

EVALUATION OF THE IMPACT OF THE COVID-19 PANDEMIC PROCESS ON THE TYPE OF BIRTHS PERFORMED AT SIVAS CUMHURIYET UNIVERSITY OBSTETRICS AND GYNECOLOGY HOSPITAL

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Keywords

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ABSTRACT

The COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, has emerged as one of the most significant global health crises in recent history. This study aims to evaluate the effect of the pandemic process on the delivery type of a group of women who gave birth in Cumhuriyet University Faculty of Medicine, Gynecology and Obstetrics Hospital. Our study was prepared in a retrospective screening style, and 2804 births were included. Sociodemographic information of all participants, their way of giving, gestational week, birth, baby and birth weight of their babies were questioned. Of all the participants included in the study (births 1 year before the pandemic and in the 1-year period including the first year of the pandemic), 33.9% (n:951) had a normal delivery, and 66.1% (n:1853) had a cesarean section. 42.8% (n:1199) of births occurred in the first year of the pandemic, 57.2% (n:1605) before the pandemic. While the rate of cesarean section was 45.3% (n:839) among all deliveries in the year before the pandemic, the rate of cesarean section among all deliveries in the first year of the pandemic was 54.7% (n:1014) and was found to be significantly higher ($p < 0, 05$). After women are informed about the epidemic, normal birth should be encouraged, their concerns about the pandemic should be eliminated, and cesarean section should be avoided unless necessary.

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INTRODUCTION

The COVID-19 pandemic, a global health crisis in early 2020, has had profound implications on numerous aspects of society, including healthcare systems, economic structures, and daily routines. Amidst this backdrop of unprecedented challenges, the realm of childbirth has not remained untouched. The pandemic's far-reaching effects have extended to the very fabric of birth experiences, prompting a need for in-depth evaluation and analysis¹⁻³.

The process of childbirth is a deeply personal and significant milestone in the lives of individuals and families. It encompasses not only the biological act of bringing a new life into the world but also the emotional, psychological, and societal dimensions of motherhood, family dynamics, and healthcare practices³. With its swift and often unpredictable nature, the pandemic has engendered a host of modifications across these dimensions, reshaping the contours of childbirth experiences in previously unimagined ways⁴⁻⁶.



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As we navigate the complexities of the pandemic and its ongoing repercussions, it is crucial to ascertain the implications for maternal health, newborn well-being, and the broader healthcare infrastructure. By examining how the pandemic has altered the trajectories of childbirth experiences⁷, we can derive valuable insights that inform healthcare policy, shape clinical practices, and support individuals and families as they navigate the intricate terrain of pregnancy and birth during these unprecedented times.

This publication aims to delve into the intricate interplay between the COVID-19 pandemic and the methods, preferences, and outcomes related to childbirth by exploring the multifaceted impacts of the pandemic on the type of births.

MATERIALS AND METHODS

The study aims to assess the potential impact of the COVID-19 pandemic on the distribution and characteristics of births. A retrospective observational study design was employed, utilizing birth data from pre-pandemic and pandemic periods. Ethical approval for the study was obtained from the Sivas Cumhuriyet University Noninvasive Clinical Research Ethics Committee. All data analyzed were anonymized to ensure the privacy and confidentiality of the individuals involved.

This dataset contained demographic information, including maternal age, gestational age, delivery method, and birth weight. Patients with incomplete file data were excluded from the scope of the study.

The study was divided into two periods: pre-pandemic (March 2019 – March 2020) and the first year of the pandemic (March 2020 – March 2021). This division allowed comparing birth trends before and during the pandemic.

Statistical Analysis

Statistical tests were conducted to determine the significance of observed differences between pre-pandemic and pandemic birth characteristics. Depending on the nature of the data, an independent sample t-test was used to determine the relationship between women's birth timing (pre-pandemic and the first year of the pandemic) and their ages and birth weights. Additionally, a Mann-Whitney U-test was employed to identify the relationship between gestational periods. Pearson's Chi-Square analysis was conducted to determine whether the number of cesarean births,

normal births, and first births differed significantly based on birth timing. The significance level for the research was set at $p < 0.05$.

RESULTS

To assess the impact of the COVID-19 pandemic on the type of births, we collected and analyzed data from covering the period from March 2019 to March 2021. The dataset comprised 2851 of birth records. 47 patients were excluded from the study due to insufficient data.

Upon analyzing the birth data, we observed notable shifts in birth trends during the COVID-19 pandemic compared to the pre-pandemic period. The following key findings were identified (Table 1).

The study included 2804 pregnant women who gave birth in one year before the pandemic and in the first year of the pandemic. The average age of women giving birth before the pandemic was 29.1 ± 5.7 , while the average age of women giving birth during the pandemic was 29.0 ± 5.8 . The average gestational week for women giving birth before the pandemic was 37.5 ± 2.6 , whereas the average gestational week for women giving birth during the pandemic was 37.9 ± 2.4 . The average birth weight of babies before the pandemic was 3041.9 ± 648.1 , while the average birth weight of babies during the pandemic was 3304.6 ± 595.2 .

Before the pandemic and during its first year, out of all women who gave birth, 951 (33.9%) had normal deliveries, while 1853 (66.1%) had cesarean sections. Among all births, 1199 (42.8%) occurred before the pandemic, and 1605 (57.2%) occurred in the first year of the pandemic. Among the women, 964 (34.4%) had their first births, while 1840 (65.6%) had second or subsequent births. Before the pandemic, there were 360 (30.0%) women who had their first normal delivery, while in the first year of the pandemic, 591 (36.8%) women had normal deliveries. Additionally, before the pandemic, 839 (70.0%) women had their first cesarean section, while in the first year of the pandemic, 1014 (63.2%) women had cesarean deliveries.

Before the pandemic, out of the 1199 births, 404 (33.7%) occurred between the 20th and 37th gestational weeks, while 795 (66.3%) occurred between the 38th and 42nd gestational weeks. In the first year of the pandemic, out of the 1605 births, 1130 (70.4%) occurred between the 20th and 37th gestational weeks, while 425 (29.6%) occurred between the 38th and 42nd gestational weeks.

Table 5. General information about pregnancy, birth and demographic characteristics of patients

	Before Pandemic (n=1199) (%)	During Pandemic (n=1605) (%)
Age (years)	29,1 ± 5,7	29,0± 5,8
Gestational week	37.5±2.6	37.9±2.34
Birth wight of babies	3041.9±648.1	3104.6±595.2
Number of Delivery		
• 1	426(44.2%)	538 (55.8%)
• 2 and over	773(42.0%)	13 (16,5%)
Number of Abortus		
• No	858 (41.4%)	1216 (58.6%)*
• 1 and over	341 (46.7%)	389 (53.3%)
Type of Delivery		
• Vaginal Delivery	360(30.0%)	591(36.8%) *
• Cesarean Section	839(70.0%)	1014(63.2) *
Type of Delivery		
• Vaginal Delivery	148(41.1)	212(58.9)
• Cesarean Section	278(46.0)	326(54.0)
Birth Week		
• Between 20-37 Week	404(33.7%)	475(29.6%)
• Between 38-42 Week	795(66.3%)	1130 (70,4%)
Birth Weight		
• 1500 gr and below	34(2.8%)	29(1.8%)
• Between 1501-2500gr	185(15.4%)	203 (12.6%)
• Between 2501-4000gr	915(76.3%)	1306(81.4%)
• 4001gr and over	65(5.4%)	67 (4.3%)

* $p < 0.05$, Chi-square test

When considering all births, there was no significant difference in the ages of mothers who gave birth before the pandemic compared to the first year of the pandemic. However, when looking at the average ages, it was observed that mothers giving birth during the first year of the pandemic were slightly younger ($p > 0.05$).

The indication for cesarean section in the first birth significantly increased as the number of delivering patients increased ($p < 0.05$). There was no significant difference in the weeks of gestation between births before the pandemic and during its first year ($p > 0.05$). Babies born during the first year of the pandemic were found to be delivered later than those born before the pandemic, with statistical significance ($p < 0.05$), but there was no significant difference in birth weights between babies born before the pandemic and during its first year ($p > 0.05$).

Babies born during the pandemic had a slightly higher birth weight than babies born before the pandemic ($p > 0.05$). No significant relationship was found between cesarean indications and the number of abortions in both groups ($p < 0.05$). In the first year of the pandemic compared to before the pandemic, there was a significant increase in both the number of normal births and cesarean births ($p < 0.05$). The number of normal

births approximately doubled during the first year of the pandemic compared to before the pandemic (Table 1).

DISCUSSION

The present study aimed to evaluate the impact of the COVID-19 pandemic process on the type of births, considering various dimensions such as birth rates, birth outcomes, and maternal healthcare utilization. Our findings reveal several noteworthy trends and implications that shed light on the multifaceted influence of the pandemic on the birthing process.

The overall birth rate exhibited an increase during the pandemic compared to the pre-pandemic period. Specifically, there was a percentage 40 in the birth rate. When evaluating the impact of the pandemic on birthing methods among women, it was found that the rate of cesarean deliveries had increased compared to the pre-pandemic period. It was observed that births occurring during the pandemic year had higher gestational weeks and average baby weights than the previous year. We concluded that this increase in the number of

births could be attributed to cases where deliveries not performed in the public hospital due to the outbreak were referred to the university hospital.

When evaluating the impact of the pandemic on women's birthing methods, it was found that the rate of cesarean deliveries had increased compared to the pre-pandemic period. Births during the pandemic year were observed to have a higher gestational week and a higher average baby weight compared to the previous year. We concluded that this increase in the number of births could be attributed to cases where deliveries not conducted at the public hospital due to the outbreak were referred to the university hospital.

In a study conducted by Mutlu et al., it was determined that 60.6% of the births were before the pandemic, and 39.4% were after the pandemic⁸. According to data from the Turkish Ministry of Interior's Population Directorate, of the total births that occurred in 2019 and 2020, 51.7% were in 2019 (pre-pandemic), and 48.3% were in 2020 (during the pandemic)⁹. In our study, we found that 42.8% of the births were a year before the pandemic, and 57.2% were in the first year of the pandemic. The reason for this increase could be the referral of patients who did not give birth at the public hospital due to the outbreak to the university hospital.

In a study by Eleje et al. conducted in Nigeria during three months of the pandemic, when they compared cesarean delivery rates to the pre-pandemic period, they found that cesarean rates had decreased compared to the pre-pandemic period, from 46.8% to 40%¹⁰. In contrast, in a study by Mutlu et al.⁸, they found that 40.5% were normal deliveries and 59.5% were cesarean deliveries during the first year of the pandemic. Cai et al., in a research covering the first six months of the pandemic year and involving the detailed evaluation of the delivery methods of 1019 pregnant women, found that 59.71% were cesarean deliveries and 40.29% were vaginal deliveries¹¹. In our study, during the first year of the pandemic, we found that cesarean delivery rates were higher (36.8%) compared to the pre-pandemic period (30%).

In a survey conducted by Şenol et al., the average gestational week was 38.23 ± 1.84 ¹². In a study by Janevic et al.¹³ involving 8026 pregnant women, they found that the preterm birth rate was 8.8% before the pandemic and 8.9% during the pandemic year. Llorca et al.¹⁴ conducted a study involving 969 pregnant women before the pandemic and 1168 pregnant women during the

pandemic year. This study found a preterm birth rate of 6% before the pandemic and 5% during the pandemic year. Consistent with the literature, our study found an average gestational week of 37.5 weeks before the pandemic and 37.9 weeks during the first year of the pandemic. The preterm birth rate was 33.7% before the pandemic and 29.6% during the first year of the pandemic. The pandemic process resulted in a decrease in preterm birth rates. Given these results, we attribute the higher preterm birth rate to the fact that we are a university hospital (tertiary care).

Several limitations of our study warrant consideration. Firstly, our analysis is based on retrospective data, which inherently carries biases and constraints regarding data accuracy and completeness. Additionally, the research predominantly focuses on quantitative trends, and qualitative insights from birthing individuals and healthcare providers could provide a more holistic understanding of the pandemic's impact. As the pandemic continues to evolve, longitudinal studies are required to assess the persisting effects and potential recovery trajectories.

CONCLUSION

In conclusion, our evaluation of the impact of the COVID-19 pandemic process on the type of births underscores the complex interplay of socioeconomic, psychological, and healthcare-related factors. The observed deviations in birth rates, birth outcomes, and maternal healthcare utilization emphasize the need for adaptive healthcare policies and support systems that can address the evolving needs of expectant mothers during times of crisis. As we navigate the post-pandemic landscape, continued research and interdisciplinary collaboration are imperative to inform evidence-based strategies for enhancing maternal and neonatal health in the face of unforeseen challenges. Overall, this study contributes to understanding how a global pandemic can reverberate through the very fabric of birth processes.

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Conflict of Interest

No conflict of interest is reported by the authors.

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