

The Impact of Cesarean Birth Complications on Maternal and Infant Health in the World and Türkiye

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INTRODUCTION

- ✗ The cesarean section delivery (CS) stands as a paramount intervention in contemporary obstetrics, addressing myriad medical conditions and scenarios. The procedure entails delivering a fetus via an incision made in both the abdomen and uterus.¹ A systematic analysis highlighted that Türkiye's estimated overall and primary cesarean rates notably exceed the WHO's advised benchmarks.²
- ✗ Vaginal deliveries have a maternal mortality of 0.9%, whereas cesarean deliveries present a heightened 2.7% rate.³ Although the increased morbidity associated with CD vis-à-vis vaginal delivery is well-recognized, neonatal risk evaluations are somewhat inconclusive.⁴
- ✗ The current research endeavors to deeply explore the complications inherent in CS, forecast prospective patterns, and provide insights rooted in data from both global and Türkiye sources for informed decision-making.

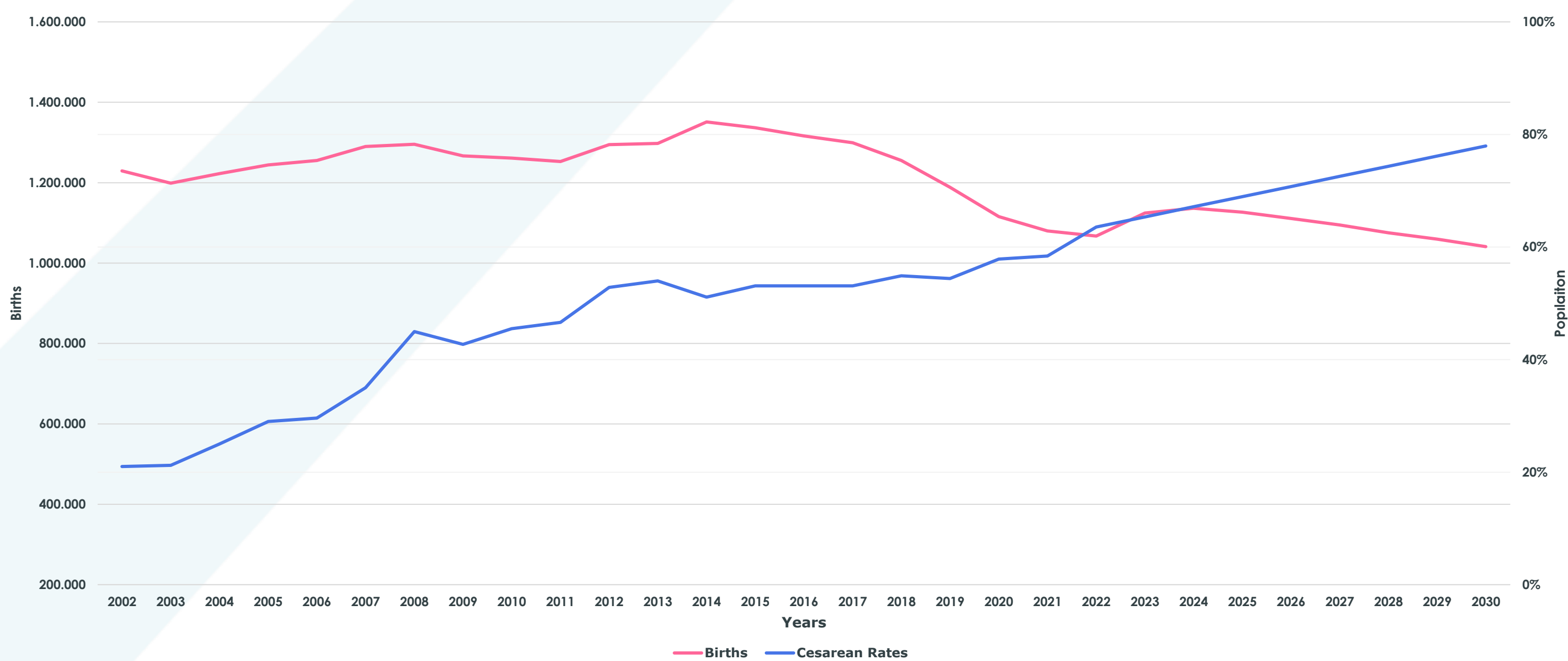
METHOD

- ✗ This research undertook an integrative methodology to holistically address the set research objectives. The amalgamation of data drew from diverse research designs, namely cross-sectional, retrospective, and observational studies. The literature search encompassed publications from the period of 1992 to 2023, ensuring a comprehensive temporal scope. Inclusion of both global and Türkiye-specific data augmented the breadth and contextual relevance of the study. A meticulous systematic review and meta-analysis of the literature was undertaken to discern maternal and neonatal complication rates linked with cesarean deliveries. This was complemented by an in-depth statistical evaluation.
- ✗ To anticipate future trajectories in CS rates and subsequent complications, projection modeling techniques were utilized. Projections for cesarean CS rates post-2022 were formulated using advanced forecasting techniques in Microsoft Excel. For these estimations, data spanning from 2002 were incorporated into the calculations.
- ✗ The research consistently adhered to ethical standards throughout the data acquisition and analytical phases.

RESULTS

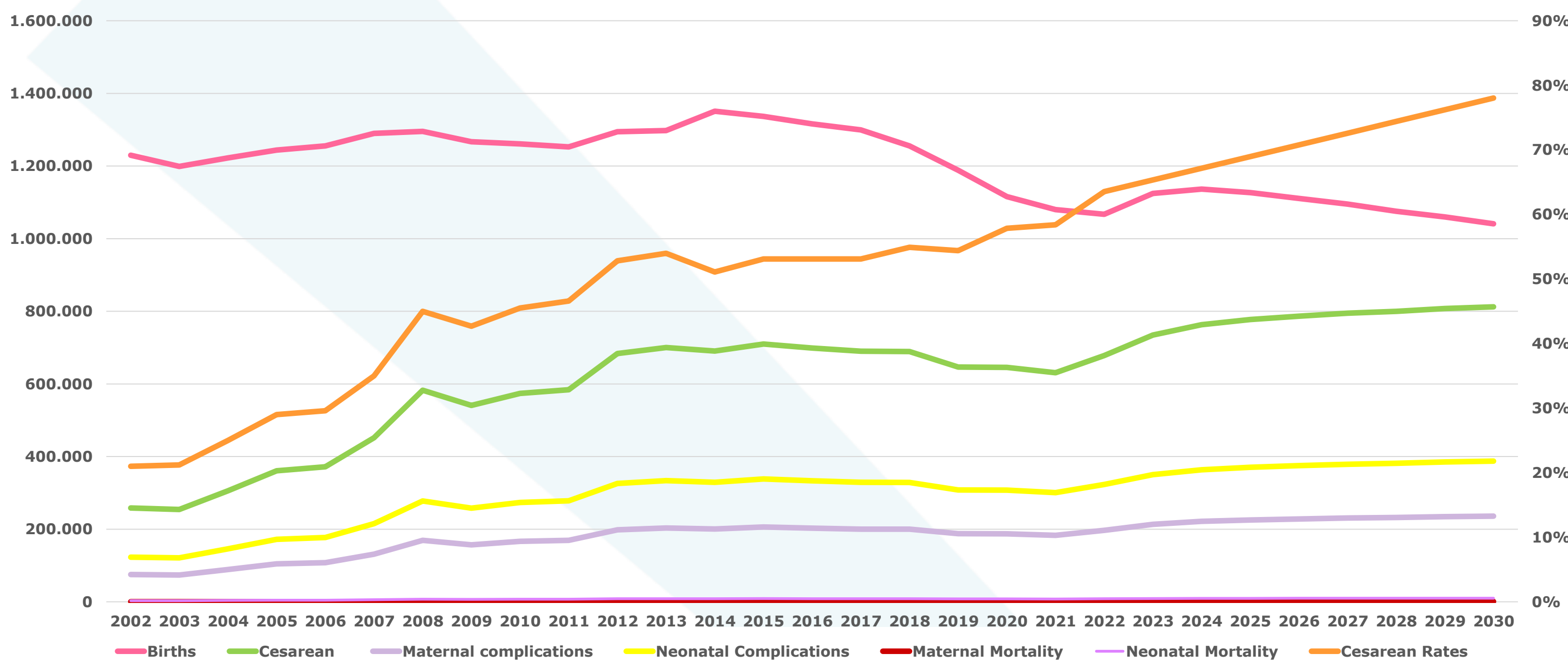
Cesarean Rates in Türkiye: Historical and Projected Trends from 2002 to 2030

- ✗ The cesarean section delivery (CS) rate witnessed a gradual increase over the years. In 2002, out of a total of 1,229,555 births in a population of 65,145,357, the cesarean rate stood at 21.00% with 258,207 CS. The CS rate witnessed a gradual increase over the years. By 2012, the CS rate had risen to 52.82%, with 683,839 CS from a total of 1,294,605 births in a population of 75,627,384. The highest recorded cesarean rate in this period was in 2022, with a rate of approximately 63.54%.
- ✗ The CS rate is projected to continually increase. By 2023, the rate is estimated to be around 65.35% with 734,763 CS from a total of approximately 1,124,421 births in a population of around 86,907,367.
- ✗ The projections suggest a trend towards a gradual increase in the CS rate, culminating in a rate of approximately 77.96% by the year 2030. This is anticipated to translate to about 811,680 CS from an estimated total of 1,041,096 births in a population of roughly 93,328,574.



Evolving Cesarean Rates and Associated Complications in Türkiye: A Comparative Analysis from 2002 to 2030 Projections

- ✗ In 2002, Türkiye reported a cesarean rate of 21.00% with 1,229,555 total births, out of which 258,207 were CS. Maternal complications were noted at 74,906, while neonatal complications, accounting for both Türkiye and global data, amounted to 123,068. The maternal and neonatal mortality rates were 175 and 3,193, respectively.
- ✗ By 2021, the CS rate had risen to 58.40% from the total 1,079,842 births. CS amounted to 630,628, reflecting an increase of about 144% since 2002. Maternal complications had grown to 182,945, whereas neonatal complications surged to 300,573, representing increases of 144% and 144% from 2002 respectively. Maternal mortality stood at 427, while neonatal mortality reached 7,799.
- ✗ Projecting to 2030, the CS rate is forecasted to climb further to 77.9%, with a total of 1,041,097 births. CS are expected to touch 812,357, marking an approximate 215% rise from the 2002 figure. Maternal complications are projected at 235,468, while neonatal complications are predicted to be around 387,190. The estimated maternal and neonatal mortality rates by 2030 are 550 and 10,047 respectively.



CONCLUSIONS

- ✗ In the span from 2002 to 2021, Türkiye witnessed a significant rise in CS rates from 21.00% to 58.40%. While the total number of births decreased slightly, cesarean deliveries increased dramatically by approximately 144%. This rise was also mirrored in the growth of maternal and neonatal complications, both escalating by roughly 144% over the same period.
- ✗ Notably, the mortality rates for both mothers and neonates have seen increases, though maternal mortality showed a more tempered growth.
- ✗ Looking forward to 2030, projections indicate a continuation of this trend, with CS rates expected to reach an astounding 77.9%. If these trends persist, the healthcare system in Türkiye may face mounting challenges related to maternal and neonatal health, emphasizing the need for critical evaluation and possible interventions in obstetric care practices.

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Abbreviations: CS:Cesarean Section Delivery

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