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Maternal outcomes during the COVID-19 Pandemic: A Retrospective analysis of the last 5 years

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Abstract

Aim: Coronavirus disease-2019 has caused a significant health crisis all over the world. This study aimed to compare obstetric and gynecological data during the COVID-19 pandemic period with the previous three years.

Material and Methods: For this purpose, over a 5-year period, from January 2017 to December 2021, patient records from the hospital's electronic data registry were scanned. The extracted data included the number of patients admitted to the outpatient clinic, the number of emergency outpatient visits, the number of patients inserted and removed with an intrauterine device (IUD), abortions, premature rupture of membranes (PROM), intrauterine fetal death (IUFD) and vaginal delivery and cesarean section.

Results: The number of patients who underwent IUD removal decreased in the last two years. Also, the number of patients who underwent IUD insertion in 2020 was very low compared to other years ($p<0.01$, for all). It was observed that the number of patients diagnosed with PROM decreased in the last three years ($p<0.01$, for all). There was a statistically significant decrease in the total number of deliveries in the last two years ($p<0.01$).

Discussion: In conclusion, it is seen that the number of outpatients, the number of emergency outpatients, the number of IUDs removed and the total number of deliveries have decreased in the last two years compared to the previous three years. This may be related to the coronavirus infection, which has caused the pandemic for the last two years.

Keywords

COVID-19, Pregnancy, Vaginal Delivery, Cesarean Section, Abortion, Outpatient Clinic, Emergency Clinic

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Introduction

Coronavirus disease-2019, which caused a significant health crisis all over the world, was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (available at: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020). The COVID-19 pandemic has adversely affected the physical capacities of healthcare providers and the workload of healthcare personnel. Various organizational changes were made in inpatient treatment institutions due to the high risk of transmission, some clinics were closed, new units were formed, and patient admissions and surgeries were restricted (available at: https://data.unicef.org/topic/maternalhealth/covid-19/. While evaluating the direct effects of the pandemic on women's health, its indirect effects should also be taken into account. Although the rates of death from COVID-19 in women of reproductive age are estimated to be low (available at: https://www.who.int/publications/i/item/Pulse survey on continuity of essential health services during the COVID-19 pandemic: interim report, 27 August 2020), it is necessary to assess what changes occur in morbidity due to the interruption of routine health services during the pandemic management and the decrease in the rate of admission to the hospital due to the anxiety of catching the disease [1]. Continuity of reproductive health services is very important for the protection of maternal, newborn, and adolescent health. Particularly, conscious family planning, antenatal care and controls, keeping high-risk pregnancies under control, and intervention for complications are closely related to timely access to health services (available at: https://www.who.int/publications/i/item/Pulse survey on continuity of essential health services during the COVID-19 pandemic: interim report, 27 August 2020). During the pandemic, the WHO reported that hospital admissions for non-communicable diseases were interrupted by 24-64%. Naturally, this situation is reflected in elective surgeries and non-emergency outpatient clinic applications in obstetrics clinics (available at: https://www.who.int/publications/m/item/Rapid assessment of service delivery for NCDs during the COVID-19 pandemic)

This study aimed to compare obstetric and gynecological data during the COVID-19 pandemic period with the previous three years. Also, this study aimed to analyze the patients, who admitted to the obstetrics, gynecology, and emergency outpatient clinic of our hospital in the last five years, including the pandemic period. For this purpose, obstetric and gynecological data for the last five years recorded in the hospital computer system were evaluated retrospectively.

Material and Methods

This study was conducted after obtaining permission from the Ethics Committee of Erzurum Training and Research Hospital, Erzurum, Türkiye. This was a retrospective descriptive study carried out in the Erzurum Training and Research Hospital, University of Health Sciences in Turkey, involving all patients, who were admitted to the Obstetrics and Gynecology Clinics from 1st January 2017 to 31st December 2021. The hospital is located in the Central Region and is the highest referral center for the East Regions of Turkey. It is an 1100-bed facility, of which 120 are dedicated to the Obstetrics and Gynecology department, with bed occupancy of 90%. Over six thousand deliveries are conducted annually with an average cesarean section rate of 20%.

Over a 5-year period, from January 2017 to December 2021, patient records from the hospital's electronic data registry were scanned and all eligible candidates were enrolled. Inclusion criteria were Obstetrics and Gynecological Clinic admission and complete management data. The exclusion criteria were incomplete management data. The extracted data included the number of patients admitted to the outpatient clinic, the number of emergency outpatient visits, the number of patients inserted and removed with an intrauterine device (IUD), abortion, premature rupture of membranes (PROM), intrauterine fetal death (IUFD) and vaginal delivery and cesarean section.

The data were analyzed using the SPSS version 13 software. The results were presented as mean (standard deviation), number, and percentages (%). To test the normality of the data, the Kolmogorov-Smirnov test was used. The Chi-square test was used for data analysis and P <0.05 was considered statistically significant.

Results

The annual distribution of patients examined in the outpatient clinic and emergency outpatient clinic is presented in Figure 1.

It was observed that the number of patients examined in the two units decreased in 2020 and 2021, and more dramatically in the last 1 year (p<0.01). The number of patients who underwent IUD removal decreased in the last two years. Also, the number of patients who underwent IUD insertion in 2020 was very low compared to other years (p<0.01, for all) (Figure 1). It was observed that the number of patients diagnosed with abortion decreased in 2020, the number of patients with abortion increased in 2021, and the number of patients diagnosed with PROM decreased in the last three years (p<0.01, for all). On the other hand, the number of patients diagnosed with IUFD did not change throughout the years, (Figure 2).

While there was a statistically significant decrease in the total number of deliveries in the last two years (p<0.01), there was no change in the rates of cesarean, vaginal, and primary cesarean deliveries in the last 5 years (Table 1).

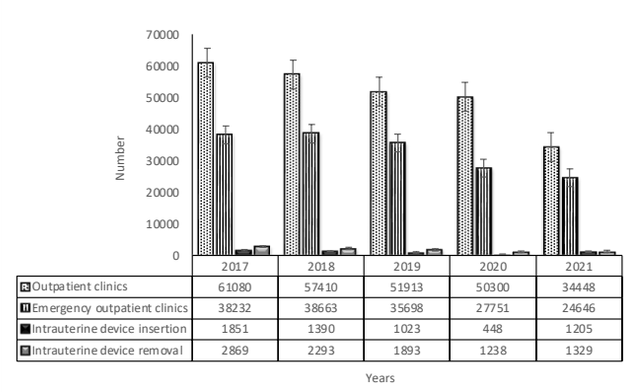


Figure 1. Distribution of the number of patients, who applied to outpatient clinic and emergency outpatient clinic and who had an IUD inserted and removed in the last five years.
*p<0.001, when compared to other years.

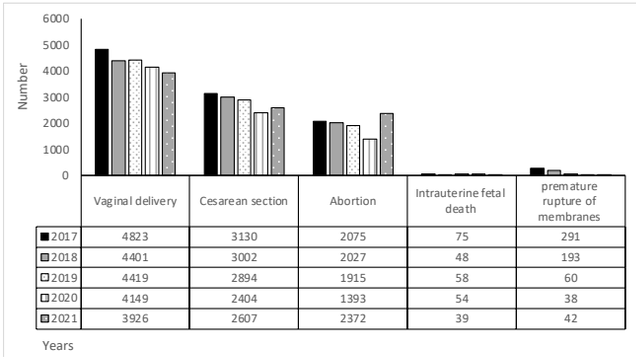


Figure 2. Comparison of the numbers of vaginal delivery, cesarean section, abortion, intrauterine fetal death and premature rupture of membranes in the last five years.
*p<0.001, when compared to other years.

Table 1. The total number of deliveries, vaginal deliveries and cesarean and primary cesarean sections in the last 5 years

Year	Total deliveries n	Vaginal deliveries n (%)	Cesarean deliveries n (%)	Primary cesarean deliveries n (%)
2017	7953	4823 (60.64%)	3130 (39.35%)	1413 (17.76%)
2018	7403	4401 (59.44%)	3002 (40.55%)	1412 (19.07%)
2019	7313	4419 (60.42%)	2894 (39.57%)	1292 (17.66%)
2020	6553	4149 (63.31%)	2404 (36.68%)	1032 (15.74%)
2021	6533	3926 (60.09%)	2607 (39.90%)	1016 (15.55%)

Discussion

In this study, obstetric and gynecologic data for two years before the pandemic and three years after the onset of the pandemic were evaluated. During the pandemic process, gynecology and obstetrics polyclinics worked much more dynamically than other disciplines. Despite this, the number of patients admitted to our outpatient clinic gradually decreased towards the end of the pandemic. There were significant curfews, quarantines, and social environment restrictions in the year the pandemic started. The number of hospital admissions decreased gradually in the following years, probably because people saw those in their close circles affected by the disease [2,3]. The reason for this may be the explanation of protection measures in hospitals, the media, and all institutions of the society, the decrease in people's traffic, the restriction of public transportation, and the fact that patients do not come to the hospital for simple complaints and that they see hospitals as potential areas for the transmission of the COVID-19 virus [4,5]. Interestingly, when the data are examined, a very significant decrease is observed in the number of applications to our emergency outpatient clinic. The results of Nouzarri et al.'s study are also in this direction [6]. We thought that the number of patients who applied to the emergency department decreased because of the anxiety of contracting the disease when the reason for the application was a matter that they could cope with themselves. This may be a warning that we should be more selective in accepting real emergencies in normal times and that we should reconsider our patient admission protocols. However, this may also cause delays due to deferred maintenance in the future. For example, in a systematic review and meta-analysis on the COVID-19 pandemic, it was found that the rate of ectopic pregnancy requiring surgical treatment due to delayed admission increased by 26% [7].

In this present study, it was observed that the total number of births decreased gradually in the last five years. However, no change was detected in the cesarean and vaginal delivery rates. The study by Goyal et al. also supports this finding [3]. On the other hand, while the number of abortions decreased in 2019 and 2020, they increased significantly in 2021. This leads us to ask whether pregnant women were exposed to more infections because they relaxed the measures. In a study conducted in Mexico, it was found that there was a 25% decrease in the number of unwanted children and related abortions, possibly due to decreased sexual activity [8].

In the second year of the pandemic, the rates of IUD insertion and removal decreased significantly and increased again through normalization in the last year. This behavior may be related to the fact that women postpone this non-urgent intervention [1] and especially the decrease in the IUD removal process due to families' unwillingness to have children during the distressing pandemic period. In a study on postpartum contraception planning during the pandemic period, a significant decrease was observed in hospital admissions with the request for contraception when compared to the pre-covid cohort [9].

The reflection of all these is also observed in the number of births. The number of both cesarean and vaginal births has gradually decreased, and this may be related to the decrease in the patient referral from the periphery due to the pandemic. The decrease observed in PROM rates can be attributed to the fact that pregnant women show less physical activity, stay at home more, and working pregnant women are given administrative leave by making positive discrimination. In the study conducted by Philip et al. [10] in Ireland, it was shown that the decrease in the rate of preterm births was due to the fact that pregnant women were exposed to less work stress and involved in less physical activity. In a study by Rasmussen et al. [11], the effect of influenza on preterm birth was shown. Premature births have also decreased as pregnant women take stricter isolation and protection measures during the pandemic, reducing the possibility of catching influenza. A study conducted in Spain shows that staying at home changes the lifestyle of pregnant women and reduces physical activity [4]. A decrease in stillbirth rates was observed, although not very significant. While IUFD rates were 0.9% in 2017, it was 0.6% in 2021. This decrease can be due to the same reasons. However, in the studies performed by Khalil et al. [12,13], a significant increase in stillbirth rates was detected during the pandemic. Although they did not detect COVID-19 in any of the stillbirths, they attribute this to the fact that 90% of the pregnant women were asymptomatic. We believe that this change in stillbirth rates is caused by social behavior differences during the pandemic.

Conclusion

It is seen that the number of outpatients, the number of emergency outpatients, the number of IUDs removed and the total number of deliveries have decreased in the last two years compared to the previous three years. This may be related to the coronavirus infection, which has caused the pandemic for the last two years.

Scientific Responsibility Statement
The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement
All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest
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