Utilization of Maternal and Child Health Care Services during COVID-19 Pandemic in India: Findings from a Multi-Centric Study

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Context: The global coronavirus (COVID-19) pandemic has affected lives in several ways across various populations and settings for over a year now. Last year, the pandemic forced countries to go into complete lockdown lasting for several weeks/months (Singh et al., 2020; REF # 13). Children and women in the reproductive ages may have shown lower prevalence and mortality rates due to COVID-19 (REF # 16 to REF # 19), they may face relatively higher disadvantage caused by disruption of routine health services (Robertson et al., 2020; REF # 2) as these services can neither be shifted nor postponed. Moreover, the pandemic has crippled the already inadequate, inaccessible, poor quality health care delivery system in the resource-poor-settings and thereby may have impacted lives of their populations enormously, directly and indirectly. The World Health Organization (WHO, 2018; REF # 12) stated that any epidemic inevitably monopolizes most of the health system resources which in turn may result in neglect of basic and regular essential health services making it harder to utilize them for those unrelated to the epidemic, sometimes leading to death.

Besides national/local lockdown, to deal with the ever growing demand for COVID-19 patients, hospitals and health care facilities are converted into COVID-19 patient care facilities (Horton, 2020; REF # 14) and at the same time staffs associated with these services are also being shifted to care for the COVID-19 patients (Kursumovic, Lennane and Cook, 2020; REF # 15). Such measures may have further complicated barriers to health care access, beside reduced financial, greater restrictions on mobility due to lockdown and closures of public transportation services and so on.

It is important to remind that for many expectant mothers and newborns in developing countries including India have been deprived of accessibility and availability of affordable quality maternal and child health care services, in general. In spite of this, much of the past reductions in levels of mortality among mothers and children has been attributed to the access to and utilization of quality antenatal, natal and post-natal care. Thus further squeeze in the infrastructure and potential constraints in movement due to strict protocols may negate the declining trend in the maternal and child mortality rates in some populations. Robertson et al. (2020; REF # 2) found that a disruption in routine health care could increase child and maternal deaths. Sten et al (2021; REF # 9) estimated additional 31,980 maternal deaths, 395,440 newborn deaths and 338,760 still births in the next year in India, Indonesia, Nigeria and Pakistan if they fail to maintain their current health care service use.

The present study assessed utilization of maternal and child health care services in five states of India, namely Assam (northeast), Bihar (east), Jammu & Kashmir (north), Karnataka (south) and Maharashtra (west).

About the study

The International Institute for Population Sciences (IIPS) and five population research centres (PRCs) collaborated and implemented the study using standard research methods. The data collection for the study was carried out between November 2020 and February 2021 by the trained research investigators of the respective PRCs. The information was sought in via face-to-face or telephone interviews from those who volunteered to participate in the study. The survey

collected information on socio-economic and demographic profile of the household and eligible women, utilization of antenatal, natal and postnatal women currently pregnant at the time of survey, all abortions, stillbirths and live births of the women during the period starting from January 2019; utilization of contraception and related services, child immunization services, health care services for sick children and Integrated Child Development Services (ICDS) services during the pandemic (Between March 1, 2020 and survey date). The study also asked women to report on outreach services related to maternal and child health provided to them by the health and anaganwadi workers during the pandemic. The study was implemented in one district of each of the five participating states (Kamrup in Assam, Patna in Bihar, Pulwama in Jammu and Kashmir, Pune in Maharashtra and Dharwad in Karnataka) and used a multi-stage stratified sampling design with probability proportional to size (PPS) within each of the sampling domains of urban and rural areas. The survey instrument was pre-tested before finalization. The field team members were trained for two-days on the study instrument prior to the data collection. The data was entered in CSpro with 100% double entry to avoid the data entry errors. The analysis was carried out STATA (version 16).

Sample size for analysis: A total of 2516 women aged 15-49 years were successfully surveyed in the five states. From them, 1357 live births, stillbirths, and abortions were enumerated during the reference period (January 1, 2019 to the February 2021); 670 of these cases occurred in pre-pandemic period (January 1, 2019 to March 31, 2020) and 687 during the pandemic (April 1, 2020 to the February 2021; Table 1). Additionally, 470 women were pregnant at the time of survey. A target sample of 500 eligible women aged 15-49 years were divided between urban and rural sample by allocating the sample proportionately to the population of these two areas according the district population share in 2011 census. A non-response rate of 30% was used to estimate the sample size to provide reliable estimates of targeted indicators with 95% confidence.

Findings: The study notes that more female children were born during pandemic period than the pre-pandemic period; the sex ratio at birth declined from 102 male children per 100 female children during pre-pandemic period to 91.5 during pandemic. During the same time, share of

births of higher order (3+) rose from 9.5% to 10.4%. Further, share of pre-term births in all livebirths and stillbirths rose from 6.6% to 9.2% during the same period. Compared to the pre-pandemic, lockdown period recorded higher share of stillbirths and abortions (11.6% versus 10.2%).

Ante-natal care (ANC), natal care (NC) and post-natal care (PNC) services: Of 1827 pregnancies between January 1, 2019 and February 2021, 1071 occurred during pre-pandemic and 756 during pandemic (Table 2). Although a few of the ANC components showed only a minor change over the periods, a few changed lower coverage during pandemic. For example, fewer mothers received Mother-Child Protection (MCP) card during pandemic (88.6% versus 96.8%) and reported monitoring of sugar levels (94.3% versus 97.7%) or haemoglobin levels (91.9% versus 97.9%). Further, fewer mothers received IFA tablets/syrup during pandemic (92.6% versus 95.9%). Although small change, percentage of mothers who had a sonography/ultrasound during the pregnancy declined from 99% to 98.4% during the same time.

The study results showed notable shift in place of delivery, from public to private health facilities; 44.5% of mothers delivered at a private health facility during pandemic than 36.7% during pre-pandemic period. Further, share of home deliveries nearly tripled during pandemic period (from 0.6% to 1 6%). Further rise in C-section deliveries during pandemic is worrisome; from 44.6 to 46.3%. One percent of the deliveries received unskilled attendance during pandemic. The study showed considerable drop in utilization of government facilities during the pandemic period. For example, only 21.8% of the mothers used government vehicles to reach health facility for delivery and ASHA accompanied 47.5% to the facility compared to 31.6% and 51.0%, respectively, during the pre-pandemic period. Nonetheless, mean duration of stay at health facility after delivery remained almost unchanged during both periods (3.5/3.6 days).

Fewer mothers sought treatment for a post-delivery/abortion complication during pandemic period and only 57.6% received their first postnatal checkup at a public health facility during pandemic period than earlier (67.9%). However, 99% of mothers received the postnatal checkup from doctor.

Money spent on delivery/abortion: On an average, families spent 13,497 rupees on delivery/abortion during pre-pandemic which increased to 16,484 during pandemic. Percentages of women who had free deliveries reduced from 23.9% to 18.3% during the same period. Further, those who spent more than 20000 rupees rose from 21.3% to 27.5% during the same period. Fewer women received Janani Suraksha Yojana (JSY) benefits during pandemic (27.4%) than the pre-pandemic period (46.0%).

Supplementary nutrition for mothers: The coverage of supplementary nutrition food to the expectant and lactating mothers lowered during pandemic. Share of mothers who rarely/never received supplementary nutrition from the ICDS increased from 21.3% to 28.4% during pandemic period. Conversely, fewer mothers received supplementary nutrition almost every day (20%) or most of the days (39.2%) during pandemic period than previously.

Child vaccination services: The study notes a consistent decline in coverage of vaccination among children during pandemic than the pre-pandemic period (Table 3); decline is rather huge for some vaccines. For example, only 66.5% of children aged two-months or older received first doses of Pentavalent and Rotavirus compared to 86.9% during pre-pandemic period. Similarly, coverage of second and third doses of Pentavalent and Rotavirus too reduced to 61.9% and 54.8%, respectively, during pandemic period. Vitamin A first dose had lowest coverage during pandemic period; less than 20% children received Vitamin A first dose during pandemic period than 64.7% during pre-pandemic period. Measles and Rubella coverage too reduced considerably during pandemic period (67.4%).

Only 40.6% and 55.1% children, respectively, received Vitamin A last dose and DPT booster. However, it is encouraging to note that the public health facilities continued to play significant role in child vaccination even during pandemic period as the percentage of children who received their vaccinations from a public health facility either remained unchanged or enhanced marginally. Nonetheless, percentages of children who received measles and rubella vaccine from a public health facility during pandemic declined to 83.9% as compared to 95.1% during pre-pandemic period.

Health care seeking for illness among children: Out of 1207 children born between January 1, 2019 and February 2021, 30.7% fell ill during pandemic (Table 4). Majority of the children suffered from cough and cold (68.7%), fever (60.9%) and diarrhea (12.9%). A little less than 4% of the children suffered from jaundice and another about 1% each from breathlessness/Asthma or Influenza. Overwhelmingly 98.4% of the children received treatment for illness and mostly from a health facility. Fewer than 1% of the children received home treatment only. Seven in every 10 children was treated at a private health facility. Families had spent a lot of money on child treatment. For example, 18.9% mothers informed that they spent more than 1500 rupees on the treatment of the child during pandemic period and another 26.6% spent between 501 and 1500 rupees. Only 18.9% of children received free treatment. While majority of the children (95.2%) had recovered from the disease at the time of survey, about 3.8% cases mothers reported that their child was still suffering from the disease. About 1% of cases mothers informed that the health condition of the child is worsening.

Difficulties experienced in seeking services during pandemic period: The study collected information on the difficulties faced by women/families in seeking various maternal and child health care services during pandemic (Table 5). The percentages of mothers who experienced difficulties in seeking ANC services nearly doubled from 10.2% in pre-pandemic period to 18.5% during the pandemic. Majority of the mothers reported that they faced difficulties in getting child vaccinated (82.8%) and treatment for the ill child (90.7%) during pandemic. Further, majority of the difficulties were related to the COVID-19 pandemic; lack of transportation due to suspension of public transport, lack of staff at facility, conversion of health facility into COVID-19 facility, long waiting time at facility, difficulty in movement due to lockdown/strict protocols, fear of infection and so on.

Outreach services to mothers and children: The outreach services by the ASHA to mothers and children have enhanced over the pandemic; Much higher percentages of the surveyed women reported that ASHA visited them and checked on their maternal health care needs. Further,

significantly higher percentages of women (82.3%) contacted ASHA for maternal health care services during the pandemic and almost received help from ASHA. Similarly, health workers (mostly ASHA) visited homes during the pandemic for services related to child vaccination and/or treatment of child illness. Nonetheless, in fewer cases ASHA provided them with medicines (62.7%) or arranged for vehicle (35.5%) or accompanied them to the facility (49.9%) during pandemic period than earlier (45.1% to 67.6%).

Summary and Conclusion:

The study findings suggest that the routine maternal and child health services were indeed disrupted during the pandemic in the surveyed states. It was noted that the coverage and quality of antenatal, natal and postnatal care services have shrunk during the pandemic in comparison to the previous year. Similarly, coverage of child vaccination declined during the pandemic period. While share of public health facilities has enhanced for child immunization and antenatal care services marginally, public sector role in providing treatment for ill children and for mothers for delivery and post-delivery/abortion care has narrowed. The private sector has emerged as an important contributor in meeting the health care needs of the sick children, and expectant mothers at the time of and after delivery/abortion. This has resulted in increased economic burden on families as they have to spend more money for treatment and delivery/abortion during the pandemic. This is crucial as any rise on maternal and child health care cost is likely to bring in additional burden on families, especially those from socio-economically vulnerable population groups, who are already facing economic burden due to reduced income as a result of reduced economic opportunities owing to frequent and long lockdowns enforced by federal/state/local authorities to curb the spread of the pandemic.