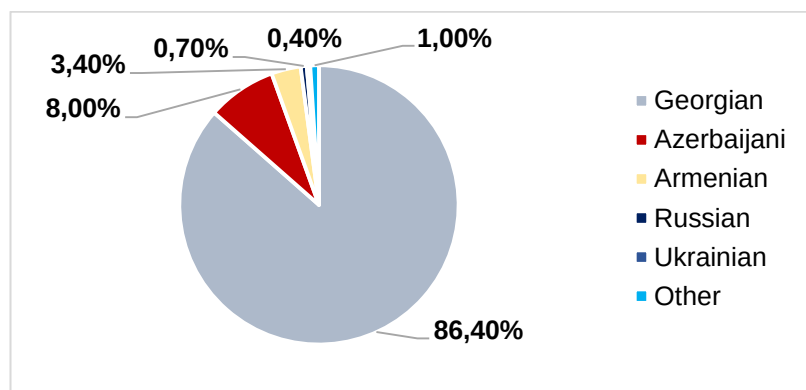


Figure 28. Distribution of deliveries by gestational age (%), Georgia, 2020

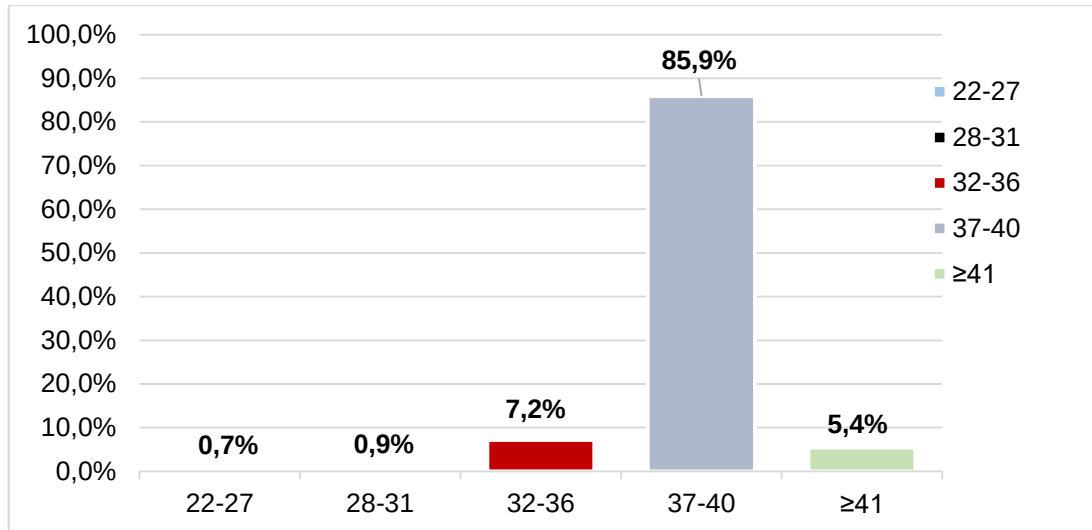


Figure 29. Distribution of deliveries by the order of delivery (%), Georgia

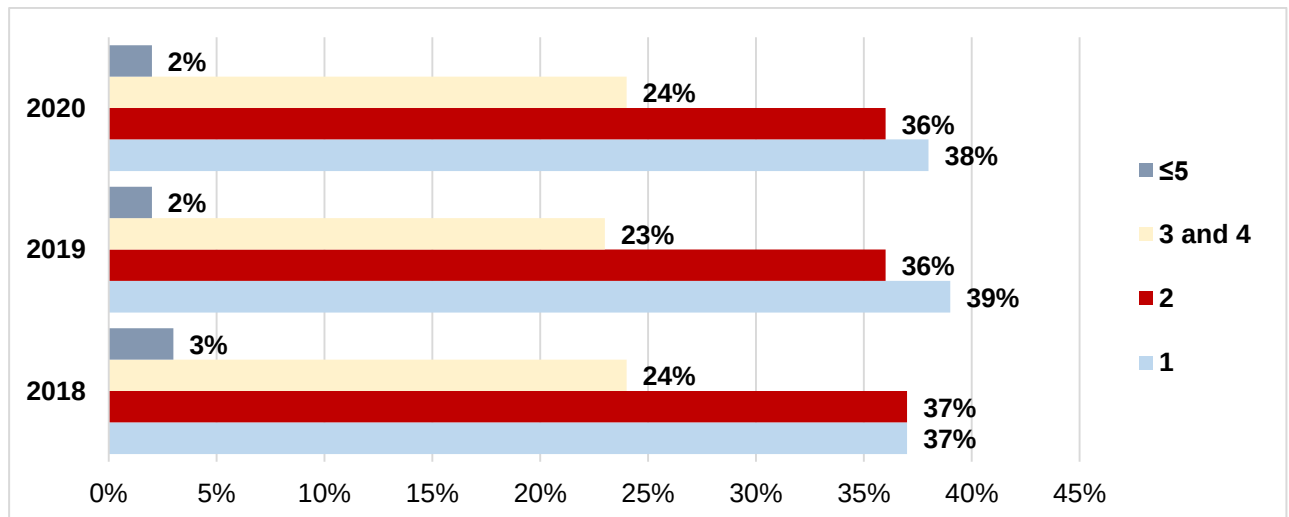


Figure 30. Maternal weight at delivery (percentage distribution), Georgia, 2020

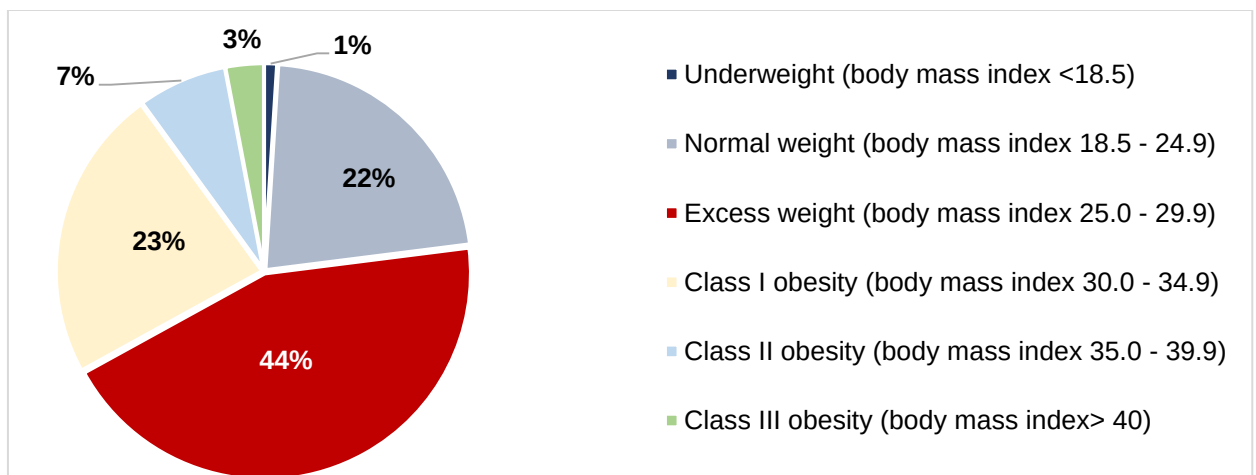


Figure 31. Distribution of deliveries by type of delivery and region in % (by actual place of residence of mother), Georgia, 2020

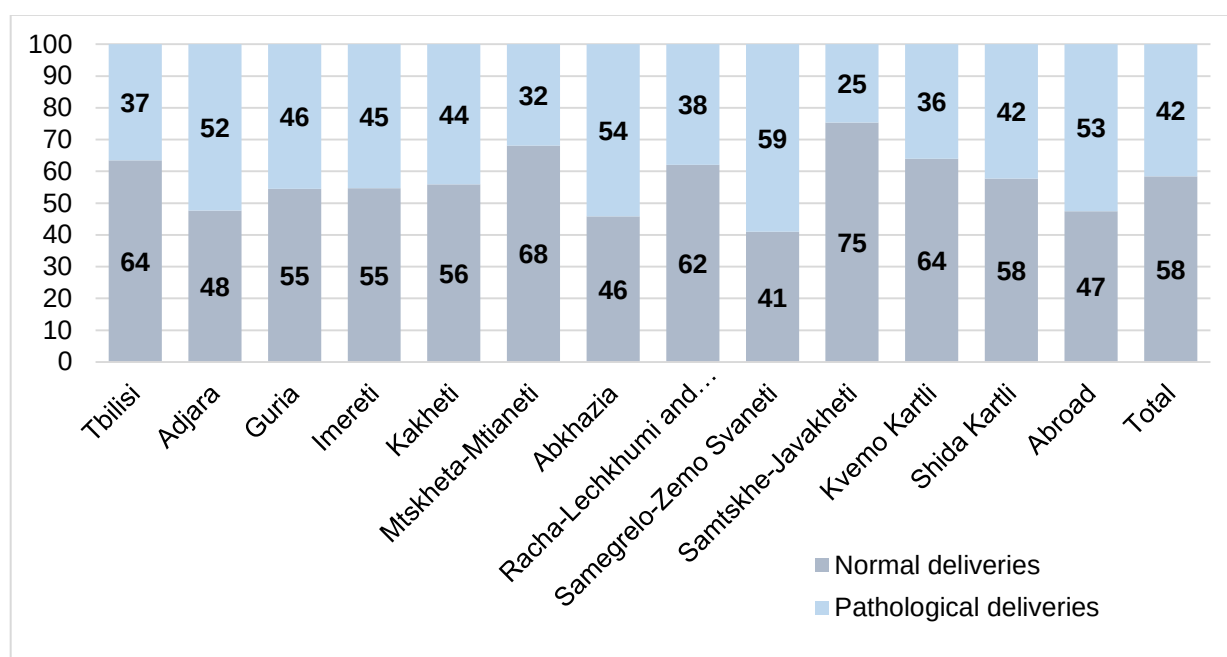


Table 6. Percentage distribution of deliveries by type of delivery and place of residence of pregnant women, Georgia, 2020

	Normal delivery	Pathological delivery
Urban residents	58.1%	41.9%
Rural residents	58.9%	41.1%

Figure 32. Distribution of deliveries by a type of delivery and ethnicity of pregnant women, Georgia, 2020

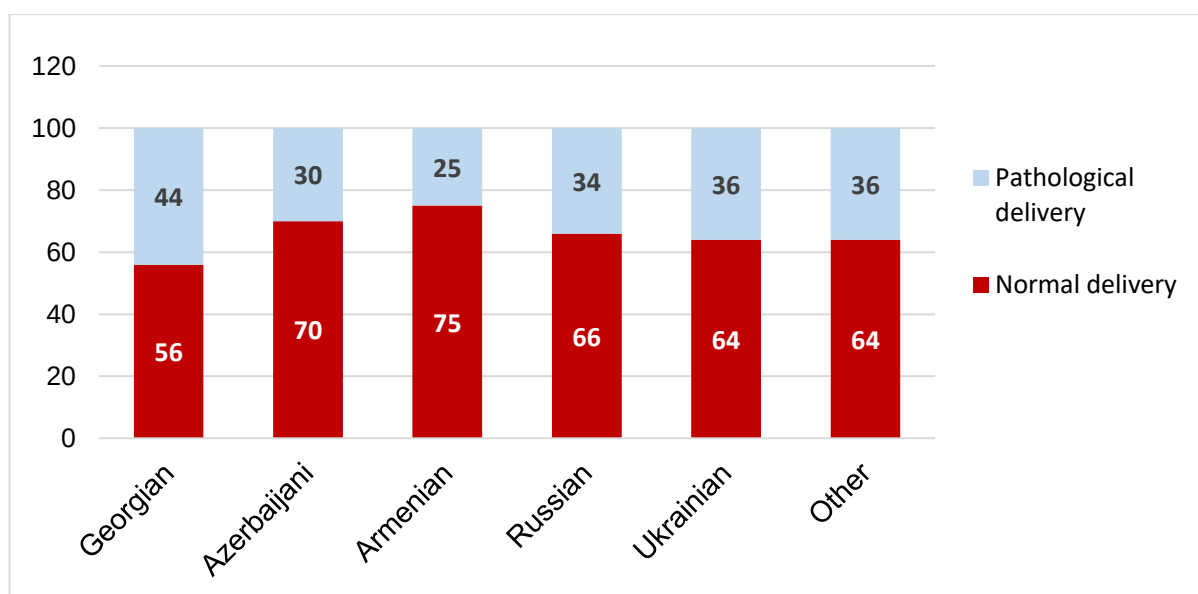


Table 7. Pathological delivery, Georgia

	2018		2019		2020	
	Number	% of pathological deliveries of the total number of deliveries	Number	% of pathological deliveries of the total number of deliveries	Number	% of pathological deliveries of the total number of deliveries
Caesarean section	21,044	98.2%	18,936	97.8%	18,616	97.7%
Episiotomy	16	0.1%	17	0.1%	89	0.5%
Forceps delivery. cephalic	56	0.3%	39	0.2%	24	0.1%
Breech extraction	8	0.03	10	0.1%	4	0.02%
Vacuum delivery	308	1.4%	367	1.9%	321	1.7%
Total	21,432	100.0	19,369	100.0	19,054	100.0

Table 8. Position of the fetus during delivery, Georgia, 2020

Position of the fetus	Number	(%)
Cephalic position	41,246	90.1
Breech position	3342	7.3
Transverse position	717	1.6
Cephalic abnormal position	116	0.3
Other	376	0.8

Table 9. Pregnant women with disabilities, share of the total number of deliveries (%), Georgia

	2018	2019	2020
Total number	0.7%	0.7%	0.7%
Mild	0.3	0.2	0.3
Severe	0.3	0.4	0.3
Extremely severe	0.1	0.1	0.05

Referral of parturient women to a hospital, quantitative and percentage rates:

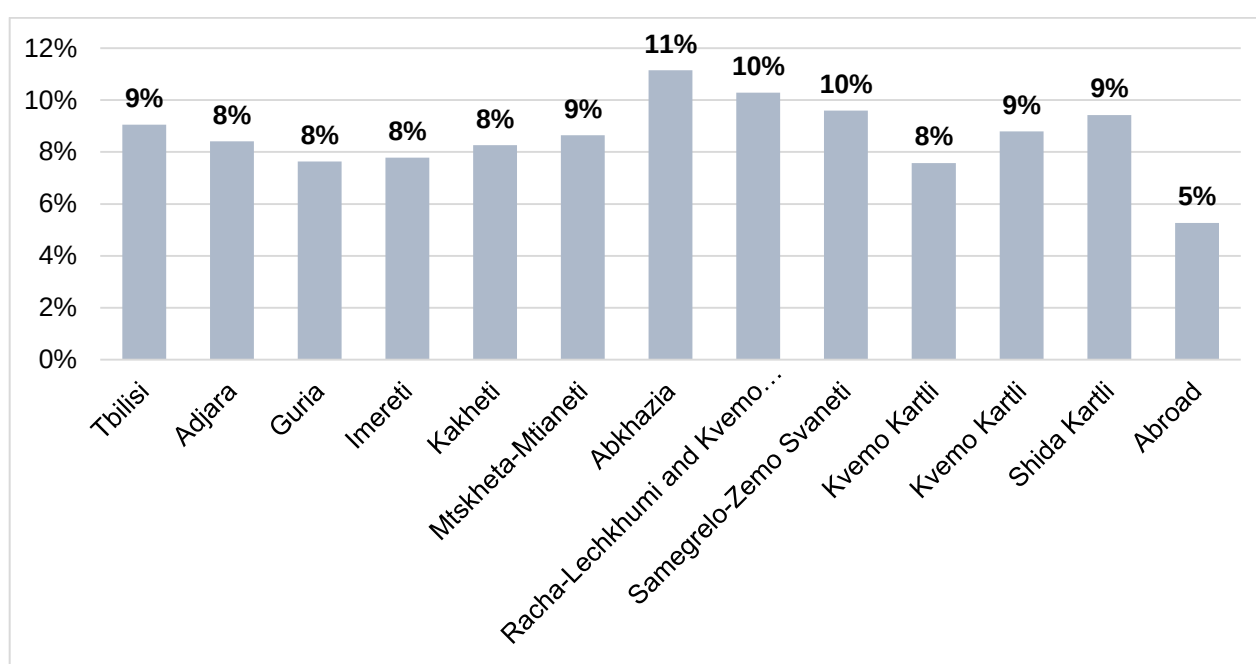
- 2018 - 68 (0.1% of the total number of delivered women);
- 2019 - 60 (0.1% of the total number of delivered women);
- 2020 - 101 (0.2% of the total number of delivered women).

Premature delivery

Quantitative and percentage rates of premature delivery

- 2018 – 3,988 (7.9% of the total number of delivered women);
- 2019 – 3,931 (8.3% of the total number of delivered women);
- 2020 – 3,992 (8.7% of the total number of delivered women).

Figure 33. Premature delivery, % of the total number of deliveries by regions (by the actual place of residence of the mother), Georgia, 2020



Premature delivery by residence status of the mother (share of the total number of deliveries):

- Urban areas - 8.9%;
- Rural areas - 8.4%.

Table 10. Premature deliveries, share of the total number of deliveries by the week of pregnancy (gestational age), Georgia 2020

Gestation	% of the total number of deliveries
22-27 weeks	7.7%
28-33 weeks	21.5%
34-36 weeks	70.7%

Figure 34. Premature deliveries by the mother's age (share of the total number of deliveries), Georgia, 2020

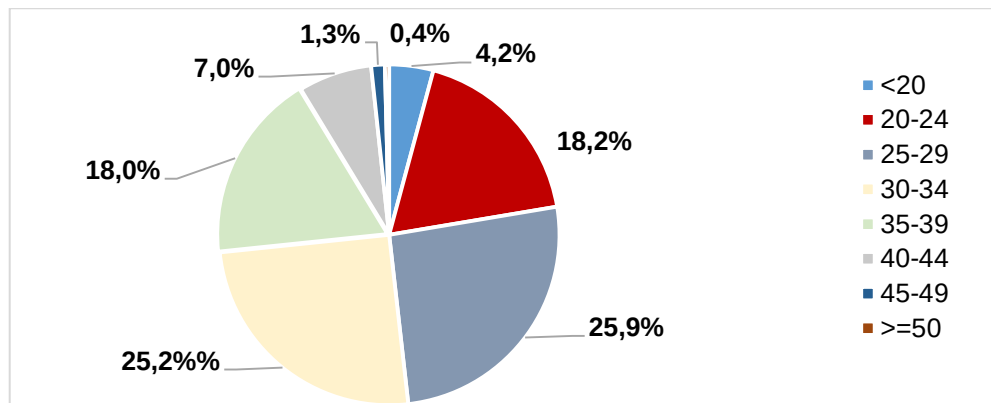
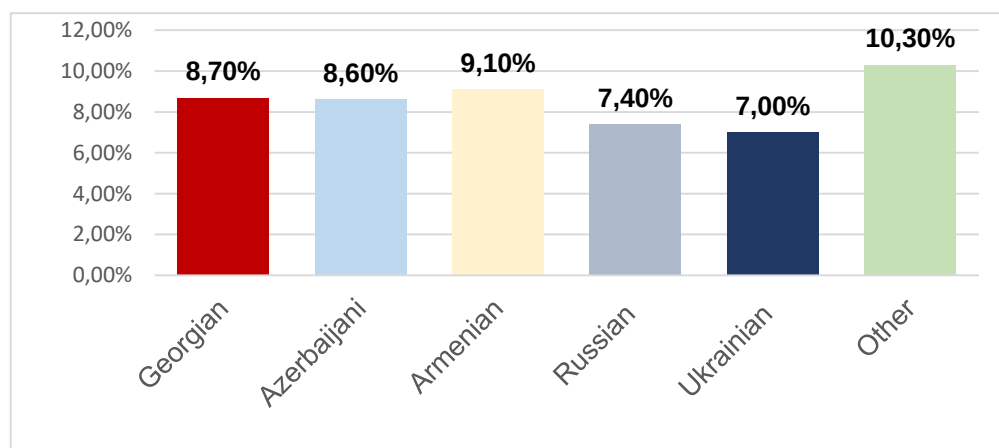
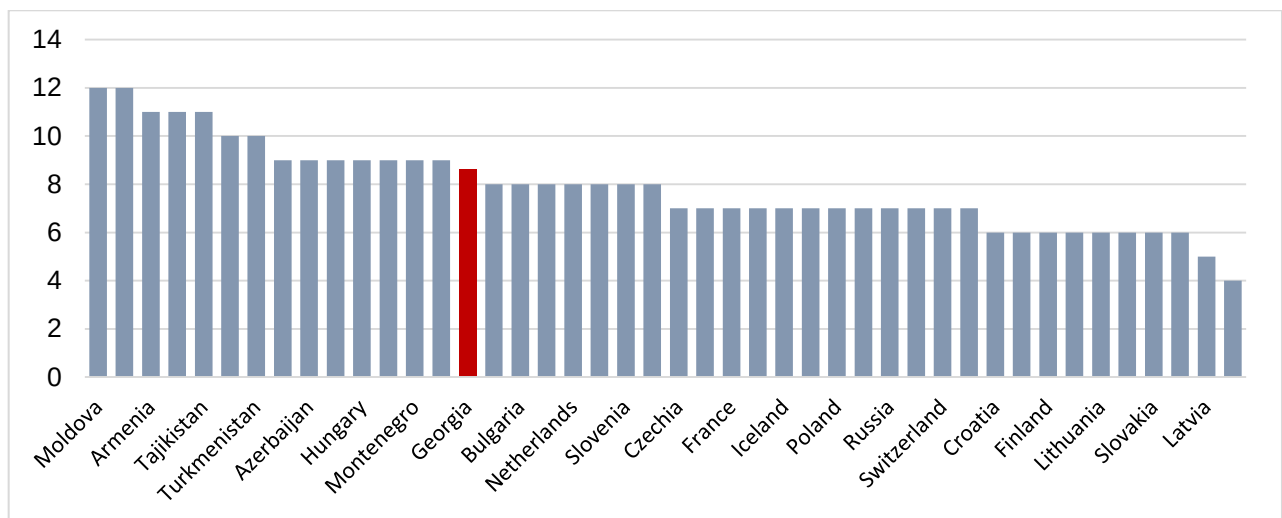


Figure 35. Premature delivery by ethnicity of the mother (share of total number of deliveries), Georgia, 2020



Georgia, in terms of premature deliveries per 100 live births, occupies an intermediate position between the WHO European Region and the CIS countries.

Figure 36. Premature deliveries rate per 100 live births, last available year



Source: http://data.un.org/Data.aspx?d=WHO&f=MEASURE_CODE%3aWHS_PBR

Caesarean sections

Quantitative and percentage rates of caesarean section:

- 2018 - 21,044 (41.7% of the total number of deliveries);
- 2019 - 18,936 (39.9% of the total number of deliveries);
- 2020 - 18,616 (40.6% of the total number of deliveries).

Figure 37. Caesarean sections, share of the total number of deliveries, Georgia, 2020

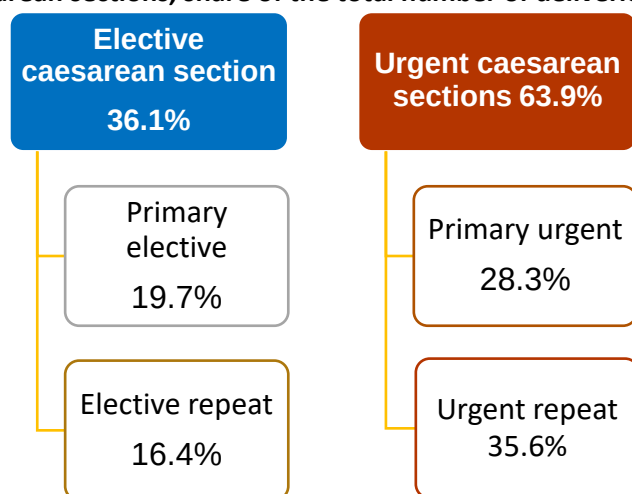
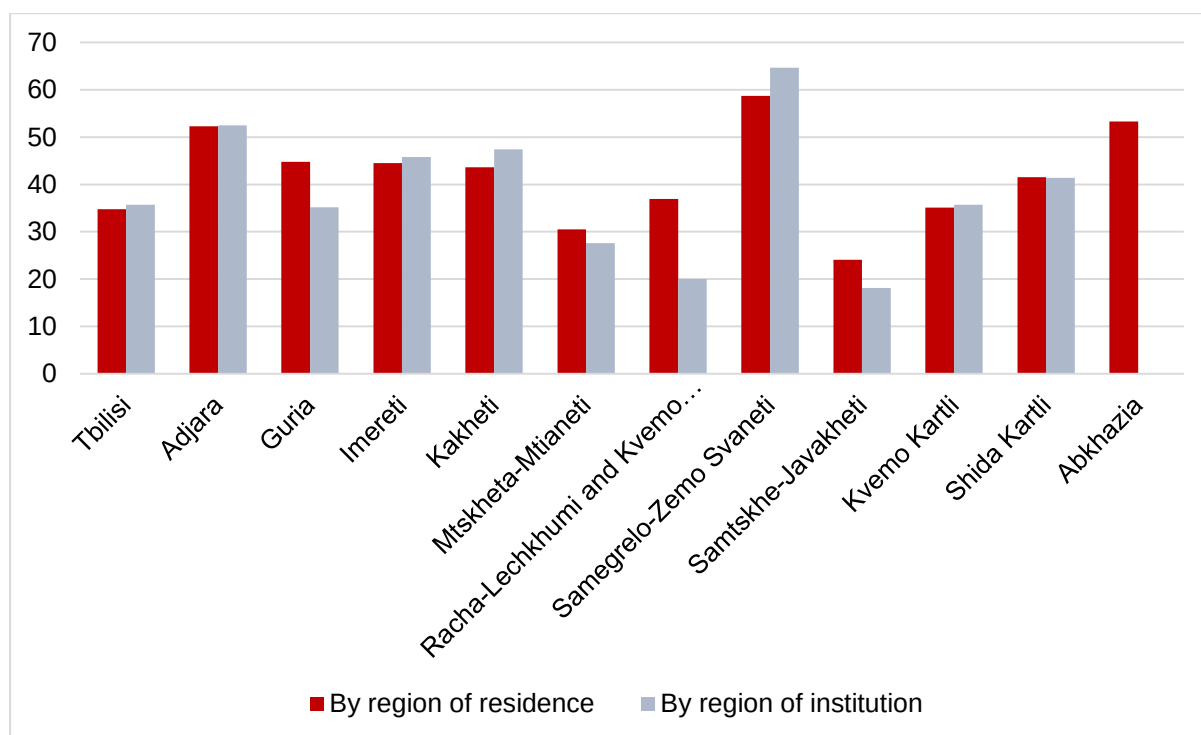
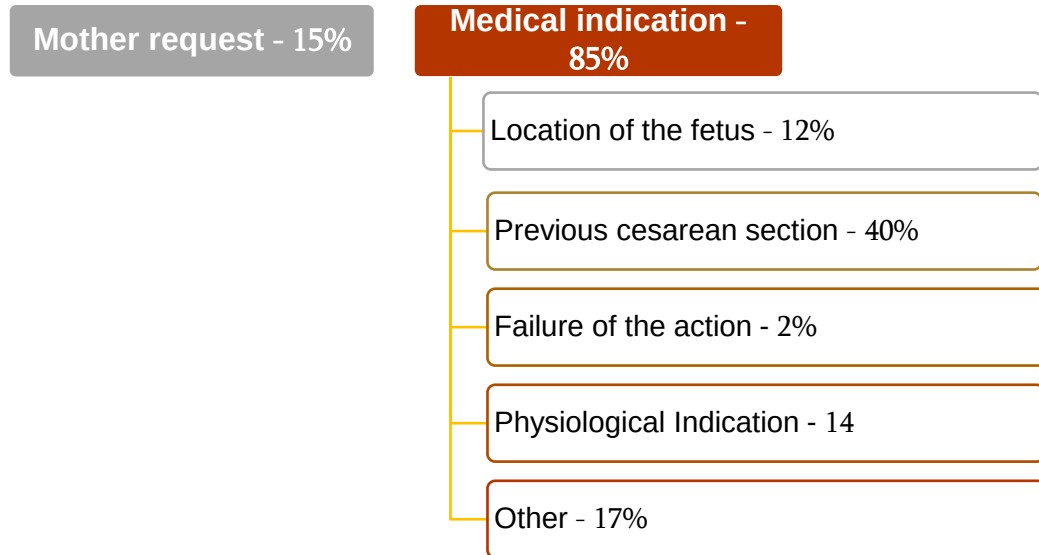


Figure 38. The share of caesarean section in the total number of deliveries by regions, Georgia, 2020 (by the actual place of residence of the mother)



Share of caesarean section of the total number of deliveries (by place of residence of the mother):

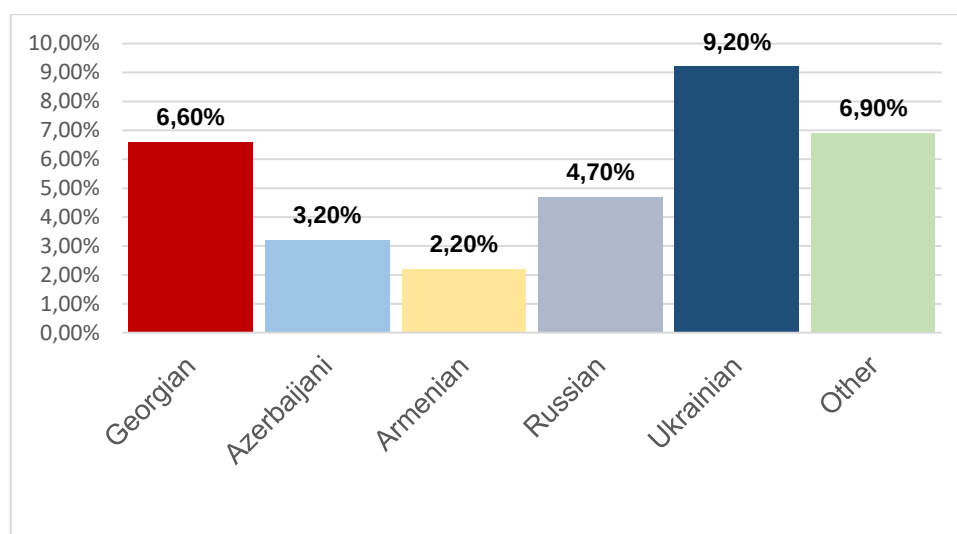
- Urban residents - 40.7%;
- Rural residents - 40.5%.

Figure 39. Indications for caesarean sections, Georgia, 2020**Table 11. Caesarean section on maternal request, by age and place of residence of the mother, Georgia, 2020**

Age of mother	%
<20	5.8
20-24	22.8
25-29	30.4
30-34	22.9
35-39	13.6
40-44	4.1
45-49	0.3
>=50	0.0

Caesarean section on maternal request, by place of residence of the mother

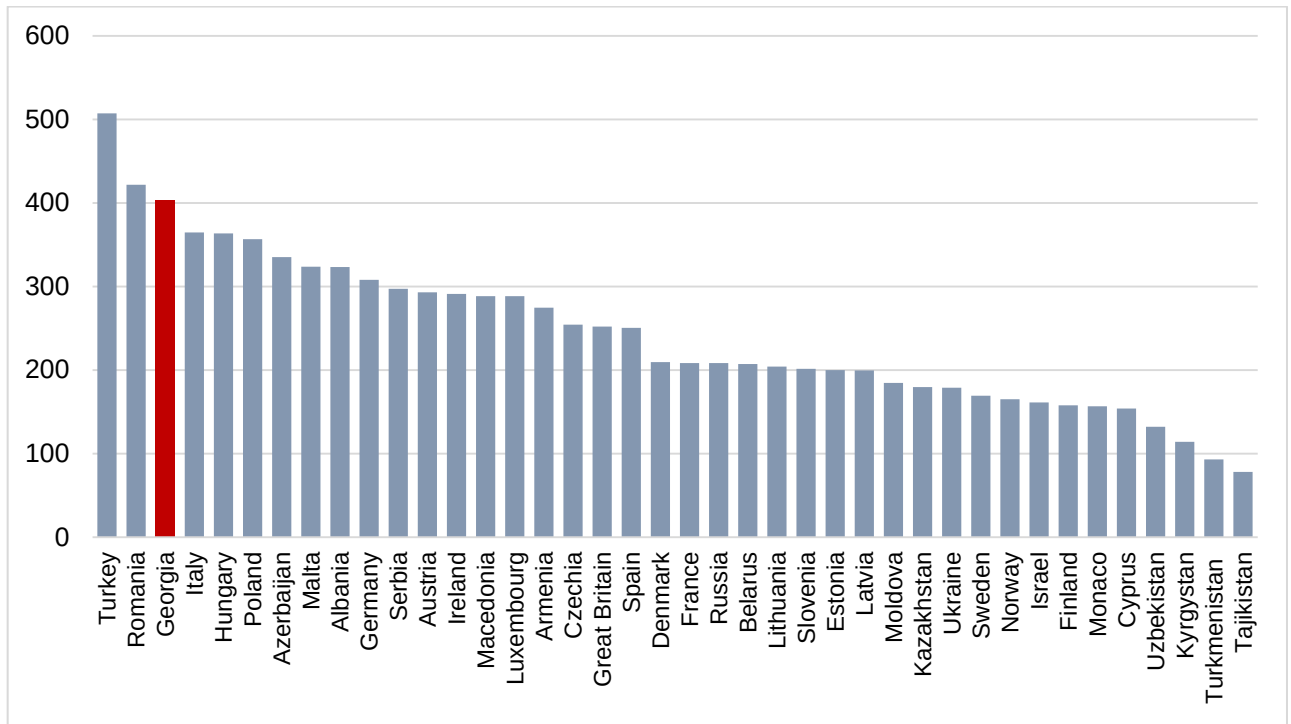
- Urban residents - 6.1%;
- Rural residents - 6.2%.

Figure 40. Caesarean section on maternal request, by ethnicity of the mother (%), Georgia, 2020**Table 12. Caesarean section rates according to Robson classification (International Standard for Monitoring and Evaluation), Georgia, 2020**

Groups	Number of cesarean sections	Number of deliveries	Share of the group of the total number of deliveries	Share of cesarean sections of the total number of deliveries	The absolute share of the group of the total number of cesarean sections	The relative share of the group of the total rate
Nulliparous, single cephalic, >37 weeks in spontaneous labor	2,735	12,995	28.4	21.0	6.0	14.7
Nulliparous, single cephalic, >37 weeks, induced or Caesarean section before labor	1,084	1,298	2.8	83.5	2.4	5.8
Multiparous (excluding previous caesarean section), single cephalic, >37 weeks in spontaneous labor	957	15,549	34.0	6.2	2.1	5.1
Multiparous (excluding previous Caesarean section), single cephalic, >37 weeks, induced or caesarean section before labor	294	438	1.0	67.1	0.6	1.6
Previous Caesarean section, single cephalic, >37 weeks	7,545	7,651	16.7	98.6	16.5	40.5
All nulliparous singleton breeches	1,288	1,344	2.9	95.8	2.8	6.9
All multiparous singleton breeches	1,557	1,690	3.7	92.1	3.4	8.4
All multiple pregnancies (including previous caesarean section)	613	805	1.8	76.1	1.3	3.3
All abnormal lies (including previous caesarean section)	1,117	1,129	2.5	98.9	2.4	6.0
All single cephalic, <36 weeks (including previous caesarean section)	1,426	2,898	6.3	49.2	3.1	7.7
Total	18,616	45,797	100	40.7	40.7	100

Georgia, in terms of cesarean section rates per 1,000 live births, occupies one of the leading positions among the European region of the World Health Organization and the CIS countries

Figure 41. Caesarean section rate per 1000 live births, last available year



Source: https://gateway.euro.who.int/en/indicators/hfa_596-7060-caesarean-sections-per-1000-live-births/visualizations/#id=19691

Abortions

Quantitative and percentage rates of abortion:

- 2018 - 22,733 (30.8% of the total number of pregnancies);
- 2019 - 21,599 (31.0% of the total number of pregnancies);
- 2020 - 19,039 (29.2% of the total number of pregnancies).

Figure 42. Distribution of abortions by age of the mother (in %), Georgia, 2020

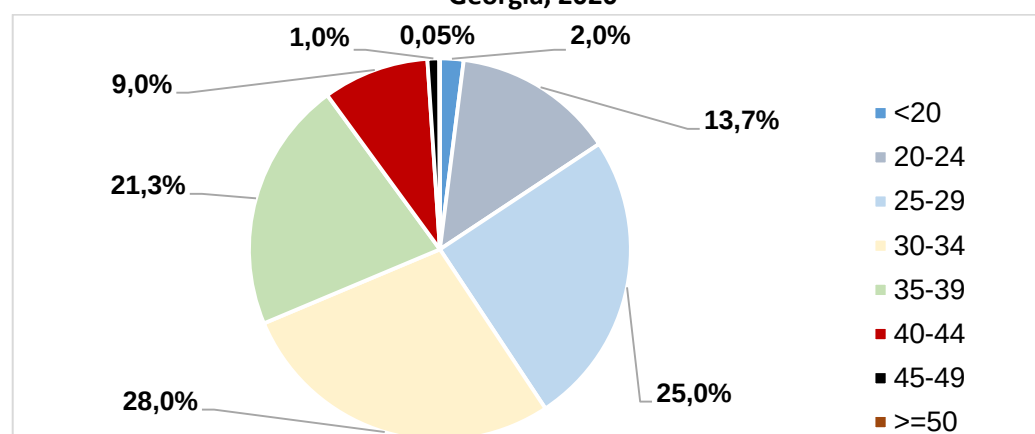
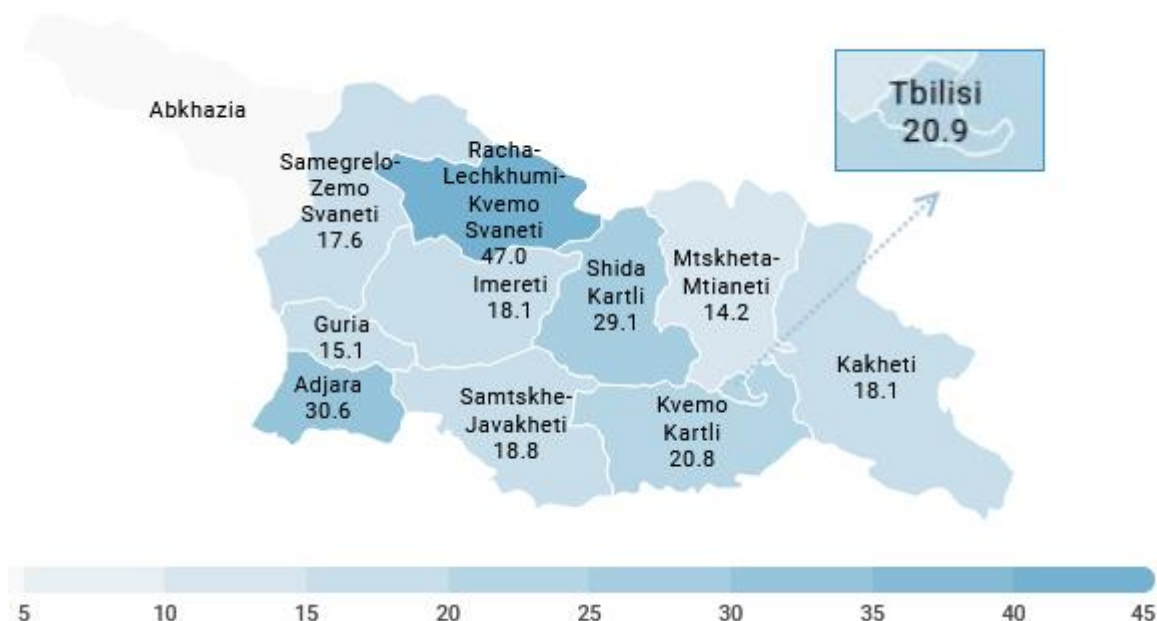


Table 13. Distribution of abortions by regions (at the actual place of residence of the mother), Georgia, 2020

Region	Absolute number	Rate per 1000 women of reproductive age
Tbilisi	6617	20,4
Adjara	2805	30,6
Guria	330	15,1
Imereti	1859	18,1
Kakheti	1171	18,1
Mtskheta-Mtianeti	283	14,2
Abkhazia	199	-
Racha-Lechkhumi and Kvemo Svaneti	51	11,2
Samegrelo-Zemo Svaneti	1159	17,6
Samtskhe-Javakheti	651	18,8
Kvemo Kartli	2193	20,8
Shida Kartli	1689	29,1
Foreigners	32	-
Georgia	19039	21,3

Map 5. Abortions rate per 1000 women of reproductive age by region (actual place of residence), Georgia, 2020



Abortion by the place of residence of pregnant women, 2020

- Urban residents - 66.4%;
- Rural residents - 33.6%.

Figure 43. Abortions by ethnicity of pregnant women (share of the total number of pregnant women), 2020

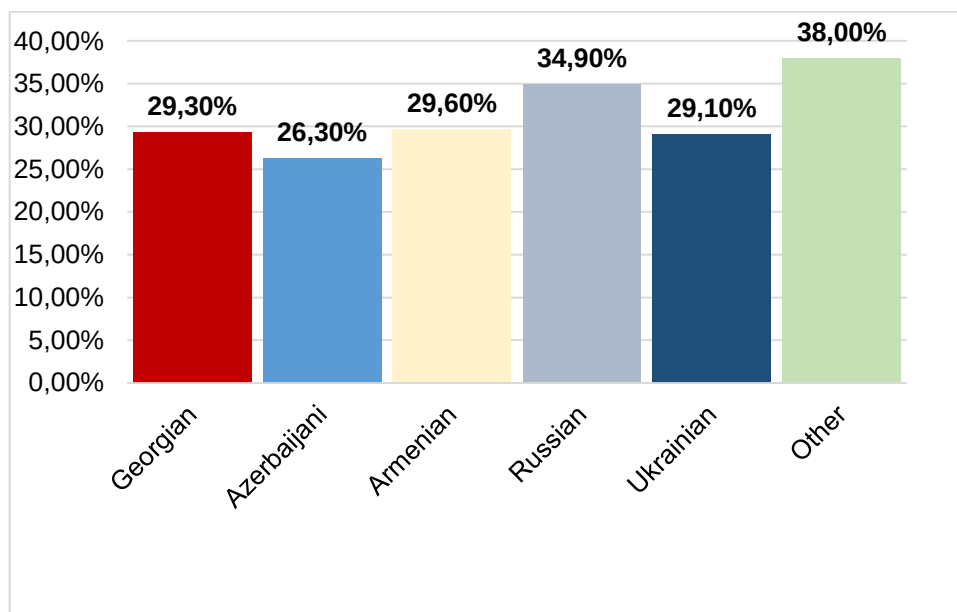
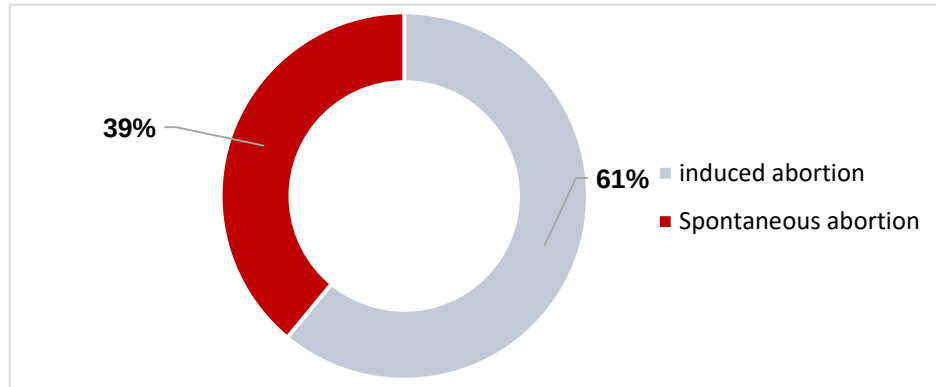
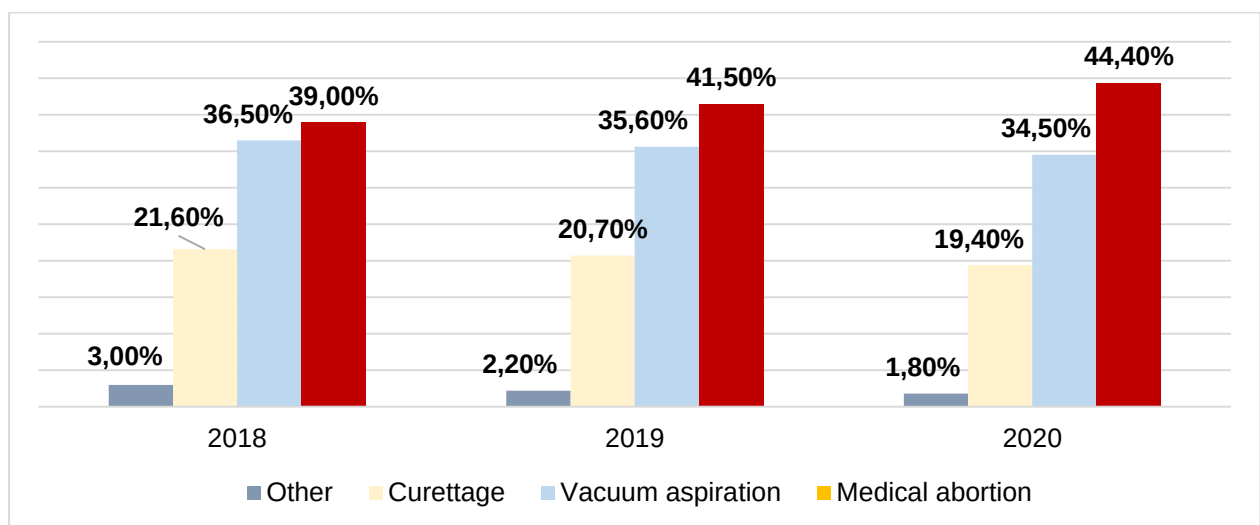


Figure 44. Distribution of abortions by a type of abortions (in %), Georgia, 2020



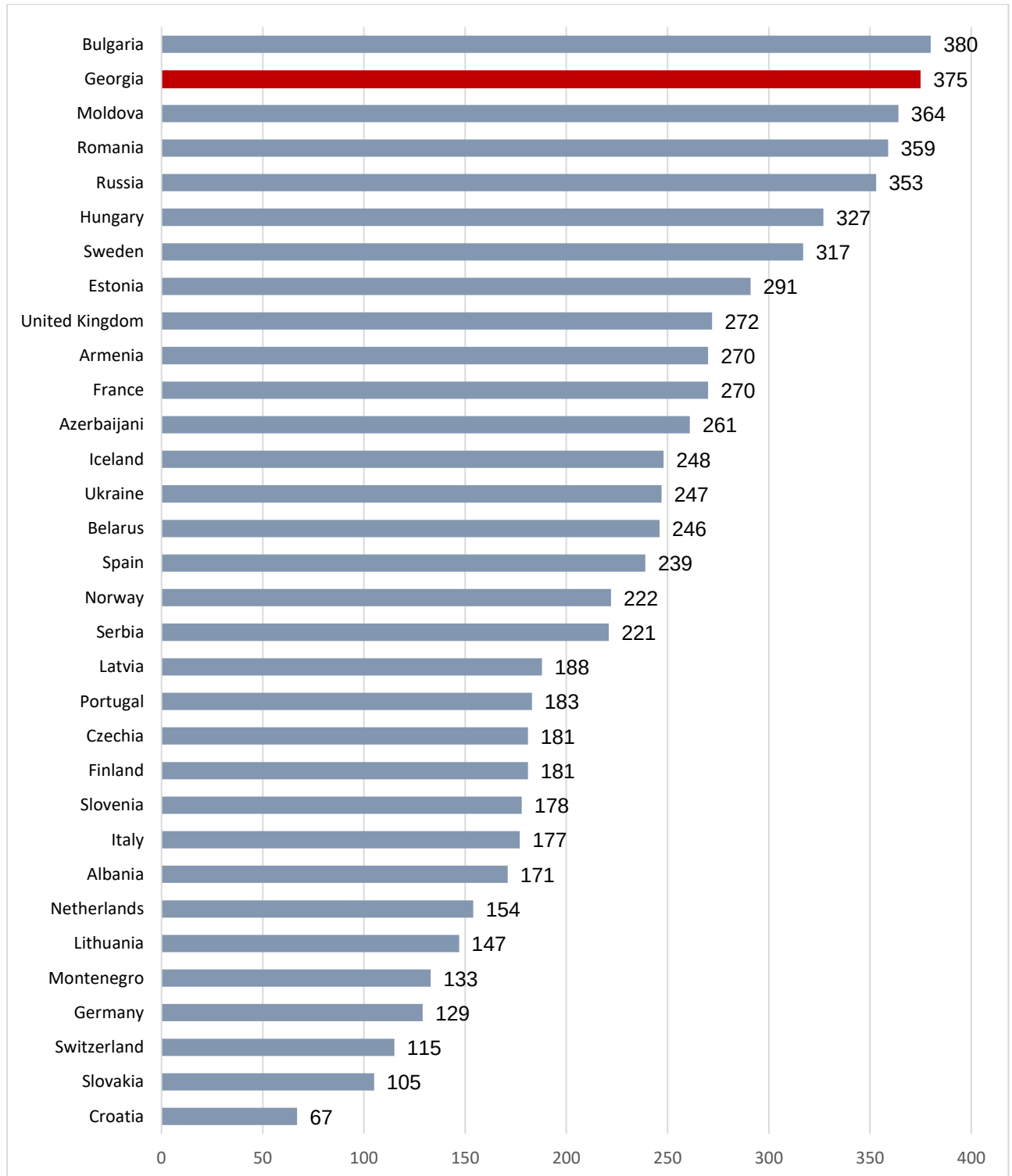
From 2018 to 2020, the share of medication abortions increased and the share of dilation and curettage decreased.

Figure 45. Distribution of induced abortions by the method of abortion, Georgia, 2020



Georgia, according to the abortion ratio per 1000 live births, ranks second among the countries of the European region of the World Health Organization.

Figure 46. Abortion ratio per 1000 live births, by country, last available year



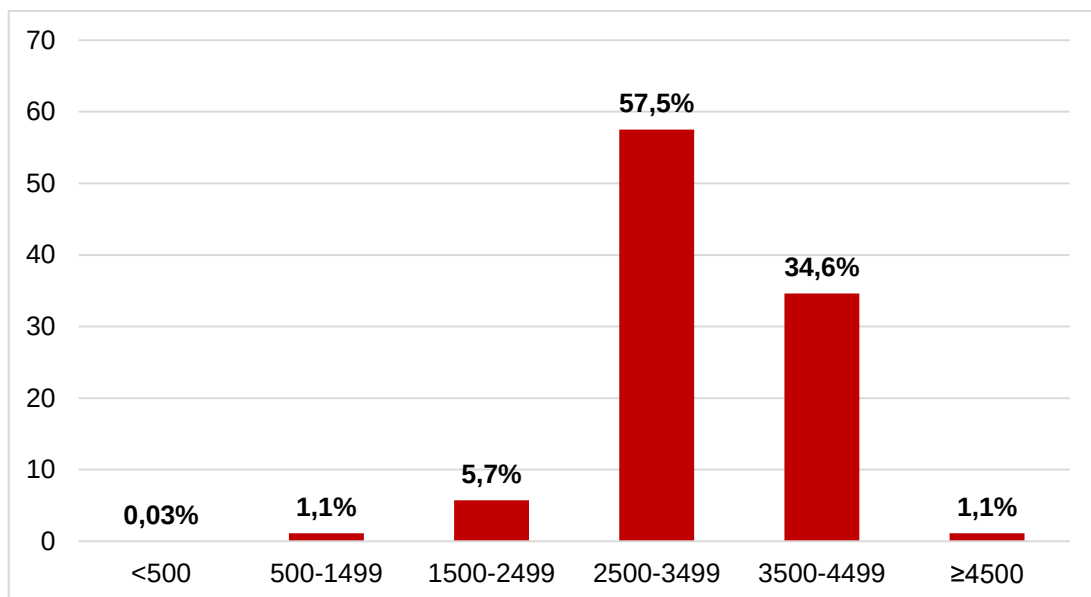
Source : <https://www.statista.com/statistics/866423/abortion-rate-europe/>

Infant health

Table 14. Key Indicators on Infant Health¹⁰, Georgia

	2018	2019	2020
Number of live births	51,138	48,296	46,520
% of live births of the total number of births	99.2%	99.1%	99.1%
The share of malformations in newborns of the total number of live births	2.0%	1.9%	1.9%
Coverage of newborn hearing screening (share from the total number of live births)	99.97%	99.7%	94.4%
Number of stillbirths	438	457	410
% of stillbirths of the total number of births	0.8	0.9	0.9

Figure 47. Distribution of live births by birthweight (in %), Georgia, 2020



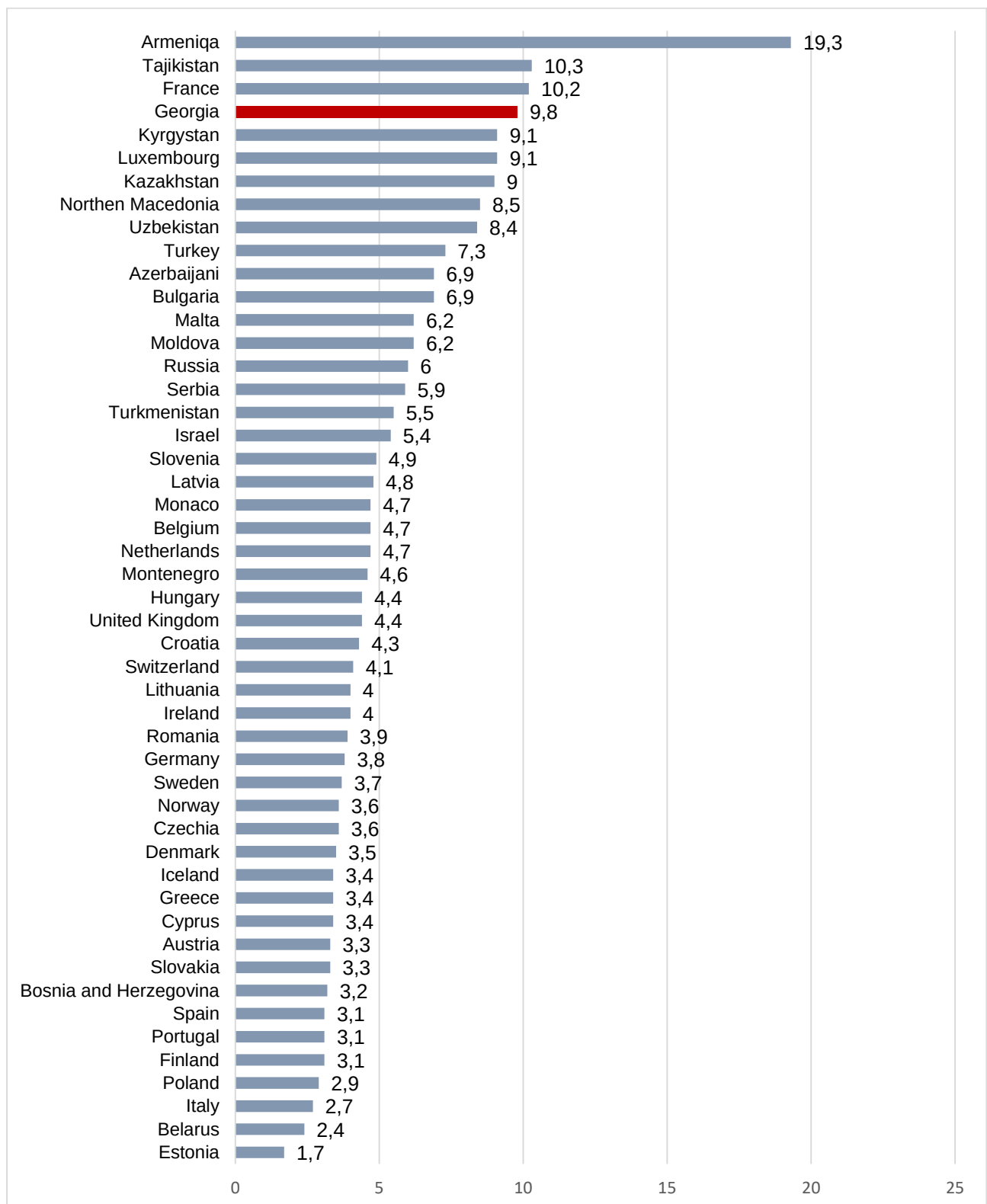
Infants transferred to Intensive Care Unit (NICU), quantitative and percentage rates:

- 2018 - 5,131 (10.0% of the total number of births);
- 2019 - 4,760 (9.9% of the total number of births);
- 2020 - 3,865 (8.3% of the total number of births).

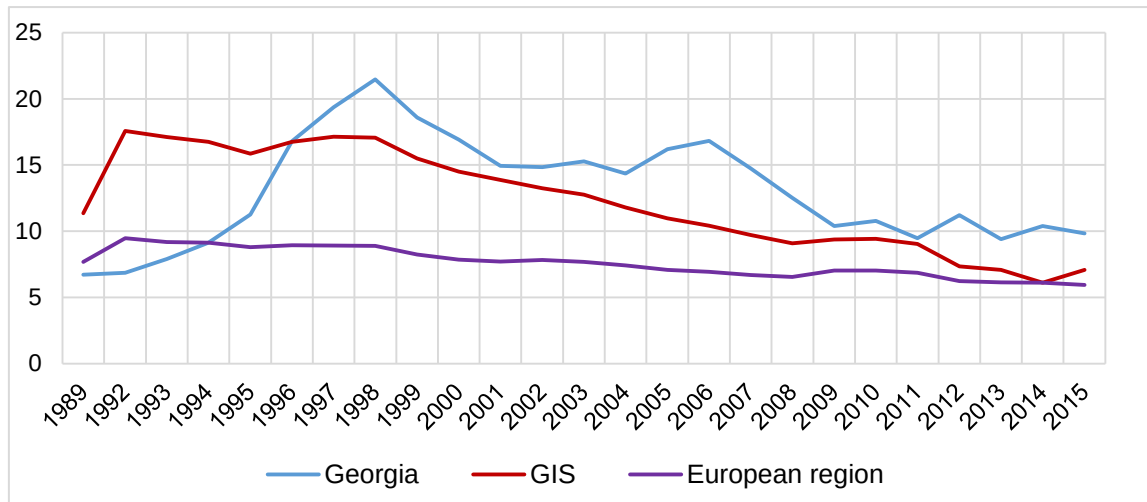
In Georgia, in 2018-2020, the share of stillbirths has averaged to 0.9% of the total number of births.

According to the latest data from the World Health Organization, Georgia ranks 4th in terms of stillbirth rate among the countries of the European region.

¹⁰ Data from the National Statistical Office.

Figure 48. Stillbirth rate per 1000 births, last available yearSource: <https://gateway.euro.who.int/en/indicators/hfa>

Despite declining rates over the past decade, the stillbirth rate in Georgia is also higher than the averages for WHO Europe Region and CIS

Figure 49. Stillbirth rate per 1000 births, last available year

Source: https://gateway.euro.who.int/en/indicators/hfa_82-1160-fetal-deaths-per-1000-births/visualizations/#id=18887

Table 15. Stillbirths by gestational age and fetal weight, Georgia

	2018	2019	2020
Stillbirth by gestation (%)			
22-27	41.5	33.8	35.0
28-31	14.7	17.3	13.5
32-36	21.8	24.1	24.6
≥37 weeks	22.0	24.8	26.9
Stillbirth by fetal weight (%)			
<1000 grams	47.7	36.8	39.7
1000-1499 grams	11.5	12.1	10.8
1500-1999 grams	10.3	15.6	9.9
2000-2499 grams	7.6	8.8	9.4
≥2500 grams	22.9	26.8	30.3

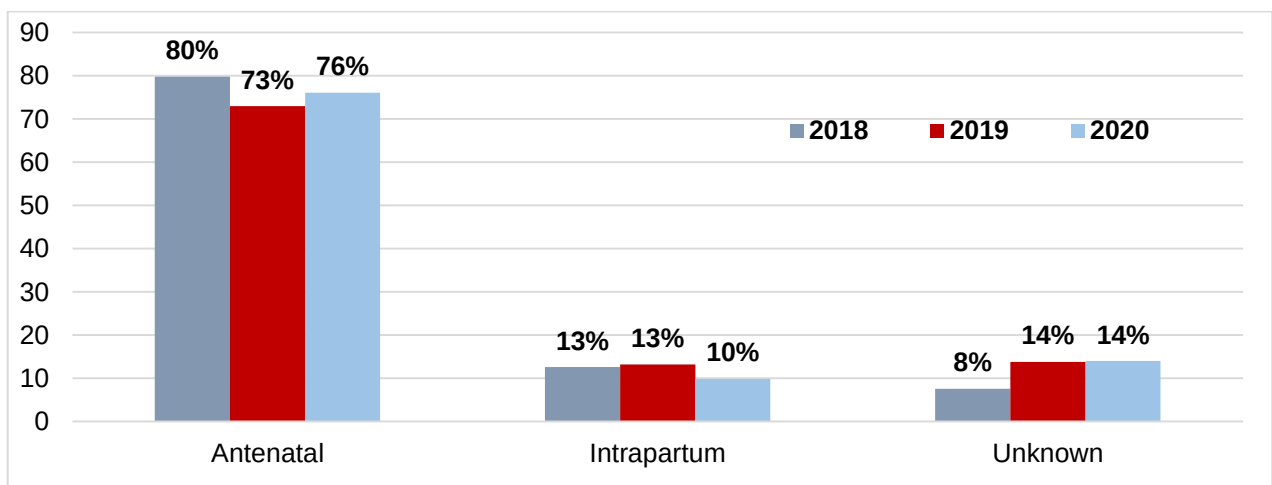
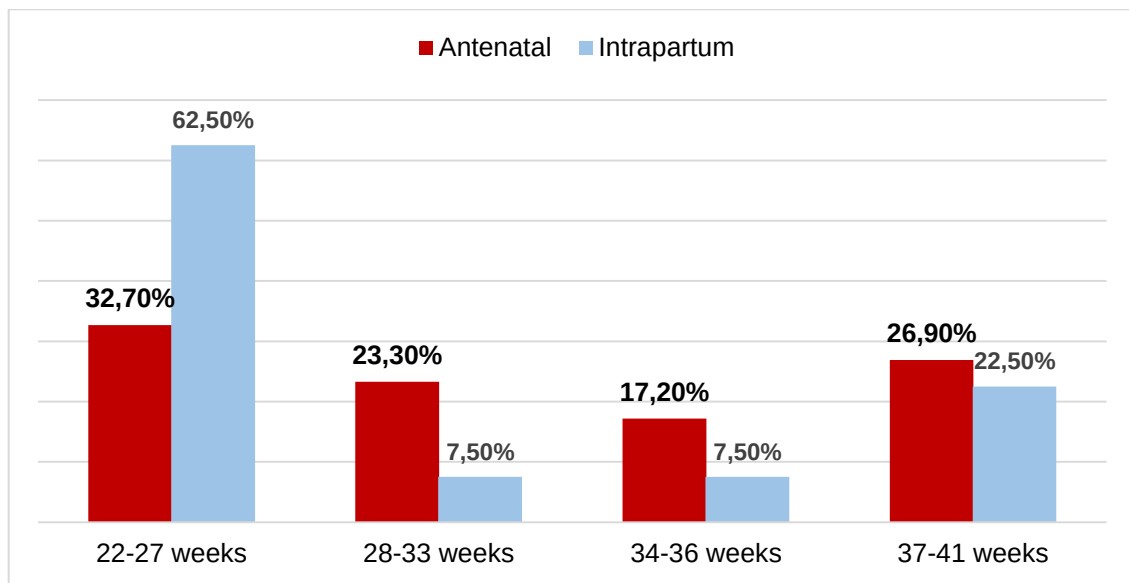
Figure 50. Stillbirth antenatal and intrapartum, Georgia, 2020

Figure 51. Antenatal and Intrapartum Stillbirths by gestational age, Georgia, 2020



Appendix: examples of using of the Birth Registry data

Doctoral Thesis: Perinatal mortality and its association with antenatal care utilization in the Republic of Georgia

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<https://munin.uit.no/handle/10037/19910>

Abstract

Background: Despite recent achievements, perinatal mortality (PM) rates remain high worldwide, especially in low-income countries (>30 per 1000 births). PM is defined as the death of a fetus/livebirth between 22 completed weeks of gestation and the first 7 days of life. Simple, non-invasive interventions could reduce PM rates, since most deaths are caused by preventable conditions. Adequate antenatal care (ANC) is one of the steps towards better pregnancy outcomes. Georgia has one of the highest PM rates in Europe, but they also have high ANC coverage. We aimed to understand the causes of PM and the impact of ANC on PM in the Republic of Georgia.

Methods: The Georgian Birth Registry was the main source of data, and the Vital Registration System was used as a supplementary source for data validation. Mothers who delivered in 2017-2019 and their newborn were included in the analysis. We used the Wigglesworth classification to categorise causes of death, and the adequacy of prenatal care utilisation index to analyse ANC. We assessed potential confounders by directed acyclic graphs and detected associations between exposures and outcomes by logistic regression analyses.

Results: The majority of stillbirths in Georgia were reported as unexplained (80%) and antepartum (85%), and preterm birth complications and congenital malformations were the most common causes of early neonatal death (END). The stillbirth to END ratio was 2.1, and newborn who died during first day of life represented 30% of the total number of ENDs. Unattended pregnancies (no ANC attendance) comprised 5.6% of all pregnancies in our study and carried more than two times higher odds of PM compared to attended pregnancies. Sixty-two percent of women did not receive adequate care during the study period. Women in the inadequate care group had the highest odds of PM when using the adequate care group as a reference; women who received intermediate care had the lowest odds of PM.

Conclusion: Initially, our study revealed potential misclassification between stillbirths and ENDs. We suspect that asphyxiated newborn who died shortly after birth might be classified as antepartum stillbirths. Adequate ANC has the potential to reduce PM and should be used as a tool for improving newborn health outcomes. Further, some women without any particular medical need may receive more than the recommended number of ANC visits. Increasing the number of ANC visits from four to eight did not seem to improve PM rates. Therefore, it is not sufficient to look only at the number of ANC visits; the quality should also be monitored.

Research Article: Incidence and Causes of Perinatal Mortality in Georgia

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Publication Date: 2019

Journal of epidemiology and global health

DOI: 10.2991/jegh.k.190818.001

ABSTRACT

Background: Georgia has one of the highest perinatal mortality rates (i.e., stillbirths and early neonatal deaths combined) in Europe. The Georgian Birth Registry was started in 2016 to provide data for preventive measures of maternal and child health. In this study, we aim to determine the incidence of perinatal mortality, assess the distribution of stillbirths and early neonatal deaths, and to determine the major causes of perinatal mortality in Georgia.

Methods: Data sources were the Georgian Birth Registry and the vital registration system for the year 2017. Causes of early neonatal deaths were assigned into five categories, using the Wigglesworth classification with the Neonatal and Intrauterine deaths Classification according to Etiology modification. The study used descriptive statistics only, specifically counts, means, proportions, and rates, using the statistical software STATA version 15.0 (StataCorp, College Station, TX, USA).

Results: In 2017, 489 stillbirths and 238 early neonatal deaths were recorded, resulting in a perinatal mortality rate of 13.6 per 1000 births. About 80% of stillbirths had an unknown cause of death. The majority of stillbirths occurred before the start of labor (85%), and almost one-third were delivered by caesarean section (28%). Prematurity (58%) and congenital malformations (23%) were the main causes of early neonatal deaths, and 70% of early neonatal deaths occurred after the first day of life.

Conclusion: The perinatal mortality rate in Georgia remained high in 2017. The major causes of early neonatal deaths were comparable to those of many high-income countries. Contrary to global data, most early neonatal deaths occurred after the first day of life.

Scientific article: Unattended Pregnancies and Perinatal Mortality in Georgia

Author: Tinatin Manjavidze

Co-authors: Charlotta Rylander, Finn Egil Skjeldestad, Nata Kazakhashvili, Erik Eik Anda

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Publication Date: 2020

Journal: Risk management and healthcare policy

DOI: [10.2147/RMHP.S243207](https://doi.org/10.2147/RMHP.S243207)

ABSTRACT

Introduction: The majority of pregnant women in Georgia attend the free-of-charge, national antenatal care (ANC) programme, but over 5% of pregnancies in the country are unattended. Moreover, Georgia has one of the highest perinatal mortality (PM) rates in Europe (11.7/1000 births).

Purpose: To assess the association between unattended pregnancies and the risk of PM.

Methods: Data were extracted from the Georgian Birth Registry (GBR) and the national vital registration system. All mothers who had singleton births and delivered in medical facilities in Georgia in 2017–2018 were included in the study and categorised into attended pregnancies (at least one ANC visit during pregnancy) and unattended pregnancies (no ANC visits during pregnancy). After exclusions, the study sample included 101,663 women and their newborns, of which 1186 were either stillborn or died within 7 days. Logistic regression analysis was used to assess the effect of unattended pregnancies on PM.

Results: During the study period, the PM rate was 12.9/1000 births. In total, 5.6% of women had unattended pregnancies. The odds of PM among women with unattended pregnancies were more than double those among women with attended pregnancies (odds ratio=2.21, [95% confidence interval: 1.81–2.70]). Multiparous women with higher education and who resided/delivered outside of Tbilisi were significantly less likely to experience PM.

Conclusion: The risk of PM doubled among women with unattended pregnancies. Six percent of PM cases were attributable to unattended pregnancies. Targeting women with previous unattended pregnancies will likely reduce the PM rate in Georgia.

Scientific article: The impact of antenatal care utilization on admissions to neonatal intensive care units and perinatal mortality in Georgia

Author: Tinatin Manjavidze

Co-authors: Charlotta Rylander, Finn Egil Skjeldestad, Nata Kazakhashvili, Erik Eik Anda

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Publication Date: 2020

Journal: PLOS One

DOI: [10.1371/journal.pone.0242991](https://doi.org/10.1371/journal.pone.0242991)

Abstract

Introduction: Appropriate antenatal care (ANC) utilization has direct, significant effects on perinatal mortality (PM). Georgia has one of the highest PM rates (11.7 per 1000 births) in Europe and launched a more intensive ANC programme in 2018.

Aim: To evaluate the associations between the Adequacy of Prenatal Care Utilization (APNCU) index and neonatal intensive care unit (NICU) admission and PM in Georgia.

Methods: The Georgian Birth Registry (GBR), with linkage to the Vital Registration System, was used as the main data source; 148,407 eligible mothers and singleton newborns were identified during the observation period (2017–2019). The main exposure was ANC utilization, measured by the APNCU index, and the hospitalization registry was used to validate NICU admissions. Logistic regression analysis was used to assess the associations between the exposure and outcomes while controlling for potential confounders.

- APNCU (Adequacy of Prenatal Care Utilization) index divides antenatal care utilization into 4 groups:
 - I. Intensive: Antenatal care was initiated in the first trimester of pregnancy and 110% or more of the recommended number of visits were performed
 - II. Adequate: Antenatal care was initiated in the first trimester of pregnancy and 80% -109% of the recommended number of visits were performed
 - III. Intermediate: Antenatal care was initiated in the first trimester of pregnancy and 50% -79% of the recommended number of visits were performed
 - IV. Inadequate: Antenatal care was initiated in the second or third trimester of pregnancy and / or less than 50% of recommended visits were performed.

Statistical analyses: We calculated descriptive statistics for selected maternal characteristics across APNCU index categories. We used logistic regression analysis to assess the associations between APNCU index categories and NICU admission and PM, and conducted sensitivity analyses by running the same regression models stratified by: 1) the old/new ANC programme; and 2) preterm/term newborns. The results are presented as unadjusted odds ratios (ORs) and adjusted ORs (AORs) with 95% confidence intervals (CIs).

The APNCU index only evaluates ANC initiation before completed GA week 14. To enhance our understanding about the importance of timely ANC initiation, women were categorized into three groups: ANC initiation up to completed GA week 12 (reference category), ANC initiation after completed GA week 12 and before GA week 28, and ANC initiation in or after completed GA week 28. We then calculated the odds of PM and NICU admission for women with ANC initiation after completed GA week 12. Completed GA week 12 was used as a cut-off value, as the WHO has identified this as the best period in which to initiate ANC (22). Statistical software STATA (StataCorp, College Station, TX, USA) 16.0 version was used for the analysis.

Results: The overall PM rate was 11.6/1000 births, and the proportion of newborns with a NICU admission was 7.8%. 85% of women initiated ANC before gestational age week 12. According to the APNCU index, 16% of women received inadequate, 10% intermediate, 38% adequate, and 36% intensive care. Women who received intermediate care had the lowest odds of PM (adjusted odds ratio [AOR] = 0.56, 95% confidence interval [CI] 0.45–0.70), and newborns of women who received inadequate care had the highest odds of NICU admission (AOR = 1.16, 95% CI 1.09–1.23) and PM (AOR = 1.18, 95% CI 1.02–1.36).

Conclusion: Women receiving inadequate care had the highest odds of NICU admission and PM, whereas women with intermediate care during pregnancy experienced the lowest odds. Sixty-two percent of pregnant women who delivered in Georgia during 2017–19 did not receive adequate care. Increasing the number of ANC visits does not seem to be effective for improving NICU admission or PM rates.

Previous studies have suggested a U-shaped relationship between ANC utilization and PM. Women with both inadequate care and extra ANC visits have shown higher risks of poorer birth outcomes, as extra ANC visits are determined by morbidity during pregnancy. In our study, women receiving intermediate care had 44% decreased odds of experiencing PM compared to those receiving adequate care. Women who received intensive care did not experience higher odds of PM than those receiving adequate care. On the other hand, they experienced 16% increased odds of newborn admission to NICU, which may indicate a higher proportion of morbidity in these pregnancies, although no increase in PM rate. There are several possible explanations

for this finding. Theoretically, women who receive intensive care are more likely to have a high-risk pregnancy, and they could have benefited from these extra ANC visits and from NICU admission. However, the number of women receiving intensive care was larger in Georgia compared to other countries, which may suggest an overuse of medical services in this subset of pregnant women. The high proportion of women attending more than recommended number of ANC visits could be an effect of some healthy women, especially older, nulliparous women with higher education, attending self-initiated extra ANC visits that are not necessary from a medical point of view.

Scientific article: Scoping maternal care through the lens of maternal deaths: A retrospective analysis of maternal mortality in Georgia

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Abstract

Introduction: Reduction of the maternal mortality ratio (MMR) to 12 per 100,000 live births by 2030 is a priority target in Georgia. This study aims to assess and classify MM in Georgia by direct and indirect causes of death from 2014 to 2017, using data from the national surveillance system and in accordance with internationally approved criteria.

Material and methods: In this secondary study, MM data was retrieved from the Maternal and Children's Health Coordinating Committee and validated with data from the Vital Registry System and the Georgian Birth Registry. The study sample comprised 61 eligible MM cases. Relevant information was transferred to case-report forms to review and classify MM cases by direct and indirect causes of maternal death.

Results: The MMR during the study period was 26.7 per 100,000 live births. The proportion of direct causes of maternal death exceeded that of indirect causes, at 62% and 38%, respectively. The leading direct cause of maternal death was haemorrhage, while infection was the most frequent indirect cause. 52.5% of MM cases had no pre-existing medical condition, 62.3% had frequent adherence to antenatal care, and 52.5% had emergency caesarean sections.

Conclusion: In Georgia, direct causes of maternal death exceed indirect causes in MM cases, with haemorrhage and infections, respectively, being most common. These findings are important to ensure optimal and continuous care and to accelerate progress in the reduction of MM in the country.

Master Thesis: Comparison of Socio-Demographic indicators in two population, pregnant women who delivered liveborn and had artificial abortion in 2018

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Abstract

Introduction: Women's health in Georgia is strongly affected by socio-demographic indicators. It is related to historical, cultural, and socio-economic factors. Considering the fact that the healthcare system was constantly changing through the years it is really interesting to go through some different socio-demographic indicators in pregnant women. With the efforts and resources of the Government of Georgia has expanded women's access to affordable contraception and other reproductive health services funded by foreign donor Organizations. However, several challenges remain in this field, especially low education level and access to Family planning activities.

In Georgia, paper-based health information systems did not provide the country with information on factors affecting fertility and reproductive health, which was also required to evaluate the effect of certain health services on the population. The creation of registries could be considered as a significant step towards the modern healthcare system development as well as the improved capacity for health-related sciences, specifically the establishment of the nation-wide electronic systems and registries. Georgian Birth Registry - GBR was officially launched on January 1st, 2016. It is fully automated, digital, nationwide, and fully integrated within the E-health platform.

Methods: We choose two population pregnant women who delivered liveborn in 2018 and pregnant women who had induced abortion in 2018. Database was imported on 19 November in 2019. The study includes only citizens of Georgia and women in reproductive age – 15-49 year. Total number of pregnant women in our study was 63073. After coding database, frequency analysis was performed using the statistical program IBM SPSS version 26.0. Data has been analyzed in different ways: total database, pregnant women with one pregnancy in 2018, pregnant women with more than one pregnancy in 2018, Urban and Rural areas.

Results: Study involved 63073 pregnant women, who delivered liveborn - 49 393 (78.3%) and whose pregnancy ended with artificial abortion – 13680 (21.7%). 39.1% of women who delivered have complete secondary education and 35.9% Higher, 47.3% are married, in second population, with pregnant women who had artificial abortion trend is little bit different: 49.4% had complete secondary education and 13.7% higher, unknown civil status 93.2%, 64.7% were temporally unemployed.

76.4% of participants who lives in urban area and 81.4% who lives in rural area delivered. 39.2% of participants who lived in urban area had higher education and 51.8% of participants who lived in rural area had complete secondary education; 37.2% of participants who lives in urban area and 39.9% who lives in rural area were married. 88.5% of participants who lives in urban and 92.4% who lives in rural had UHC (Universal Health Coverage) insurance.

Conclusions: Study findings showed different directions which should be monitored and taken into the consideration. Firstly, family planning activities and educational level should be raised. Also, results make it quite obvious, that in Georgia, there are vulnerable parts of population, which seek high-quality services, for example, unmarried women, or women who live in rural areas. Inequality should be taken down and accessibility to different services should be the same.

Master Thesis: Impact of COVID-19 pandemic on antenatal referral of pregnant women in Georgia

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Abstract

Introduction: Since 2019, the world has faced one of the most difficult problem - COVID-19. Due to the difficult situation created against the background of the pandemic, the tendency of decreasing antenatal visits by pregnant women has acquired a global face. This issue is relevant for the whole world, as well as for Georgia. Decreasing the number of antenatal visits may pose an additional threat to prenatal and postnatal care in terms of maternal and neonatal health status. This issue is very important in terms of public health and requires the right policy of the state. It is important to have at least 8 antenatal visits recommended by the WHO as it provides:

1. Reducing the number of premature births, maternal and neonatal mortality and the development of congenital anomalies.
2. Also effective care of pregnant women, access to qualified medical care, provision of necessary medicines, increase of geographical and financial access

Goal:

- What impact did the COVID-19 pandemic have on the number of antenatal visits based on data from the Pregnancy and Newborn Electronic Module?
- Determine the factors affecting the number of antenatal visits as a result of a survey of industry experts.

Methodology: During the COVID-19 period, retrospective analysis of antenatal visits of women giving birth in Georgia from March 1, 2019 to February 2020 (12 months) and from March 1, 2020 to February 2021 (12 months), use of case-control method and selection of quantitative research method . The retrospective study of secondary data will be carried out according to the following characteristics:

1. Age
2. Residential region
3. Residential status
4. Education
5. Workplace
6. Ethnicity
7. Timely referral
8. Number of appeals

Results of birth registry data analysis:

1. The total number of antenatal visits during the pandemic period did not decrease dramatically, although the minimum number of antenatal visits recommended by the WHO decreased by 3.7%.
2. April 2020 saw a sharp decline in visits with a further upward trend.
3. In 2020, the timely referral of antenatal care increased slightly (by 1.2%) compared to last year. The lowest share of timely referrals was found in the residents of Samegrelo-Zemo Svaneti and Abkhazia.
4. 2/3 of timely antenatal care referrals come from urban pregnant women (61%), including mostly Georgian and Armenian pregnant women. High referrals are correlated with the level of education of pregnant women.
5. Mtskheta-Mtianeti region has the highest share of pregnant women who have not applied for antenatal services. According to the residential status, the number of people living in cities exceeds the number of people living in rural areas. Most of them are pregnant women of Russian and Ukrainian ethnicity.
6. Pregnant women of Georgian ethnicity living in a city with higher education use the maximum recommended number of visits.
7. Shida Kartli, Imereti and Kakheti have the highest coverage rate with 8 or more visits.
8. There was a defect in a birth of registry, for example, information about pregnant women is incomplete.

Results of interviews with specialists:

1. At the onset of the pandemic, service providers and doctors did not have specific guidelines for managing the condition of pregnant women.
2. Pregnant women mostly used online visits, which were registered in the electronic module for pregnant women, as a result the number of visits during the pandemic period did not decrease significantly.
3. Pregnant women did not use the 4th, 5th, 7th and 8th visits in a row.
4. Also, the clinical laboratory tests provided during the antenatal visit were not performed by pregnant women mainly through physical communication.

Recommendations:

1. During a pandemic, an adequate response from the state is important: institutions and specialists should be provided with appropriate guidelines on time, specific instructions should be issued, which will facilitate the management of pregnant patients and ensure the health of mothers and children.
2. Raise awareness of pregnant women and their families about the need and importance of scheduled antenatal visits.
3. Development of telemedicine and online consultations.
4. Conduct post-pandemic research to identify and in-depth study of factors affecting pregnancy and childbirth during this period.
5. Raising the awareness of the staff working in medical institutions about the importance of reflecting reliable and valid data in the birth register.

Conclusion: During COVID-19, the overall percentage of antenatal visits did not decrease, as face-to-face visits were largely replaced by telephone visits, which were recorded in the electronic Pregnancy and Neonatal Surveillance Module.

Master Thesis: Analysis of the use of a method incompatible with artificial abortion in Georgia

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Abstract

Introduction: Abortion (Lat. Abortus) is the premature termination of pregnancy and expulsion of the fetus from the uterus before the 22nd week of pregnancy. There are two types of abortion: artificial or spontaneous abortion, which develops without direct impact on a woman's body or fetus, and artificial abortion - a medical intervention performed to terminate a pregnancy. Voluntary termination of pregnancy up to 12 weeks (inclusive) is allowed by the legislation of Georgia, and from 12 to 22 weeks the procedure requires social or medical testimony (Order of the Minister of Refugees, Labor, Health and Social Affairs №01-74 / N, 2014; Abortion procedure 2017).

There are three methods of performing artificial abortion: surgical vacuum aspiration (recommended time is up to 6 weeks) and curettage (recommended time is 10 weeks or more), medical abortion (recommended time is up to 6 to 10 weeks) (WHO / World Health Organization), 2019).

Due to the complications caused by the use of artificial abortion method, which is inappropriate for gestational age, about 7 million women are referred to hospitals every year in developing countries. Almost all deaths and disabilities due to the use of gestational miscarriage can be prevented through sex education, effective contraception, safe, legal abortion and timely treatment of complications (WHO / World Health Organization, 2020).

Approximately 19 to 20 million abortions are performed each year in violation of relevant recommendations, 97% of which are in developing countries. Despite its frequency, abortion still remains on the list of global public health challenges. Approximately 68,000 women die each year from abortion procedures and millions of women are disabled (WHO / World Health Organization, 2020).

Aim: Study of the use of methods incompatible with gestation of abortion in Georgia and the study of post-abortion complications.

Research Methodology: Quantitative research method, study of retrospective type secondary data, according to the following characteristics: age, gestational age, abortion method, sequence of pregnancy, residential region, education, synchronization with the hospital register, geographical location of the abortion performed, post-abortion complication.

Also, interview specialists in the field through a pre-compiled questionnaire.

Conclusions and results:

1. In 2018, a total of 22,733 abortions were performed, of which the highest rates were 6199 cases in the 25-29 age group, which is 27.3%, and in 2019 - 21596, abortions of which the highest rate was observed in the age group 30-34 - 5781 cases. Which is 26.8%.
2. Percentage distribution of artificial abortion according to gestational age and method, Georgia, 2018-2019.
3. The study found, that in most cases - after an artificial abortion, women go to the clinic within 10 days: O03.1 Spontaneous abortion with unfinished, complicated prolonged or massive bleeding - 20.95%; N84.0 Uterine polyp - 19.80%; O03.4 Spontaneous abortion unfinished, without complications - 18.71%;

N39.0 Urinary tract infection, unspecified localization - 13.53%; N93.9 Abnormal bleeding from the uterus and vagina, unspecified - 10.53%; O02.1 Aborted abortion - 5.33%.

4. Percentage of complications identified as a result of birth and hospital registry synchronization, within 10 days after abortion, Georgia, 2018-2019.

5. As a result of synchronization of the Pregnancy and Newborn Surveillance Module and the Hospital Registry, it was found that in some cases, patients underwent a cure within 10 days after a medical abortion.

Results of the interview with the medical staff:

1. The week of pregnancy is of great importance in terms of choosing the method of artificial abortion;
2. The method of artificial abortion is selected individually based on the practice of each doctor and the health of the patient;

3. Pregnant women who have decided to have an abortion partially have information about the methods, their pros and cons.

4. According to the doctors, the method of abortion incompatible with gestation is used, which is due to the lack of complete information from the doctor.

5. The order of pregnancy and the age of the pregnant woman are important if the woman is young and if it is first pregnancy, because during this period she is advised to have less invasive (vacuum aspiration) or non-invasive (medical abortion), so as not to cause any complications during future pregnancies.

6. In the practice of doctors, it is quite common for pregnant women to go to clinics for incomplete abortions caused by spontaneous medical abortions.

Recommendations:

1. The analysis of the results of the research revealed that the use of artificial abortion methods in both 2018 and 2019 does not fully comply with international recommendations, and at the same time the number of referrals with complications of abortion in clinics has not decreased for two years. All of this even requires in-depth study.

2. It is important to pay attention to educational activities, because a survey of doctors has shown that pregnant women either do not own or have very little information about abortion, its methods and post-abortion complications. Having the right information in adolescent girls will reduce the risk of unwanted pregnancies.

3. It is important to have the support of a psychologist both before and after the abortion. In clinics where abortions are performed, it is important to have a psychologist's office to help the woman.

4. It is important to review the legislation in Georgia and to control each case of abortion more strictly in order to avoid further complications of abortion.

5. It is desirable to periodically provide medical staff with up-to-date information on the example of different countries of the world in order to avoid further complications of abortion.

6. Because the Electronic Pregnancy and Neonatal Surveillance Module (the so-called Birth Registry) is the primary source for decision-making on maternal and neonatal issues, it is advisable to periodically evaluate qualitative data.

Master Thesis: Evaluation of stillbirth data and the knowledge and attitude of the heads of institutions towards Birth Registry

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Abstract

Introduction: Until 2016, there was no reporting mechanism in Georgia that could link antenatal services to pregnancy outcome. It was impossible to study the correlation between complications during pregnancy and stillbirth. In 2016, Georgia introduced an electronic system for monitoring the health of pregnant women and newborns (in other words "Birth Registry"). It provides continuous monitoring of each pregnant woman from the first antenatal visit to delivery.

Subject: According to the birth registry, there are frequent cases of stillbirth, when the antenatal period takes place without any complications, especially in the case of timely childbirth and normal fetal weight. The National Center for Disease Control and Public Health (NCDC & PH) conducted an audit of Birth Registry data to determine the validity of this information. Within the framework of the master's thesis, additional research was conducted. The purpose of the study was: Knowledge-attitude of the heads of medical institutions in the field of obstetrics and gynecology towards the Birth Registry, establish a mechanism for data entry by their institutions and determine the quality of the input data. The stillbirth audit and additional research jointly allowed us to correlate their results.

Methodology: Out of 436 stillbirths in Georgia in 2018, 199 cases were selected by random sampling. The medical cards of these cases and the data recorded in Birth Registry were compared according to a pre-defined questionnaire, and the received information was transferred to an electronic format document. An appropriate questionnaire was prepared to study the knowledge-attitude of the heads of the medical institution towards the Birth Registry. The research was conducted throughout Georgia (In a total of 90 clinics, ie in 1/3 of the medical institutions included in the Birth Registry).

Results: In the framework of the master's thesis, the analysis of the stillbirth audit data was performed. The audit questionnaire included information on the number of spontaneous abortion of the pregnant woman. It was found that in 10% of the total number, the mentioned field was filled in incorrectly. Summarizing the total number of antenatal visits during pregnancy, it was found that in 28% of cases, the information in the Birth Registry differs from the medical records. Birth Registry does not include information about problems found on ultrasound examination of the uterus in 33% of cases.

Within the framework of the master's thesis research, the knowledge-attitude of the heads of institutions towards the birth register was studied. It was found that 14% of working persons on the Birth Registry do not have medical education. It was found that data entry in the birth register in 50% takes place in parallel with the antenatal visit while in other cases additional time is spent. In addition, 23% of heads of medical institutions do not control the quality of information entered in the Birth Registry.

Conclusions: Institutions, whose heads respond that they do not enter data into the Birth Registry in parallel with the antenatal visit make more mistakes. In addition, clinics that do not control the quality of Birth Registry data are characterized by incorrect data entry.

Of the 43 institutions participating in the audit and study, 41 stated that they fill out a complete information about the patient's antenatal visit in the birth register. This fact does not correspond to reality, as the amount of correct data they submit is equal to the average result of the audit.

Master Thesis: Study and evaluation of Antenatal Determinants in Georgia

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Abstract

Subject of study: The health of future generations is largely determined by the growth and proper development of the baby during pregnancy. It determines not only the health of the newborn, but also has a major impact on the health of the adult and may increase the risk of future diseases. Quality antenatal/prenatal care is critical for the health of pregnant women as well as for future generations and society as a whole.

Antenatal surveillance / care is the care provided by doctors to the pregnant woman and her fetus throughout the pregnancy, in accordance with the relevant protocol and plan. Identification, prevention, and management of pregnancy-specific or concomitant disease risks, as well as education and health promotion, are the key components of prenatal care.

Women who do not receive antenatal care throughout pregnancy, have few visits, or none at all, are more prone to undergo a multitude of pregnancy complications, such as:

- Preeclampsia;
- Small fetal weight;
- Premature delivery;
- Stillbirth.

Quality-appropriate and adequate antenatal care during pregnancy is essential for both the mother and the newborn, as it is a major and vital prerequisite for health. Proper and timely evaluation of maternal and fetal health during pregnancy, potential risk identification, and provision of essential care result in both an improved pregnancy outcome and an effective strategy for reducing maternal and neonatal morbidity and mortality (UNICEF / UNICEF, 2020).

An antenatal monitoring algorithm was developed and developed in 2007 and revised in 2012. In recent years, as a result of modern research and highly credible scientific evidence obtained worldwide, the World Health Organization (WHO) has developed the latest and most significant guidelines for its member states, on the basis of which Georgia revised its Protocol on the Management of Clinical Pregnancy. The protocol in effect until 2017 provided for 4 state-funded prenatal care visits. Today, under the revised Antenatal Surveillance Protocol, state financing for pregnant women registered as of the February 1st, 2018 has been increased to 8 visits.

Receiving antenatal services in developing countries is influenced by a number of factors. According to the Andersen and Newman Behavioral Model (ANBM) for health service utilization, individual determinants are divided into components of predisposing, enabling and illness levels. This model is somewhat related to the practice of prenatal monitoring. Prenatal care is governed by preset variables, individual pregnancy-related traits, and a predisposition to utilize antenatal care. These include sociodemographic and cultural variables, as well as the mother's age, education, domicile, occupation, religion, and ethnic origin.

Research Hypothesis: The quality of antenatal surveillance (number of visits) is influenced by the demographic and socio-economic characteristics of the pregnant woman.

The purpose of the study: Analysis of secondary data on antenatal referrals, to establish a correlation between the number of visits and the outcome of pregnancies. The study determined the prevalence of prenatal referral, whether pregnancy resolution is related to the number of visits, and how it is linked to a number of variables, including education, employment, age, social status, and ethnicity. This information may be collected through the birth register system.

To accomplish the objectives of this research study, the following tasks should be fulfilled:

- The research methodology should be defined;
- A review of the current literature on this subject should be conducted;
- The required data should be collected from the birth register;
- The information obtained from the research to be analyzed;
- Conclusions to be drawn and summarized;
- Recommendations to be made.

Methods: The main data source of the paper is the information obtained from the Georgian Birth Registry to determine the correlation between the number of visits and the outcome of pregnancies. The existing literature on the issue was additionally discussed.

Results of birth registry data analysis and research:

1. The 8 visits provided by the State Program for Mothers and Children as of February 1, 2018, showed no discernible effect on the stillbirth rate in 2019.
 - Stillbirth rate in 2018 - 438 (indicator - 8.5);
 - Stillbirth rate in 2019 - 457 (indicator - 9.4);
 - Neonatal mortality rate in 2018 -5.0;
 - Neonatal mortality rate in 2019 - 5.2;
 - Child mortality from birth to 1 year in 2018 - 8.1;
 - Child mortality from birth to 1 year in 2019 -7.9.
2. The following regions exhibit a high stillbirth and low referral rates::
 - 2018: Adjara, Guria, Imereti
 - 2019: Adjara, Imereti, Tbilisi

Distance has been highlighted as a key impediment to service access, particularly in rural areas.

3. Maternal age, number of past pregnancies (number of live births), education, socioeconomic status, prior poor obstetric history, quality of care, and distance from institutions all have an effect on the frequency and quality of antenatal care, and accordingly to the outcome

The research, which included a literature review, was used to ascertain and establish whether socioeconomic demographic or other factors had an impact on antenatal care, antenatal care quality, frequency, or referral.

According to data extracted from the birth registry information system, the quality of prenatal surveillance (number of visits) is impacted by the pregnant woman's demographic and socioeconomic variables.

Recommendations:

1. Following the development of specific recommendations, it is essential to guide a series of information campaigns or other activities aimed at disseminating knowledge about the correlation between antenatal care and care quality and pregnancy outcome.
2. It is desirable to establish pregnant women's schools in the country, where expectant mothers would get comprehensive information about family planning, pregnancy planning, proper management, and behavior.
3. It is desirable to launch a campaign, according to which doctors will be deployed in mountainous regions and will consult women living there, introducing them to protocols and latest news.
4. The process of continual medical staff training, emphasizing the critical nature of accurately representing trustworthy and valid data in the birth register.

Master Thesis: Epidemiology of newborn congenital malformations in Georgia

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Abstract

Introduction: According to WHO data for 2020, approximately 295 000 newborns die within 28 days of birth every year, worldwide, due to congenital anomalies.

Nowadays, congenital malformations of the newborn occupy a large and important place in the priority issues of the World Health Organization, which aims to reduce the number of malformations, plan preventive measures, improve the health of infants and mothers and constant surveillance and care. The problem is quite topical, both in the world and in our country, today, in fact, there is not, or is very rare, research and papers on the assessment, study and analysis of congenital malformations of the newborn.

The problem is quite topical, both in the world and in our country, today, in fact, there is no or is very rare, research and papers on the assessment, study and analysis of congenital malformations of the newborn.

Purpose: The aim of the research is to study the health status of newborns with congenital malformations and their mothers, to establish correlations between the characteristics of the mother and newborn, to process and analyze the data according to the data of the "Birth Registry" in the country.

Thesis objectives

1. Retrieval of relevant literature, literature review;
2. Extraction / analysis of data from the birth registry;
3. Conducting research;
4. Analysis and processing of information obtained as a result of research.
5. Make a conclusion based on the analysis of the data obtained as a result of the
6. research;
7. Develop recommendations.

Research methods: In the study, a quantitative research method with retrospective type will be used. Secondary data analysis, which includes, data analysis from the module of monitoring of pregnant women and newborns - the so-called "Birth Registry".

Results:

- Research has shown that among congenital malformations, the largest share is attributed to congenital anomalies of the circulatory system.
- The majority of newborns diagnosed with malformations (62%) are male infants.
- Problems were identified in terms of referrals to antenatal services, in particular, lower referrals for antenatal visits and subsequent coverage of 4 and 8 visits were observed in women whose newborns were diagnosed with malformations.
- The influence of maternal age and anamnesis on the development of malformations was identified.
- According to 2020 data, about half of all pregnancies with malformations are unplanned pregnancies.