Original Article

Effect on essential health services during COVID-19 at the Primary level in India

Tarannum Ahmed[1], Neha Dumka[1], Deepak Bhagat[2], Erin Hannah[1], Atul Kotwal[3]

[1]Knowledge Management Division, National Health Systems Resource Centre, Munirka, New Delhi, [2]Centre of Social Medicine and Community Health, Jawaharlal Nehru University, New Delhi, [3]Executive Director, National Health Systems Resource, Ministry of Health and Family Welfare, India

Abstract

Background: Coronavirus diesease (COVID-19) led to increased demand on the Indian health system due to the pandemic as well as other communicable and non-communicable diseases. Guidance was thus issued by the Ministry of Health and Family Welfare (MoHFW), India, in April 2020 to maintain the delivery of essential health services. **Objectives:** To determine the extent of disruptions of essential healthcare services, identify associated factors, and establish pertinent correlations to address specific needs. **Methods:** The Mother and child tracking facilitation centre (MCTFC) conducted a telephonic survey with the front-line workers (FLWs) and beneficiaries in 21 Indian states. The sample size was determined using the infinite population sample size formula, and respondents were selected through a computer-generated random sequence technique. Data were quantitatively analysed using STATA-16. Descriptive univariate analysis was conducted using the Chi-square test. **Findings:** The majority of the essential health services were being satisfactorily delivered by FLWs (N = 1596; accredited social health activist (ASHA) = 798, auxiliary nurse midwife (ANM) = 798), where most of the beneficiaries (N = 1410; Pregnant Women = 708, Postnatal Women = 702) continued accessing services with minor issues concerning referral transport. FLWs reported issues in the provisioning of medicines (P = 0.000) for patients with non-communicable diseases and more ANMs than ASHAs reported it. FLWs commonly experienced challenges in extending services due to community resistance and unavailability of general health services at healthcare facilities, where a greater number of ASHAs faced it (P = 0.000). Both FLWs and beneficiaries (N = 3006; FLWs = 1596, beneficiaries = 1410) demonstrated appropriate COVID-19 knowledge and behavior. **Conclusion:** Although overwhelmed, the Indian health system performed satisfactorily well during pandemic in terms of essential health services.

Keywords: ANM, ASHA, COVID-19, essential health services, India, postnatal women, pregnant women, Primary level

Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), identified as the causative agent for the Coronavirus disease (COVID-19) has spread rapidly worldwide.[1] Globally, as of 30 August, 2021, there have been 216,303,376 confirmed cases of COVID-19, including 44,98,451 deaths, reported by WHO.[2] Although global vaccination efforts have successfully vaccinated 5,01,99,07,027 people worldwide, the population that needs to be vaccinated against the virus to initiate 'herd immunity' is unknown.[2]

The COVID-19 pandemic has generated a rapidly increasing demand on the health systems across the world.[3] Low and middle-income countries (LMICs) are particularly suffering several setbacks due to the heavy burden of disease and severely

Address for correspondence: Dr. Tarannum Ahmed, National Health Systems and Resource Centre, National Institute of Health and Family Welfare, Baba Gang Nath Marg, Munirka, New Delhi - 110 067, India.
E-mail: tarannum.ahmed@nhsrcindia.org

Received: 15-02-2022 **Revised:** 28-03-2022
Accepted: 30-03-2022 **Published:** 14-10-2022

Access this article online

Quick Response Code:

Website: www.jfmpc.com

DOI: 10.4103/jfmpc.jfmpc_390_22

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Ahmed T, Dumka N, Bhagat D, Hannah E, Kotwal A. Effect on essential health services during COVID-19 at primary level in India. J Family Med Prim Care 2022;11:5423-9.

under-resourced healthcare systems.[4] With several challenges subsequently plaguing the Indian health system, our health facilities and workforce are inundated by a plethora of activities related to controlling the pandemic.[3] When health systems are overwhelmed, both direct mortality from an outbreak and indirect mortality from vaccine-preventable and treatable conditions increase dramatically.[2] The Ebola outbreak is a prominent example of how outbreaks may disrupt essential health services, increasing mortality from preventable and treatable conditions.[5,6] As per general perception, the COVID-19 pandemic is highly likely to defer the delivery of essential health services owing to perceptions that health facilities may be infected. Previous studies have established that essential health services have been severely impacted in India and globally, and LMICs are witnessing the most disruptions.[7,8]

To mitigate the devastating impact of COVID-19 on the Indian health system, the Ministry of Health and Family Welfare (MoHFW), Government of India (GOI) issued guidance[9] in April 2020 to maintain the delivery of essential health services during the pandemic. The term "essential services" incorporates services for all areas, including reproductive, maternal, newborn, and child health (RMNCH), prevention and management of communicable diseases, treatment for chronic diseases to avoid complications and emergencies. A telephonic survey was conducted to assess the service delivery and access to essential non-COVID related services during the COVID-19 pandemic; identify the facilitators and barriers experienced by the front-line workers (FLWs) while delivering essential healthcare services during the COVID-19 pandemic, and determine the knowledge and practices of the FLWs and the beneficiaries related to the COVID-19 pandemic. The aim was to determine the extent of disruptions of essential healthcare services, identify associated factors and establish pertinent correlations which will potentially facilitate addressing and providing inputs for specific needs and considerations for essential health services in compliance with the GOI/MoHFW guidance in the context of the COVID-19 pandemic.

Methodology

In view of the ongoing pandemic, a telephonic survey was considered most appropriate. The Mother and Child Tracking Facilitation Centre (MCTFC), established by the MoHFW, GOI, undertook the survey using the contact details provided through an existing database. A semi-structured interview schedule was constructed and created with the help of a pre-existing software at MCTFC. A pilot study was conducted to test the study's reliability and validity in four states: Delhi, Punjab, Uttar Pradesh, and Kerala, and instruments were duly modified. The calling agents for respective regional dialects were recruited and trained on the objectives and survey tools. The agents were monitored for quality during the interviews. All responses were entered in a computer-based online form developed for this purpose, and data collected were stored back-end of the system automatically after the end of each interview.

Primary respondents for the assessment included the FLWs (ASHA and ANM) and the beneficiaries (women in their antenatal and postnatal period). The ASHA and ANM were specifically selected because they are community health workers instituted to deliver essential health services in the country. Women in their antenatal and postnatal periods were selected as RMNCH services, including a huge proportion of the essential health services delivered in India. Twenty-one (21) Indian States: Chhattisgarh, Haryana, Punjab, Andhra Pradesh, Uttar Pradesh, Rajasthan, Madhya Pradesh, Delhi, Bihar, Tamil Nadu, Kerala, Uttarakhand, Maharashtra, Odisha, Gujarat, Telangana, Assam, Karnataka, Jharkhand, Jammu and Kashmir, West Bengal were included based on the COVID-19 caseload as in April 2020. Likewise, one district within each state with the maximum caseload was selected for the study.

The sample size was determined using the sample size formula for an infinite population with a 95% confidence interval (CI) and a margin error of 5% using 1.96 z score for 95% CI. For that, 800 participants for each category were recruited. A computer-generated random sequence technique was used for the selection of respondents based on the list maintained by MCTFC to represent the target population and eliminate selection bias. Data were analyzed using STATA version 16. A descriptive univariate analysis was conducted using the Chi-square test for indicators that were common among a selected group of respondents. An alpha level of 0.05 was used to determine the statistical significance.

Ethical clearance was obtained from the Institutional Review Board, National Institute of Health and Family Welfare, New Delhi, India.

Findings

Delivery of essential non-COVID services

A univariate descriptive analysis concerning the service delivery variables established that despite the prevailing conditions, most of the essential services were satisfactorily delivered by the FLWs. Comparatively, the provision of medicines for non-communicable disease (NCD) patients and routine immunization (RI) services through outreach services were lower. Although the provision of medicines for NCD patients was lesser among both ASHAs and ANMs, more ANMs mentioned that they were unable to undertake it ($P = 0.000$). Similarly, RI through outreach was lower among both ASHAs and ANMs and lower among ANMs as compared to ASHAs ($P = 0.000$). A detailed account of service delivery reported by the FLWs is depicted in Table 1.

A survey conducted among the beneficiaries demonstrated that approximately 82% of pregnant women received their last antenatal care (ANC) at a health facility. Among which, a similar proportion received it at public and private facilities. Around 98% of women delivered at a health facility, and more than two-thirds delivered at a public health facility. Commonly

Table 1: Service Delivery Indicators – Frontline Workers and Beneficiaries

Front-line Workers	ASHA (*n*=798)	ANM (*n*=798)	*P*
ANC services	787 (98.7)	774 (97.1)	0.026
Support for institutional delivery	761 (95.5)	0	NA
Accompany institutional delivery	733 (91.2)	0	NA
Home-based newborn care	747 (93.7)	0	NA
Accompany sick newborn to facility	642 (80.6)	0	NA
Immunization services	772 (96.9)	778 (97.6)	0.369
Diarrhea in children	673 (84.5)	762 (95.6)	0.000
ARI/Pneumonia in children	660 (82.8)	715 (89.7)	0.000
Family planning services	769 (96.5)	769 (96.4)	1
Screening/referral/follow up on TB patients	667 (83.7)	671 (84.1)	0.785
Provision of DOTS to TB patients		643 (80.6)	
NCD screening	719 (90.2)	650 (81.5)	0.000
Medicines for NCD patients	559 (70.2)	493 (61.8)	0.000
Routine ANC services by VHSND/UHSND/MCHN	684 (85.8)	659 (82.7)	0.086
RI by VHSND/UHSND/MCHN	658 (82.5)	575 (72.1)	0.000
Distribution of IFA to ANC/PNC cases	0	766 (96)	NA
Counselling for family planning services	0	787 (98.7)	NA
Beneficiaries	**PW (*n*=708)**		**PNW (*n*=702)**
Received last ANC at home by ANMs	2 (0.3)		0
Received last ANC at a public health facility	270 (38.3)		0
Received last ANC at a private health facility	261 (37)		0
Received last ANC at a public health facility at a village/ward	46 (6.6)		
Delivered at home	0		18 (2.6)
Delivered at a public health facility	0		501 (71.4)
Delivered at a private health facility	0		183 (26.1)
Delivered at a private health facility/home due to delay in accessing services at public health facility	0		2 (0.3)
Delivered at a private health facility/home due to lack of services at a public health facility	0		58 (8.3)
Delivered at a private health facility/home due to lockdown (COVID-19)	0		61 (8.8)
Delivered at a private health facility/home due to preference	0		77 (11.1)
Received vaccination for the child after birth	0		626 (89.3)
Visited by ASHA during the postnatal period	0		456 (65)
Received IFA/Calcium in last two months	0		563 (80.3)
Received information/services related to family planning	0		207 (29.5)
Received a call to inquire about newborn's health status	0		219 (31.2)

cited reasons for delivering at a private health facility or home were the individual preference, lockdown, and lack of facilities at a public health facility. Approximately 90% mentioned their child received vaccination after birth and around 80% received calcium in the last two months. Roughly two-thirds were visited by the ASHAs in their postnatal period, and less than one-third received family planning information and calls to inquire about their child's health status. A detailed account of service delivery reported by the beneficiaries is depicted in Table 1.

Access to essential non-COVID services

Approximately 80% of ASHAs and ANMs reported that referral transport services were functioning as earlier. Less than one-fifth mentioned they were irregular or delayed, and a minor proportion stated their unavailability. Other lesser mentioned issues were the non-availability of services at a health facility, multiple referrals, and movement restrictions. The difference in response between ASHAs and ANM for these findings was not statistically significant. A detailed account of access reported by the FLWs is depicted in Table 2.

Around 9% of pregnant women were unable to access ANC due to the pandemic. Less than 3% of pregnant women mentioned they faced challenges due to transport unavailability, movement restrictions, health facility being closed, or unavailability of services at the private/public health facility, respectively. Issues regarding the availability of free referral transport were highlighted by the postnatal women; only one-third were able to avail it, and one-fourth had access to the drop-back facility. Around 5% of postnatal mothers faced problems due to ambulance unavailability or multiple referrals, respectively. More details on access reported by the beneficiaries are depicted in Table 2.

Facilitators and barriers in delivering essential non-COVID health services

The ASHAs were offered maximum support by the ANMs, followed by the ASHA facilitators and medical officer (MOs) at the health facilities. Only around 1% reported not receiving any support during the pandemic.

Table 2: Access Indicators – Front-line Workers and Beneficiaries

Front-line Workers	ASHA (*n*=798)	ANM (*n*=798)	*P*
Ambulance/transport services for delivery cases functioning as earlier	656 (82.3)	644 (80.8)	0.439
Ambulance/transport services for delivery cases were irregular or delayed	99 (12.5)	123 (15.5)	0.182
Non-availability of ambulance/transport services	40 (5.1)	28 (3.6)	0.136
Non-availability of services at the facility	10 (1.4)	12 (1.6)	0.766
Referral of patients to multiple facilities	18 (2.4)	15 (2)	0.659
Beneficiaries	**PW (*n*=708)**	**PNW (*n*=702)**	
Unable to access ANC in March-May due to challenges faced	63 (9)	0	
ANM/ASHA did not inform	9 (1.4)	0	
Unavailability of services at public/private health facility	11 (1.7)	0	
Public/private health facility was closed	13 (2)	0	
Restrictions of movement	16 (2.4)	0	
Transport unavailability	18 (2.7)	0	
Availed free ambulance services to go to the facility	0	240 (34.2)	
Availed drop back facility	0	169 (24.1)	
Faced problems during delivery due to delay in ambulance	0	7 (0.9)	
Faced problems during delivery due to ambulance unavailability	0	33 (4.8)	
Faced problems during delivery due to multiple referrals	0	37 (5.3)	

The FLWs faced several barriers while undertaking their roles. A univariate analysis conducted among the common variables showed that a higher proportion of ASHAs experienced problems than ANMs concerning their experiences with the community members ($P = 0.000$) and availability of services at the health facility ($P = 0.000$). A detailed account of the facilitators and barriers experienced by the FLWs is depicted in Table 3.

Knowledge and practices of front-line workers and beneficiaries

Approximately 92% of FLWs received training related to COVID-19, and around 99% were involved in awareness generation. While most of the FLWs and beneficiaries demonstrated adequate knowledge and COVID-19 appropriate behavior, findings varied across different variables. However, a greater proportion of beneficiaries demonstrated appropriate COVID-19 behavior as compared to the FLWs in most variables ($P < 0.05$). A detailed account is depicted in Table 4.

**Responses from FLWs (ASHA and ANM) and beneficiaries (Pregnant Women and Postnatal women) were combined for univariate analysis.*

Discussion

The findings of the survey demonstrated that most essential services continued during the pandemic. Due to the higher susceptibility of women to COVID-19, several studies were conducted on evaluating the impact of COVID-19 on RMNCH services globally. Evidence denoted a significant reduction in maternal health service uptake during the pandemic, especially in low-resource settings such as in LMICs.[10] A study conducted in India reported a decrease in institutional deliveries[10]; however, the current study demonstrated that the majority of pregnant women delivered in a health facility. Additionally, they were well-supported by ASHAs during their delivery period, which potentially evades high-risk pregnancy. A facility-based descriptive cross-sectional study from Sri Lanka recorded a decline in ANC during the pandemic.[11] In contrast, the current study revealed that approximately 90% of pregnant women availed ANC without experiencing any challenges, which supports a descriptive study conducted in South Africa that established that the use of ANC remained relatively steady during the pandemic.[12] A minor proportion of women reported issues related to health facility and movement restrictions which supports a qualitative study conducted in rural Ethiopia on factors influencing ANC uptake.[13] Increased maternal mortality, neonatal mortality, and stillbirth were associated with a decline in service uptake of essential services due to lockdown measures and delay in referral transport by studies conducted in Nepal[14] and India.[15] But, the current study illuminated that obstructions to service uptake due to the discussed reasons were minor in India.

As the pandemic progressed, the World Health Organisation (WHO) and the United Nations Chidren's Fund (UNICEF) recommended routine immunization (RI) programs to continue, but advised mass vaccination campaigns to be temporarily suspended. This recommendation was further endorsed by researchers at the London School of Hygiene and Tropical Medicine. In compliance, GOI issued guidance to ensure the delivery of essential health services, including those of RMNCH.[9] Regardless, RI services were noticeably disrupted globally, and LMICs witnessed a higher impact due to limited healthcare resources. Several studies conducted in India,[16] Pakistan,[17] Indonesia,[18] and Nigeria,[19] indicated significant reductions in immunization services during the pandemic. The current study contradicts the findings as the majority of FLWs successfully delivered RI services. Moreover, the study conducted in India collected data for seven days from primary health care facilities attached to medical colleges in India through a web-based survey undertaken by primary health care (PHC) managers and supervisors.[16] The current study, in addition to providing national-level data during the pandemic, includes data collected from both FLWs and the beneficiaries.

In addition to RI, abortion is a time-sensitive, essential healthcare service that one in four women needs during their lifetime. However, it is often termed as "elective" or "non-essential" in many countries. A review on the impact of COVID-19 on family planning services in India reported an unmet need for services related to family planning and abortion.[20] Although the current study sheds light on the status of family planning services during the pandemic, it is limited in scope in terms of abortion. Nevertheless, an inclusive rights-based health system response to

Table 3: Facilitators and Barriers in Delivering Services

Front-line Workers	ASHA (*n*=798)	ANM (*n*=798)	*P*
Maximum support by ANMs	420 (52.8)		
Maximum support by ASHA facilitators	182 (22.9)		
Maximum support by MO at PHC or UPHC	62 (7.9)		
Maximum support (Others)	119 (15)		
No support received	10 (1.4)		
Community members not understanding the importance of the COVID situation	446 (56)	346 (43.4)	0.000
Community members not giving full details during the survey	383 (48.1)	252 (31.7)	0.000
Community members not allowing them to visit	342 (43)	184 (23.1)	0.000
Restrictions in movement due to COVID-19	160 (20.2)	147 (18.5)	0.409
Non-availability of transport services to go to PHC/or other health facilities	395 (49.6)	388 (48.7)	0.725
Non or limited availability of services at the public health facilities	376 (47.2)	236 (29.6)	0.000
Limited availability of time to work on other non-COVID activities	286 (36)	279 (35)	0.714
Violence or abuse faced in the community	160 (20.2)	146 (18.4)	0.373

Table 4: Knowledge and Practices Related to COVID-19

Identified Themes	ASHA (*n*=798)	ANM (*n*=798)	PW (*n*=708)	PNW (*n*=702)	*P*
Awareness regarding the designated facilities offering delivery services to suspected/confirmed COVID-19 pregnant women	473 (59.4)	581 (72.9)	0	0	0.000
Involved in COVID-19 related activities: Awareness generation	795 (99.7)	786 (98.6)	0	0	0.019
Received training related to COVID-19	731 (91.7)	734 (92.1)	0	0	0.784
Avoiding participation in social gathering	537 (67.4)	536 (67.2)	544 (77)	636 (90.7)	0.000
Staying at home as much as possible	544 (68.3)	528 (66.2)	600 (84.9)	641 (91.5)	0.000
Practicing social distancing/maintaining safe distance of at least 1 meter	659 (82.7)	731 (91.7)	626 (88.6)	654 (93.3)	0.001
Wearing masks	747 (93.7)	739 (92.7)	581 (82.2)	631 (90)	0.000
Covering face while sneezing/coughing	489 (61.4)	477 (59.8)	639 (90.4)	657 (93.7)	0.000
Frequently washing of hands with soap	718 (90.1)	708 (88.8)	677 (95.8)	682 (97.3)	0.000
Using hand sanitizer to clean hands (if available)	594 (74.6)	584 (73.2)	648 (91.7)	656 (93.6)	0.000
Avoiding touching eyes and mouth with unwashed hands	438 (55)	0	0	0	NA
Avoiding touching/feeding baby with unwashed Hands	0	0	0	605 (86.2)	0

circumvent preventable morbidity and mortality as a consequence of inadequate abortion services may be implemented for better health outcomes.

Another review focusing on the impact of the pandemic on maternal health services conducted in Pakistan demonstrated a significant effect on the availability of essential reproductive and maternal health-related medications such as vitamins and iron supplements.[21] In contrast, the current study reported that the majority of pregnant women received iron and folic acid IFA/Calcium supplements as a component of ANC. Efforts to disseminate important supplements should be continued to prevent fetal and maternal complications.

Previous literature has recommended strategies such as 'ring-fenced community care' to evade frequent hospital visits for pregnant women in Poland[22] or the 'hospital within a hospital' to meet the demands of the newly identified cases of COVID-19 while dealing with the safety of other patients in Dublin.[23] Additionally, robust virtual care pathways for ANC services were also recommended. These suggestions are in conformity with the guidelines documented by the MoHFW, GOI, and are continuously implemented, as illustrated by the findings of the study.

Current evidence on the impact of COVID-19 on communicable diseases predominantly focuses on tuberculosis (TB) and human immunodeficiency virus (HIV). The COVID-19 pandemic has been largely discussed as a possible impediment to the mitigation plans of TB and HIV. Reports from Africa[24] and India[25] have discussed how COVID-19 and TB can initiate a double health crisis by affecting TB case detection, creating diagnostic confusion, amplifying stigmatization, and worsening gender disparity. However, the current study informed that activities related to TB, such as screening, referral, follow-up, and provision of directly observed therapy (DOTs) to patients, were satisfactorily undertaken during the pandemic. As such, it may be inferred that control efforts to attenuate the potential effects of COVID-19 on TB were successfully implemented. The current study is limited in scope in terms of HIV data. Hence, future research may also focus on the impact assessment of COVID-19 on HIV, particularly in LMICs with an increased HIV disease burden.

Further, NCD prevention and management emerged as one of the pressing public health challenges during the pandemic. Services have been severely impacted globally, with LMICs witnessing the most disruptions. A WHO survey demonstrated that patients living with NCDs (PLWNCDs) were unable to access healthcare services in 155 countries; more than 53% of countries surveyed

were experiencing partial or complete impairment of services and related complications.[26] Similar findings were reported by the media in LMICs through stories of PLWNCDs on how prolonged lockdowns have further exacerbated their chronic conditions. Investigations in India suggested that as issues in healthcare facilities increased manifolds, there was a lack of human resources, shortage of medical supplies, and diagnostics that could potentially have an adverse impact on access to healthcare services and treatment adherence by PLWNCDs.[26] Similar evidence was generated in LMIC such as Bangladesh, Brazil, Ghana, Iran, Pakistan, and Nepal.[26] The current study established that the provision of medicines for hypertension and diabetes patients was comparatively lesser as compared to other services, which strengthens the discussed literature. Given the current situation, it is advisable that FLWs/volunteers consider the possibility of doorstep delivery of medications during the period of the lockdown, provided patients are stable.[9] In the case of complications, patients may be advised to contact Community Health Officer (CHO)/Multi-Purpose Workers (MPW) where available or Primary Health Centre-Medical Officer (PHC-MO).[7] Other services pertaining to NCDs, such as referral services and health awareness, may be continued through helplines to minimize contact.

Minor issues emerged among the FLWs and the beneficiaries concerning access. Although this finding verifies existing literature demonstrating that access to essential health services was affected in LMICs,[4] it highlights that the extent of disruption with regards to access was much lesser in India as compared to other LMICs. Notwithstanding, the current study reinforces the need for efficient referral transport facilities and mechanisms across facilities.

Most ASHAs were well-supported during the pandemic but faced common barriers such as resistance from the community, issues with referral transport services, and limited or non-availability of services at the public health facilities. These findings strengthen existing literature on the impact of COVID-19 on healthcare workers in the United States, India, and Nepal.[27] It also underscored the need for individual and organizational resilience through training programs and adequate support to help the healthcare workers, particularly FLWs, to deal with the unprecedented stress of the pandemic.

Lastly, the FLWs and beneficiaries demonstrated adequate knowledge of COVID-19. This strengthens existing literature on knowledge about COVID-19 among healthcare workers and populations in India,[28] China, Italy, Iran, Jordan, the United States, the United Kingdom, and China, which reported considerable levels of knowledge on COVID-19.[29] Whilst the optimistic findings among beneficiaries, the FLWs continued to face resistance from the community. This raises concerns about the effectiveness of the awareness campaigns, which need to be evaluated to enhance behavior change communication. Findings on best practices of COVID-19 support existing literature that establishes mitigating local transmission, supporting, conserving, and supporting staff, eliminating non-urgent strains on the system, and coordinating communication as essential considerations to mitigate the COVID-19 pandemic.[30]

Conclusion

This paper reveals that despite the prevailing conditions posed to the Indian health system by COVID-19, it performed satisfactorily well during the pandemic in terms of essential non-COVID health services. Further documentation and research about varying experiences are essential to prepare as well as to adapt ourselves to similar situations now and in the future.

Acknowledgement

We would like to acknowledge the translators and callers at MCTFC for their support in the survey. Besides, we would like to express our sincere gratitude to Dr. Rajani R Ved, Former Executive Director, National health systems resource centre (NHSRC), for necessary technical suggestions in planning and executing the survey. We also thank the front-line workers and beneficiaries for participating in the survey.

Financial support and sponsorship

Call Centre support was provided by the Mother and Child Tracking Facilitation Centre (MCTFC), Ministry of Health and Family Welfare (MoHFW), Government of India (GOI). Remuneration for additional callers (regional dialect) was supported by the National Health Systems Resource Centre (NHSRC), New Delhi.

Conflicts of interest

All authors are employees/associated with NHSRC, New Delhi, which is a technical support unit for the National Health Mission, MoHFW, GOI.

References

1. Word Health Organization. Coronavirus Disease. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019. 2019. [Last accessed on 2020 May 08].
2. Word Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard. 2021. Available from: WHOCoronavirus Disease (COVID-19) Dashboard. [Last accessed on 2021 Feb 08].
3. Ministry of Health and Family Welfare, Government of India. Chasing the virus, a public health response to COVID-19 pandemic. 2021. Available from: https://nhsrcindia.org/sites/default/files/2021-07/Chasing_the_Virus_A_Public_Health_Response_to_the_COVID-19_Pandemic_02032021_1.pdf. [Last assessed on 2022 Jan 02].
4. Okereke M, Ukor NA, Adebisi YA, Ogunkola IO, Favour Iyagbaye E, Adiela Owhor G, *et al.* Impact of COVID-19 on access to healthcare in low-and middle-income countries: Current evidence and future recommendations. Int J Health Plann Manage 2021;36:13-7.
5. Elston JW, Cartwright C, Ndumbi P, Wright J. The health impact of the 2014–15 Ebola outbreak. Public Health

2017;143:60-70.

6. Leuenberger D, Hebelamou J, Strahm S, De Rekeneire N, Balestre E, Wandeler G, *et al.* Impact of the Ebola epidemic on general and HIV care in Macenta, Forest Guinea, 2014. AIDS 2015;29:1883-7.
7. Yadav UN, Rayamajhee B, Mistry SK, Parsekar SS, Mishra SK. A syndemic perspective on the management of non-communicable diseases amid the COVID-19 pandemic in low-and middle-income countries. Front Public Health 2020;8:508.
8. Bullen C, McCormack J, Calder A, Parag V, Subramaniam K, Majumdar A, *et al.* The impact of COVID-19 on the care of people living with noncommunicable diseases in low-and middle-income countries: An online survey of physicians and pharmacists in nine countries. Prim Health Care Res Dev 2021;22:e30.
9. Ministry of Health and Family Welfare, Government of India. Enabling Delivery of Essential Health Services during the COVID 19 Outbreak: Guidance note. 2020. Available from: https://www.mohfw.gov.in/pdf/EssentialservicesduringCOVID19updated0411201.pdf. [Last assessed on 2022 Jan 02].
10. Goyal M, Singh P, Singh K, Shekhar S, Agrawal N, Misra S. The effect of the COVID-19 pandemic on maternal health due to delay in seeking health care: Experience from a tertiary center. Int J Gynaecol Obstet 2020;152:231-5.
11. Patabendige M, Gamage MM, Jayawardane A. The potential impact of COVID-19 pandemic on the antenatal care as perceived by Non-COVID-19 pregnant women: Women's experience research brief. J Patient Exp 2021;8:2374373521998820.
12. Soma-Pillay P, Moodley J, Pattinson R, Fawcus S, Gebhardt S, Niit R. The effect of the first wave of Covid-19 on use of maternal and reproductive health services and maternal deaths in South Africa. Obstet Gynaecol Forum 2020;30:38-46.
13. Hailemariam S, Agegnehu W, Derese M. Exploring COVID-19 related factors influencing antenatal care services uptake: A qualitative study among women in a rural community in Southwest Ethiopia. J Prim Care Community Health 2021;12:2150132721996892.
14. Karkee R, Morgan A. Providing maternal health services during the COVID-19 pandemic in Nepal. Lancet Global Health 2020;8:e1243-4.
15. Jha D, Adhikari M, Gautam JS, Tinkari BS, Mishra SR, Khatri RB. Effect of COVID-19 on maternal and neonatal services. Lancet Global Health 2021;9:e114-5.
16. Garg S, Basu S, Rustagi R, Borle A. Primary health care facility preparedness for outpatient service provision during the COVID-19 pandemic in India: Cross sectional study. JMIR Public Health Surveill 2020;6:e19927.
17. Chandir S, Siddiqi DA, Mehmood M, Setayesh H, Siddique M, Mirza A, *et al.* Impact of COVID-19 pandemic response on uptake of routine immunizations in Sindh, Pakistan: An analysis of provincial electronic immunization registry data. Vaccine 2020;38:7146-55.
18. Suwantika AA, Boersma C, Postma MJ. The potential impact of COVID-19 pandemic on the immunization performance in Indonesia. Expert Rev Vaccines 2020;19:687-90.
19. Sato R. Pattern of vaccination delivery around COVID-19 lockdown in Nigeria. Hum Vaccin Immunother 2021;17:2951-3.
20. Vora KS, Saiyed S, Natesan S. Impact of COVID-19 on family planning services in India. Sex Reprod Health Matters 2020;28:1785378.
21. Sarwer A, Javed B, Soto EB, Mashwani ZU. Impact of the COVID-19 pandemic on maternal health services in Pakistan. Int J Health Plann Manage 2020;35:1306-10.
22. Węgrzynowska M, Doroszewska A, Witkiewicz M, Baranowska B. Polish maternity services in times of crisis: In search of quality care for pregnant women and their babies. Health Care Women Int 2020;41:1335-48.
23. Sheil O, McAuliffe FM. Reorganisation of Obstetric services during the COVID pandemic–Experience from National Maternity Hospital Dublin Ireland. Best Pract Res Clin Obstet Gynaecol 2021;73:104-12.
24. Kalu B. COVID-19 in Nigeria: A disease of hunger. Lancet Respir Med 2020;8:556-7.
25. Suresh R, Ruban S, Kumar S. TB care for women and Covid-A double health crisis in the offing? Health Care Women Int 2020;41:1226-39.
26. WHO. COVID-19 Significantly Impacts Health Services for Noncommunicable Diseases: World Health Organisation. 2020. Available from: https://www.who.int/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases. [Last accessed 2020 Jun 04].
27. Maunder RG, Leszcz M, Savage D, Adam MA, Peladeau N, Romano D, *et al.* Applying the lessons of SARS to pandemic influenza: An evidence-based approach to mitigating the stress experienced by healthcare workers. Can J Pub Health 2008;99:486-8.
28. Maurya VK, Upadhyay V, Dubey P, Shukla S, Chaturvedi A. Assessment of front-line healthcare workers' Knowledge, Attitude and Practice after several months of COVID-19 pandemic. J Healthc Qual Res 2021;37:20-7.
29. Saadatjoo S, Miri M, Hassanipour S, Ameri H, Arab-Zozani M. Knowledge, attitudes, and practices of the general population about Coronavirus disease 2019 (COVID-19): A systematic review and meta-analysis with policy recommendations. Public Health 2021;194:185-95.
30. Kuy S, Gupta R, Correa R, Tsai R, Vohra S. Best practices for a Covid-19 preparedness plan for health systems. NEJM Catal Innov Care Deliv 2020;1:2-8.