

COVID-19 outbreak and decreased hospitalisation of pregnant women in labour



At a tertiary health-care level in India, which is mainly provided by medical colleges and advanced medical research institutes, specialised consultative care is given to patients who are referred from primary and secondary medical care, along with general care for the local community.¹ The maternal mortality ratio in India has reduced by 78%, from 556 per 100 000 livebirths in 1990 to 122 per 100 000 livebirths in 2015–17, mainly because of an increase in institutional deliveries (from 18% in 2005 to 79% in 2016) and an effective referral system for emergency obstetric care.² As per one estimate, for each maternal death, approximately 15 pregnancies develop complications that require tertiary obstetric care.³

As of June 2, 2020, India has reported about 198 706 cases and nearly 5598 deaths attributed to the novel COVID-19 pandemic. This current pandemic has resulted in the major allocation of health-care infrastructure and human resources, including emergency services and intensive care unit beds, for the care of patients infected with this virus; and little is known about how this change to the Indian health-care system has affected the care of pregnant women.

Although the implementation of a lockdown by the government slowed the community spread of COVID-19, it could have inadvertently affected the emergency obstetric care for referred women through the suspension of public transport, because most pregnant women in India still use public transport for emergency visits.⁴ Additionally, unprecedented apprehension because of the rapid spread of the pandemic might have resulted in hospital-avoiding behaviour among pregnant women.

We did a retrospective analysis of pregnant women across four hospitals in an integrated tertiary care medical college in western India during the 10 weeks after lockdown (March 25–June 2, 2020; lockdown was imposed on March 25, 2020) and compared the findings with a control period of the 10 weeks before lockdown (Jan 15–March 24, 2020, when the number of COVID-19 attributed deaths were ≤ 10).

Our initial analysis of women admitted during the lockdown period revealed a 43.2% reduction in

hospitalisation compared with the control period (3527 vs 6209) and a 49.8% reduction compared with the same calendar period from the previous year (3527 vs 7031; appendix). Referred obstetric emergencies also decreased by 66.4% (304 vs 905). This result was contrary to an expected increase in referred cases because of interrupted antenatal care among patients with high-risk pregnancies and the unavailability of emergency care at private health-care facilities, because most of these facilities were either leased by the government for patients with COVID-19 or they themselves refused to cater such referred patients in view of the shortage of paramedical staff and intensive care unit beds.

Among the pregnant women from the lockdown period, 37.03% underwent a caesarean section, which was significantly higher than the rate during the pre-lockdown period (of 6209 patients, 33.0% underwent a caesarean section; $p=0.04$). Compared with the pre-lockdown group, women delivering in the tertiary facilities after lockdown were more likely to be literate (64.4 vs 61.4%) and primigravidae (59.0 vs 44.0%). We also observed a significantly increased in-hospital mortality among pregnant women (0.20 vs 0.13%; $p=0.01$) and late intrauterine fetal death and stillbirth (3.15 vs 2.25%; $p=0.02$) during the post-lockdown period, compared with the pre-lockdown period.

These findings of substantially reduced numbers of pregnant women hospitalised for labour management at tertiary care centres suggest that the number of unattended deliveries and those at lower-level facilities has increased. Immense media coverage along with stay-at-home and physical distancing advice from public health officials during the initial phase of the pandemic might have led to hospital-avoiding behaviour among pregnant women even before the implementation of the lockdown. A decrease in the proportion of referred cases is even more alarming, as these are the women in whom timely intervention decreases the maternal and neonatal mortality. Hospitals are now perceived as reservoirs of severe acute respiratory syndrome *coronavirus 2* and women are avoiding hospital visits even when they require tertiary-level care; and, a

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For data on COVID-19 cases and deaths in India see <https://www.mohfw.gov.in/>

reduction of the availability of public transit systems during lockdown further hinders access to tertiary care for referred women from rural areas. This current study showed a substantial rise in late intrauterine fetal death and stillbirth, along with in-hospital maternal mortality, which might be because of the delayed presentation of women requiring emergency obstetric care.

The current case fatality rate for COVID-19 in India is approximately 2.9%, which is far less than that of other serious ailments, and we presume that many women with a complex pregnancy have died at peripheral centres, waiting too long for a timely referral. This consequence shows how a public health emergency like COVID-19 can indirectly and adversely affect unrelated serious diseases.

Given these findings, there is a dire need for patient educational campaigns and the encouragement of public health officials, media, and local physicians to address patients' apprehension, and to convey that it is safe to come to the hospital for emergency obstetric care, which if untreated, has a higher morbidity and mortality rate compared with COVID-19. Also, government and public health officials should ensure

separate and secure treatment pathways for the care of pregnant women, along with the provision of an adequate number of emergency ambulances at primary and secondary health-care facilities for patients in emergency obstetric care requiring urgent referral.

We declare no competing interests.

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