

## BRIEF REPORT

# The first Italian COVID-19 lockdown reduced births and voluntary terminations by just under a fifth

The Italian COVID-19 lockdown, from 11 March to 16 May 2020, led to an economic crisis, social uncertainty and stress. It also limited access to health services, including pregnancy follow-up visits, with a possible rise in poor outcomes for women and newborn infants. However, limited data are available on the number of births and perinatal outcomes of pregnancies that began during the lockdown period.<sup>1</sup> We hypothesised that lockdown would have reduced the number of pregnancies.

This cross-sectional observational study was conducted at the Institute for Maternal and Child Health, Trieste, Italy. It compared live births from 7 August 2020 to 20 February 2021, which was 24–42 weeks after the start of lockdown, with the same period in the previous year. We also compared voluntary terminations during lockdown with the same period in 2019. The secondary outcome was the association between COVID-19 restrictions and perinatal outcomes, compared with the previous year.

We performed a retrospective chart review of the births using the data registered in the national administrative form routinely completed after deliveries. Children who were not conceived between March 11 and May 16 of both years were excluded, as were late terminations for foetal abnormalities between those dates. All nonviable infants born with a gestational age of up to 23 weeks were categorised as stillbirths. The birth rates between the pandemic period and previous year were compared using the chi-square test. The analyses took into account the natural decreasing trend of 4% between 2018 and 2019 in our region, Friuli Venezia Giulia.<sup>2</sup> We also factored in the 5%–7% reduction in Italy nine months after the Chernobyl disaster, which was due to the fear of the possible and unknown consequences of the nuclear fallout on pregnancies across Europe.<sup>3</sup> Based on this trend, we felt that a 10% reduction in deliveries and voluntary terminations between the two periods would be significant. The study was approved by the Institutional Review Board of the hospital (RC 03/21).

We used the Student's *t* test or Mann-Whitney *U* test to evaluate differences in continuous perinatal outcomes between the two time periods and evaluated differences in categorical outcomes with the chi-square test or Fisher's exact test. A *p* value of <0.05 was considered significant. The statistical analyses were carried out with SPSS, version 21 (IBM Corp).

We reviewed 2529 clinical records and found that 308 and 247 infants were conceived during 11 March–16 May 2019 and 2020, respectively, and born 24–42 weeks after lockdown (Table 1). A number of factors could explain this reduction of 20%, including the impact that the economic recession and poverty had on the total fertility rate.<sup>4</sup> Psychological issues, such as the fear of getting infected, worries about complications during pregnancy and a shortage of healthcare workers, may also have had an impact. In addition, assisted reproductive services were closed from 1 March 2020. Lockdown could also have reduced paternal discrepancy, which is when a child is fathered by someone other than the man who thinks he is the father. This has been reported to vary from 0.8% to 30%.

Our study did not observe any statistical differences ( $p > 0.05$ ) in the preterm delivery rate, caesarean section rate and intensive care admissions, unlike previous reports.<sup>5</sup> This could be partially explained by the different timing of mitigation measures in countries, such as physical distancing and increased hygiene awareness. Substantial reductions in preterm births could also have been related to fewer infections, lower stress due to less physically demanding work, better sleep duration and reduced air pollution. The reduction in voluntary terminations, of almost 19% from 74 to 60, could be explained by reduced sexual activity and better family planning.

This study had some limitations. It was retrospective and comprised a limited number of pregnancies. Moreover, accurately identifying conception can be difficult because of significant variations in menstrual cycles. However, our aim was to compare the differences in the birth rate, which was already assumed to be decreasing in developed countries.<sup>1</sup> Finally, we could not assess the cause of these variations or measure maternal stress during the pandemic, which has been widely reported in the literature.

Italy was one of the first countries in Europe to be heavily affected by COVID-19, and this report analyses the impact that the lockdown had on childbirth, by comparing it to the data one year earlier. The reduction in the birth rate, of just under 20%, was approximately four times higher than the 4.5% reduction our region saw from 2018 to 2019.

Each country has unique characteristics when it comes to literacy, family planning, the prevalence of disease, mortality and morbidity and different trajectories in fertility and birth rates. However,

**TABLE 1** Live deliveries 24–42 weeks after the first Italian lockdown and voluntary terminations during lockdown. Data compared with same periods in the previous year

Gestational age (weeks + days)	Born 7 August 2019–20 February 2020 <sup>a</sup>	Born 7 August 2020–20 February 2021 <sup>a</sup>	Difference (%)
Term (37–41+6)	284 (92.2%)	229 (92.7%)	-19.4
Late preterm (32–36+6)	16 (5.2%)	13 (5.3%)	-18.8
Very preterm (28–31+6)	6 (1.9%)	4 (1.6%)	-33.3
Extremely preterm (24–27+6)	2 (0.6%)	1 (0.4%)	-50
Total live births	308	247	-19.8
Home delivery	1 (0.3%)	4 (1.6%)	+400
Stillbirth	2	3	+150
Intensive care unit admission	40 (12.9%)	23 (9.3%)	-42.5
Small for gestational age	28 (9%)	20 (8.1%)	-38.6
Caesarean section	58 (18.7%)	34 (13.8%)	-41.4
Assisted conception	8 (2.6%)	0 (0%)	N/A
	11 March–May 16, 2019	11 March–16 May 2020	
Voluntary terminations	74	60	-18.9

Note: Statistical significance  $p < 0.05$ .



<sup>a</sup>Conceived 11 March–16 May 2019 and 2020.

our data suggest that effective policies are needed to support the Italian birth rate during the COVID-19 pandemic.

Further studies are also needed, with larger cohorts and extended periods, to address parents' fears and concerns and to assess both the overall impact on the birth rate and the possible causes of variations over time.

## CONFLICT OF INTEREST

None.

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