The Second Wave of COVID-19 and Beyond
Rural Healthcare

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The emergence of the COVID-19 pandemic coupled with long-standing systemic, functional, and health inequities put the rural communities at an increased risk. Sustainable long- and short-term measures are suggested to efficiently develop strategies to control the pandemic and strengthen the health system in rural India.

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India was severely hit by the second wave of the COVID-19 pandemic. The numbers of cases and fatalities both have shown a sharp rise, along with heightened livelihood challenges and uncertainties. According to the Government of India data, 34.7 million cases and 0.477 million deaths have been reported as of 17 December 2021. The new variant of the virus, omicron, is also spreading in India. As of 17 December, 101 cases were reported, from Maharashtra and Delhi (Government of India 2021). These figures are considered underreported mainly because cases in rural areas are likely to be undetected, unreported, and untreated (Cohen 2021). The attention of the government, global community, and mass media is focused on metro cities and agglomerated urban areas, whereas the virus made a strong presence in rural areas especially after superspreader events such as election campaigns and religious gatherings.

COVID-19 Cases, Deaths, and Vaccination Status in Rural Areas

These are mounting signs that the COVID-19 virus has started to spread to rural areas and can impact the public health infrastructure that is already strained and lacks resources—financial, technical as well as humanpower. The emergence of the COVID-19 pandemic in rural India is a worrying development, with nearly 50% of reported cases now in rural districts. The share of rural districts in the new caseload increased to 45.5% in April and 48.5% in May 2021 compared to around 37% in March 2021 (Research, SBI 2021). COVID-19 is a particularly significant threat as two-thirds of India's population lives in rural areas and already has the highest burden of emerging infectious diseases in the country (Mitra 2020). On 10 March 2021, among 738 districts, 599 were mapped green, which means they reported less than 10 cases daily, while on 10 May, as many as 501 (68%) were marked red with 100 or more cases reported daily. Only 75 districts reported less than 10 new infections per day, and these districts are mostly part of the North East (Raj 2021). Prime Minister Narendra Modi, during his speech on 7 May 2021, advised caution, stating that if the COVID-19 crisis reaches the villages of India, the impact will be disastrous. As of 12 May 2021, data shows that there were 13 states where the number of COVID-19 cases was higher in rural areas compared to urban, and in another 11 states, the share of cases from rural areas is showing a steep and steady increase (Sharma 2020). Factors contributing to the rise in infection are the return of migrants to villages, poor diet, reduced food intake, and hesitancy to undergo testing (Inbaraj et al 2021). Poor contact tracing and less testing coupled with vaccine hesitancy are other factors considered to lead to the increase in the number of cases in rural areas (Ranscombe 2020).

Long-standing systemic, functional, and health inequities have put rural communities at increased risk of contracting COVID-19 and suffering from the lack of essential healthcare services (Singh and Leo 2021). The disease burden analysis of the rural areas show that disability-adjusted life years (DALY) rates are higher among rural communities, particularly for many infectious diseases. DALY rates in rural areas are at least twice those of urban areas for perinatal and nutritional conditions, chronic respiratory diseases, diarrhoea, and fever of unknown origin (Menon et al 2019). The pre-existing respiratory diseases and poorer nutritional conditions are reported to exacerbate the harmful impacts of the COVID-19 infection. Several factors are contributed to the current situation, including misinformation, insufficient financial support for those in lockdown, ignorance, poor healthcare infrastructure, market and governance failure (Williams 2020; Singh and Leo 2021), governmental responses (Ghosh 2020), livelihood challenges, lack of lessons learnt from the first wave related to

preparedness, and priority-setting by central and local governments.

Rural–Urban Disparities in Healthcare

Health disparities between rural and urban areas are not only in terms of risk factors and life expectancy but also in testing and healthcare capacity (Henning-Smith et al 2020). In India, health indicators have significant rural–urban disparities. The average life expectancy in the rural areas is 66.7 years, whereas in the urban areas, it is 72.5 years, and the death rate is 6.5 in the rural areas, whereas in the urban areas, it is 5 (Government of India 2019a).

The infant mortality rate is 36 per 1,000 in the rural areas and 23 per 1,000 in the urban areas (Government of India 2020). The total fertility rate is 2.5 in the rural areas, whereas it is 1.8 in the urban areas (Government of India 2019b). The underweight children under five years of age are 39% in rural areas, whereas it is 28% in urban areas (Iips 2017). Same data shows that the overall healthcare utilisation is also low (institutional childbirth is 89% in urban areas, whereas in rural areas, it is 75%; 94% of children up to 23 months old are getting full immunisation in the urban areas, whereas in the rural areas, it is only 82% of children.

Rural wages are stagnant and the unemployment rate in the rural areas has been at the highest levels in the last two decades (Sinha 2021), which has a severe impact on hunger, food security, and income (Lahoti et al 2020). Inadequate diet, poor nutrition, and pockets of starvation have been commonly reported during this pandemic (Alam 2020). Migrant workers who returned to the villages have not had adequate government documents to claim the free foodgrains under various government schemes (Sharma 2020).

India's healthcare system is predominantly concentrated in urban centres, wherein tertiary-level services, lab test facilities, and other medical support services are located. The COVID-19 treatment requires tertiary services with intensive care units (ICUs), availability of tests, and fast oxygen supplies, which is scarcer in the rural areas. Of all the health workers, 59.2% are in the urban areas, where 27.8% of the population resides, and 40.8% are in the rural areas, where 72.2% of the population resides. The ratio of urban density to rural density for doctors is 3.8, for nurses and midwives 4.0 (Anand et al 2016). Bed availability is 11.9 per 10,000 population in urban areas but only 3.2 per 10,000 in rural areas (Government of India 2019b). Private sector healthcare facilities account for 40% of all available beds; these are largely concentrated in urban areas and bigger cities (Taskin and Urjita 2021). Studies report absenteeism of 45% of doctors from primary health centres (PHCs) in the rural areas, which are found to be closed 56% of the times with an unpredictable pattern of closure and absenteeism during regular visiting hours (Iyengar and Dholakia 2012).

As far as healthcare expenses are concerned, approximately one quarter of rural households report that a major source of hospitalisation expenditure must be borrowed (Government of India 2019). Rural poor are unaware and do not avail the benefits of even various government insurance schemes like the Rashtriya Swasthya Bima Yojana (Safi 2015). As the pandemic and economic slowdown continues for a longer duration, and many migrant workers have returned to rural villages as unemployed, the chances that they will be able to access and afford COVID-19 treatment is reduced. In this context, for the rural population, obtaining COVID-19 medical care by making an out-of-pocket expenditure is also a distant reality. Better health information access and use help individuals improve knowledge, increase the use of health services, reduce healthcare costs, adopt healthier behavioural patterns, and therefore promote health. It is seen that rural communities have poor access and use of health information in the country in comparison to their urban counterparts (Panagariya 2014), and this is true with COVID-19 health communication as well. In the rural areas, poor health and nutritional indicators, coupled with inadequate healthcare infrastructure, poor health insurance coverage, and inappropriate, non-accessible health communication channels make COVID-19 containment strategies difficult to deliver results.

In a vast, diverse country like India, health inequality, especially the urban–rural divide, is a huge concern and has special significance in developing health policies. A very low budgetary allocation to health coupled with targeted investment strategies, is a major reason for this vast rural–urban disparity. Poor health resource management and less investment in infrastructure are other reasons for this striking inequality in health indicators and infrastructure. In addition, the rural communities also have socio-economic and education-related disadvantages, making them more vulnerable to any pandemic like the COVID-19. If the country does not develop responsive public health infrastructure, resources, and management strategies for rural areas, achieving the sustainable development goals will be difficult.

Rural Healthcare: COVID-19

Short term: As a short-term goal, we need to urgently arrest the spread of COVID-19 to rural areas and minimise the number of deaths. The rural communities need specific strategies, which are better suited to their health needs and local cultures (Rice 2021). Health communication strategies should be tailored to target rural populations. For example, using traditional and creative modes of communication like songs, street theatre, and so on may be harnessed to disseminate clearer and more appropriate messaging. Working with community leaders, faith-based organisations and other multi-stake holders' participation can help to better understand the community's knowledge, needs, barriers, and challenges around COVID-19 prevention. It is time to launch a massive advocacy campaign on mask-wearing in the rural areas, and this should include promoting in common places as well as closed places using double masks and continuing the use of masks even after vaccination (The *Lancet* COVID-19 Commission 2021). Setting up temporary lab facilities in rural areas, exploring mobile testing lab facility options, and forming micro-teams with the involvement of multi-stakeholders' participation to do rapid antigen tests are important steps to

strengthen the surveillance system and estimate more accurate number of cases and fatalities. The COVID-19 vaccination drive organised via the COVID-19 Vaccine Intelligence Work (COWIN) app is also unique. Poor digital literacy, limited connectivity, and the scarcity of appropriate devices in rural areas mean that a considerable section of the population will be excluded from the vaccination drive. Recently, the government informed the Supreme Court that the rural people can use common service centres (CSCs) to register on the COWIN platform. The CSCs are maintained by the Ministry of Electronics and Information Technology. There are roughly 3 lakh CSCs, but only 54,460 of them are actively rendering services (Aryan 2021).

The massive vaccination camps in rural areas should be channelled through the three-tier healthcare system instead of compelling the villagers to use digital devices and online systems. More capacity for walk-in registration and vaccination should be made available in rural areas, including the Tamil Nadu model of implementing massive vaccination camps. Some states, such as Kerala and Tamil Nadu, used active surveillance and frontline workers' capacity-building as prime strategies, which helped to control the spread to rural areas; Delhi efficiently promoted testing and home quarantine as important measures to control and manage the cases.

In Mumbai, aggressive testing and timely declaration of containment zones seemed to be very effective. Capacity-building among health workers and providing them with adequate financial rewards or incentives could boost the morale of healthcare workers in rural areas. Micro-planning, house visits, concurrent monitoring and follow-ups, which are part of India's regular immunisation programme, also need to be used in the case of COVID-19 immunisation programme. A decentralised approach at the community level to trace, test, and isolate the patients will also be useful (The *Lancet* COVID-19 Commission 2021). Ensuring food supply by expanding public distribution system (PDS) coverage to cover the poorest migrants who have returned to their villages is crucial to ensure food security in the rural areas (Sinha 2021). Shrinking food baskets and inadequate diet during a pandemic, especially among women and children (Pande et al 2020; Raghunathan et al 2021), are serious concerns that need urgent attention. The midday meal schemes and supplementary nutrition provided through schools and anganwadi centres need to be restarted at the earliest (Iftikhar 2020).

Long term: The pandemic experience is also revealing major lessons for the country's long-term health planning, which explicitly shows the need to strengthen the sustainable essential healthcare system. The health expenditures by the government as a percentage of gross domestic product (GDP) must be increased to a proposed 2.5% without further delay, and 70% of this should be allotted to primary healthcare (Ministry of Health and Family Welfare or MOHFW—Government of India or GOI 2017).

Strengthening the public health surveillance system, generating epidemiological database, and establishing registries for each of the communicable and non-communicable diseases is important. The primary care should be shifted from selective care to assured comprehensive care with linkages to referral hospitals. As proposed by the policy, financial and non-financial incentives for doctors and other medical professionals to retain them in rural areas and opening up new medical colleges in rural areas are also to be accorded high priority (MOHFW—GOI 2017). Introducing medical social workers (MSW), mid-level care providers and on-the-job training and skill upgradation for the accredited social health activist (ASHA), and multipurpose health worker (MPW) is important because many healthcare providers in rural areas are unregistered and untrained and do not know what to do in such an emergency.

Hence, providing clinical guidelines, training, and handholding may help (Kumar et al 2020). For the expansion of primary care from selective care to comprehensive care, a complementary human resource strategy is the development of a cadre of mid-level care providers. This can be done through appropriate courses like a BSc in community health and/or through competency-based bridge courses and short courses (MOHFW—GOI 2017).

Ensuring multi-stakeholders' participation and involvement: Rural households are well-connected, and the involvement of other stakeholders whom villagers trust is also crucial to ensure good health and healthcare for them. Non-governmental organisations, companies with corporate social responsibility components, faith-based organisations, educational institutions, panchayati raj institutions, and research organisations, along with government machinery, must plan out locally feasible, practical projects with the involvement of the communities themselves (Panneer et al 2021). This will go a long way towards ensuring sustainability of the health schemes.

Affordable healthcare by research: Provision of healthcare for rural areas hinge on the affordability of treatment and diagnostic costs. By instituting "innovation clinics," the consulting scientists and doctors could join hands to translate their respective knowledge useful for both prevention and cure of various diseases, which is of concern for rural communities (Panagariya 2014).

Conclusions

Addressing concerns related to vaccine equity, strengthening health communication, addressing vaccine stigma and hesitancy, and bottom-up planning with the community are crucial at this stage of participation for breaking the chain of contagion. The pandemic experience is also revealing major lessons for the country's long-term health planning, which explicitly shows the need to strengthen the primary healthcare system, followed by more research and stakeholders participation (Panneer et al 2021). There is a need to build sustainable and financially viable primary healthcare systems in rural areas. Effective and accountable health governance and good healthcare leadership, which values inputs from a multidisciplinary point of view, will help develop a strong primary healthcare system, which, in turn, will be successful in bridging the rural–urban health disparities to a

larger extent. Equitable distribution of resources, including public health infrastructure, priority-based budgetary allocations, training frontline health workers with mental health support, better management of misinformation, the political will to ensure timely availability and accessibility to essential healthcare services, rectifying poorly resourced public health infrastructure, community participation, adequate preparation of the health system, and bridging the gap between rural–urban disparities are important to help combat similar infectious diseases in the future, which have the potential of spreading like the COVID-19 pandemic.

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