

6-1-2020

## Community and health workers' responses to guidelines during COVID-19 pandemic- A critical review

Ansuman Swain

*Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka, India- 576104, ansuman.swain1@learner.manipal.edu*

Parul Malik

*Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka, India- 576104, ansuman.swain1@learner.manipal.edu*

Kirtimayee Soumyadarshinee

*Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka, India- 576104, ansuman.swain1@learner.manipal.edu*

Arathi P. Rao

*Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka, India- 576104, ansuman.swain1@learner.manipal.edu*

Follow this and additional works at: <https://impressions.manipal.edu/mjms>



Part of the [Medicine and Health Sciences Commons](#)

---

### Recommended Citation

Swain, Ansuman; Malik, Parul; Soumyadarshinee, Kirtimayee; and Rao, Arathi P. (2020) "Community and health workers' responses to guidelines during COVID-19 pandemic- A critical review," *Manipal Journal of Medical Sciences*: Vol. 5 : Iss. 1 , Article 1.

Available at: <https://impressions.manipal.edu/mjms/vol5/iss1/1>

This Article is brought to you for free and open access by the MAHE Journals at Impressions@MAHE. It has been accepted for inclusion in Manipal Journal of Medical Sciences by an authorized editor of Impressions@MAHE. For more information, please contact [impressions@manipal.edu](mailto:impressions@manipal.edu).

# Community and health workers' responses to guidelines during COVID-19 pandemic- A critical review

Ansuman Swain, Parul Malik, Kirtimayee Soumyadarshinee, Arathi P Rao\*

Email: arathi.anil@manipal.edu

## Abstract

On 30th January 2020, World Health Organization (WHO) declared the Coronavirus disease (COVID-19) as a Public Health Emergency of International Concern (PHEIC), and the first case in the Indian subcontinent was reported. Subsequently, following the directives issued by WHO, the nodal agencies related to health care services in the country like the Indian Council of Medical Research (ICMR) and Ministry of Health and Family Welfare (MoHFW); have been issuing guidelines to public and professionals to enable and equip them to combat and contain the pandemic. Guidelines about health care personnel, necessary infrastructure, personal protective equipment, prophylaxis, access and availability of services, and public safety are being released from time to time based on the evolution of the pandemic in the country. Health care providers and services are bridging the administration and the community for the delivery of services as well as reporting. The community has been affected with loss of jobs, financial crises, lack of transport, and confinement. Lack of awareness and frustration has driven the community to attack the frontline health workers, which has led to legal implications. Even though all the efforts are concerted towards conquering the pandemic, a comprehensive approach can help address the gaps. A five-layered social-ecological model (SEM), from the individual to the policymakers, can conserve the actions taken so far and better equipped to address the evolving pandemic.

**Key words:** Community response, COVID-19, guidelines, health care services, pandemic, social-ecological model (SEM)

## Introduction

A surge in pneumonia cases of unknown aetiology in Wuhan, People's Republic of China (PRC), in December 2019; led to the identification of a new beta ( $\beta$ ) coronavirus. Initially, on 12th January 2020, WHO named it as the '2019-novel coronavirus (2019-nCoV)', it was later, on 11th February 2020, renamed as 'coronavirus disease 2019 (COVID-19)'. On the same day, the coronavirus study group

(CSG) of the International Committee proposed to name it as 'SARS-CoV-2'.<sup>1</sup> Running by various nomenclatures, this is the third fatal coronavirus infection that has emerged in the past two decades. It was preceded by the severe acute respiratory syndrome coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus (MERS-CoV).

Coronaviruses are enveloped, positive single-stranded large RNA viruses that infect both humans and animals. Among the seven known subtypes of coronaviruses infecting humans, the  $\beta$ -coronaviruses cause severe disease and fatalities.<sup>2</sup> It primarily targets the human respiratory system with the most common symptoms at the onset of illness like fever, cough, myalgia, fatigue, and dyspnea.<sup>3</sup> Other reported symptoms include sputum production, headache, haemoptysis and diarrhoea.<sup>3</sup> The likely route of spread of COVID-19 is a person-to-person

**Ansuman Swain<sup>1</sup>, Parul Malik<sup>2</sup>, Kirtimayee Soumyadarshinee<sup>3</sup>, Arathi P Rao<sup>4</sup>**

*1,2,3 Postgraduate student, MPH program, Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka, India- 576104*

*4 Associate Professor, Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Udupi, Karnataka, India- 576104*

\*Corresponding Author

Manuscript received : 30/5/20

Revision accepted :13/6/20

**How to cite this article:** Swain A, Malik P, Soumyadarshinee K, P Rao A. Community and health workers' responses to guidelines during COVID-19 pandemic- A critical review. *MJMS*. 2020; 5(1): 27-34.

transmission occurring primarily via direct contact or through droplets spread by coughing or sneezing from an infected individual.<sup>4</sup>

Over the first six weeks of 2020, lack of travel or other restrictions caused the spread of COVID-19 from the PRC to twenty other nations. This necessitated the need for WHO following the recommendations of the Emergency Committee to declare this outbreak as a PHEIC, on 30th January 2020.<sup>5</sup> In the light of a pandemic of such virulence, the national, state, and local governments in various countries, as well as global and public health agencies across the world, took immediate steps to slow the spread of the virus.

An "Oxford COVID-19 Government response tracker" was designed by researchers from Blavatnik School of Government, the University of Oxford to systematically record government responses worldwide and aggregates the scores into a common 'Stringency Index'. Based on indicators such as school closures, travel bans, emergency investment in health care, fiscal measures, and investment in vaccine research, an analysis of data from 73 countries, identified India's response as one of the most stringent in the world. India, along with Israel, Mauritius, New Zealand, and South Africa scored a perfect 100 on this tracker.<sup>6</sup>

The first case in the subcontinent of India was reported on 30th January 2020. Up to 1st March 2020, only three cases were reported. This number rose from three to 571 as of 24th March 2020.<sup>7</sup> This day marks an important landmark because the Indian government announced a countrywide lockdown-the biggest nationwide lockdown in the history of the world, for three weeks starting at midnight on 24th March 2020 to slow the spread of the virus.

This article tries to review the various measures adopted by India to contain the spread of this fatal virus. It looks at some of the guidelines proposed by the various nodal agencies, which had far-reaching impacts and studies their development over time. While looking at the evolution of these guidelines, this review paper aims to assess the patterns of responses of the health care workers, as well as of the community to those guidelines, during this pandemic.

## Methodology

### *Study design*

The primary objective of this review paper was to track the unfolding of guidelines about the pandemic. Secondly, we aimed to understand the response of the health system and the communities towards these guidelines. The search strategies included defining the search phrases using Boolean operators to browse. This was followed by the identification and selection of relevant and robust data sources. The data thus collected was curretted according to its applicability for the aim of this paper. The available data was then analysed, summarised and the results were reported and discussed.<sup>8</sup> All the documents retrieved by the researchers were shared in a common cloud to maintain clarity and to avoid any duplication of efforts or data.

### *Data sources*

It was decided to include guidelines provided by the global, as well as the national agencies to facilitate a comparison between the pandemic preparedness of India and the world. The guidelines issued by the WHO<sup>9</sup> were chosen for the research, as it is the central agency tackling the pandemic situation globally. The MoHFW<sup>10</sup> and ICMR<sup>11</sup> were identified as the nodal agencies from India. The MoHFW provides crucial directives and issues advisories to be followed by the citizens throughout the nation. ICMR extends technical support to the laboratory, provides guidance on the expansion of testing facilities, and establishes standard operating procedures for various situations. The official websites of these agencies were regularly visited and all the pivotal documents published about COVID-19 were collected and documented.

Official websites of the country's reporting media were another important source of data for this review. Literature was also extracted from bibliographic databases, especially, BioMed Central and The Lancet<sup>12, 13</sup> using key search phrases such as "India", "COVID-19 guidelines", "COVID-19 government preparedness", "COVID-19 response", "Indian states and COVID-19", "COVID-19 community response", and "health sector and COVID-19" with various Boolean operators. The validity of this data was verified by data matching with the official websites

of India and its various constituent states. Data from non-scientific and unreliable or informal sources were excluded from the research.

#### *Data usage*

Documents released or updated by the above-mentioned organisations served as the benchmark for data inclusion. Data collection was initiated on 28th March 2020, after setting up the research objective. Data from all relevant sources, dated on or before 28th March 2020 and up to 20th April 2020, was curated and merged in a common document for further comprehension.

From the multitude of guidelines issued, few were tracked for this review, to understand and compare between the global and the national systems. These include guidelines for health care personnel and infrastructure, the various travel advisories issued by the MoHFW, the operational directives on procurement and use of personal protective equipment (PPE), guidelines on social distancing and self-isolation, and lastly, the usage of Hydroxychloroquine in the prophylaxis for frontline health workers and the management of ill patients.

#### *Methods of compilation*

Based on the epidemiological data available and the aim of this review, the collected articles and derived information were categorised under three major domains. Firstly, the classification of guidelines proposed by nodal agencies along with their development and amendments over time; secondly, the response of health care workers to the proposed guidelines and finally, the response of the community to the planned strategies.

### **Results and Discussion**

Since the onset of the epidemic in Wuhan, the virus has spread alarmingly across the world and as of 20th April 2020, only a handful of nations remain unaffected by the global pandemic.<sup>14</sup> Global, as well as national agencies dealing with the COVID-19 pandemic, developed and revised several guidelines about the changing course of the pandemic.

#### *Development of guidelines by nodal agencies*

On 10th January 2020, the WHO issued guidelines for the detection, testing, and management of

potential cases for all countries based on the experience of dealing with similar respiratory infections such as SARS and MERS.<sup>15</sup> The virus had spread to Thailand, Japan, South Korea, and the US by 21st January 2020, and on the 30th of the same month, WHO declared that the outbreak constituted a PHEIC.<sup>15</sup> Numerous guidelines about travel and quarantine, case management, roles and responsibilities of health care workers, personal protective measures, prevention, and capacity building were developed, as the WHO declared COVID-19 to be a global pandemic on 11th March 2020.<sup>15</sup> By the end of March, the disease had reached all WHO regions with over 7,000 cases.<sup>16</sup>

India reported the first confirmed case of Coronavirus on 30th January 2020 from Kerala, a student who had returned from Wuhan.<sup>17</sup> Since then public health preparedness, surveillance, diagnostics, infection control, and logistics were constantly reviewed by national nodal agencies like the ICMR, MoHFW, and the National Centre of Disease Control (NCDC).<sup>18</sup> The MoHFW issued travel advisories and quarantine measures for foreign travellers and established guidelines for state and national level measures for the pandemic. It further designated the ICMR National Institute of Virology (NIV) as the nodal centre for coordinating diagnostics.<sup>18</sup> Along with the MoHFW, the Prime Minister's office and ICMR have been closely monitoring the situation in the country. The WHO country office for India (WCO) has been working with the NCDC on disease surveillance and with the ICMR on laboratory testing capacity.<sup>18</sup> The above-mentioned nodal agencies have been working on many domains of the pandemic and have come up with guidelines to deal with the same at several points of time during the pandemic in the world and India.

Table 1 explains the development of such guidelines about the context of the progressing COVID-19 pandemic. The health system of the country has been functioning following the above-mentioned guidelines by the nodal agencies to deal with the pandemic situation and the community has responded to the evolution of these guidelines in varied ways.

*Health system response to the guidelines*

Responding to the pandemic threat early, the MoHFW and the Ministry of Civil Aviation initiated flight entry screenings for symptoms of cough and fever for travellers coming from China at 21 airports in India by the end of January.<sup>18</sup> By 6th February 2020, several states had extended manpower support for screening and to help the airport public health officers. On the early recognition protocol by the WHO, the ICMR enabled 12 additional labs across the country to function as COVID-19 diagnosis centres.<sup>18</sup> Guidelines for the use of commercial kits for nasal/throat swab-based diagnoses were issued by ICMR. Besides, all the states and Union territories were directed by the MoHFW and the Prime Minister's office to invoke provisions under section two of the Epidemic Diseases Act by the mid of March.<sup>18</sup> Ambulances were allocated for the pandemic and risk communications were strengthened. In states like Kerala, this was done as early as the second week of February.<sup>18</sup> The MoHFW in coordination with the WHO enhanced COVID-19 preparedness, response, and containment for health care personnel. Further, more than 550 health care facilities with over one-lakh isolation beds and more than 11,000 ICU beds have been set up.<sup>18</sup> Besides, the MoHFW has commissioned AIIMS, New Delhi for the capacity building of frontline health care workers via the 'Integrated Government training (iGOT)' portal.<sup>18</sup> Additionally, the ICMR recommended the use of Hydroxychloroquine for asymptomatic health care personnel dealing with suspected or confirmed cases of COVID-19.<sup>19</sup> While there has been an increasing demand for the anti-malarial drug, questions have been raised on its efficacy in treating the disease.<sup>20</sup> There have also been reports of a shortage of PPEs for frontline health care workers. Not only the shortage of masks and kits but health care personnel are also dealing with prolonged shifts, sometimes even without bathroom breaks.<sup>21</sup> Furthermore, there have been several instances of attacks on health care workers in different parts of the country.<sup>21</sup> Health care providers are providing covid-care alongside essential and emergency services for other health conditions. Meanwhile, the Indian Medical Association (IMA) had asked the health care personnel across the country to 'light candles with

white coat' on 22nd April 2020 as a protest against the attacks on health care personnel.<sup>22</sup> In this regard, the centre brought in an ordinance making attacks on health care personnel a cognisable and non-bailable offence. It instructed for completion of investigation within 30 days and judgement within one year. The accused, if proved guilty could be subjected to imprisonment up to seven years and a fine up to Rs 5 lakhs in case of grievous injuries and would have to pay compensation twice the market value of the damaged property.<sup>22</sup> As the health system has been responding to the pandemic, the community has been keeping up with these strategies as well.

*Community response to the guidelines*

As the country closed in on a thousand confirmed cases on 24th March 2020, the Prime Minister announced a countrywide lockdown of 21 days under section 6.2 of the Disaster Management Act, 2005.<sup>18</sup> On 14th April 2020, the lockdown was further extended till 3rd May 2020. Apart from observing social distancing at regulated essential supply centres such as groceries, medicine stores, petrol stations, and other such establishments, citizens have been refraining from social gatherings. While educational institutions and workplaces have been indefinitely suspended, usage of online platforms has increased, thereby affecting many sectors. The situation is especially worse for migrant workers who have been stranded away from home without work and pay to sustain themselves.<sup>23</sup> International, as well as national travellers, have been following self-quarantine as and when required as per the directives of officials. While such measures have halted the unprecedented spread of the pandemic in the country, there have been various instances of lapses.<sup>24, 25</sup> In addition, there have been reports of violence against health care workers because of lack of awareness and information among public, as mentioned before. Apart from that, the contagion has affected the country economically by disruption of supply chains, with most businesses being suspended and economists predicting an impending recession.<sup>26</sup> As the nation battles the COVID-19 pandemic, the prevalence of stigma, false information, and misconceptions are also not uncommon among the population. An example of this can be seen in the

people starting to misuse Hydroxychloroquine, which prompted the government to take immediate action to make this a Schedule H1 drug to restrict the sale and supply of it only on prescription.<sup>27</sup>

#### *The social-ecological model (SEM)*

The present context gives a clear picture that individual factors like knowledge, attitude, and behaviours are being influenced by community influences, which are again in a dynamic relationship with structural factors like availability and access to resources related to health care as well as daily commodities. Even though individual factors can determine the development of the disease as well as administrative goals, economic revivals, and people preferences with health being the primary focus of any initiative taken during this period. India and its nodal agencies have taken evidence-based measures

issuing guidelines for health care settings, personnel, and infrastructure by the WHO to combat the pandemic situation. Health care personnel have been abiding by the guidelines and working as a frontline force to safeguard public health despite resistance from the community and have been supported by the government. There is a varied response of the communities across the country to the guidelines and restrictions as it has affected the lives across the sections of the society. Even though the guidelines have been issued following the pathogen, mode of transmission, prophylaxis, and preventive measures, it requires total coordination between the health care settings and the communities to win over the evolving pandemic. The SEM approach will take into consideration all the factors influencing at various levels to ensure the coordination across these levels to win the present pandemic situation.

**Table 1: Guidelines by nodal agencies of the World and India for COVID-19 pandemic<sup>21,22</sup>**

Timeline	Agency	Guidelines	Highlights
Revision of the 2007 guideline (10/01/2020)	WHO	Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care	Early recognition and source control protocol, environmental control, PPE use, isolation, and transport protocol, mortuary care, and use of disinfectants
19/03/2020	WHO	Operational considerations for case management of COVID-19 in health facility and community	Outbreak prevention strategies optimised care provision to ill patients, strategies to minimise the impact of the epidemic on health systems, social services, and economic activities
22/03/2020	WHO	Critical preparedness, readiness, and response actions for COVID-19	Emergency response mechanisms, risk communication, and public engagement, case finding, contact tracing and management, surveillance and laboratory testing
19/03/2020	WHO	Management of ill travellers at points of entry in the context of COVID-19	Detection of ill travellers, reporting of alerts, isolation and quarantine measures, and initial case management
19/03/2020	WHO	Rational use of PPE for COVID-19	Hand hygiene with alcohol-based hand rub, avoiding touching the face, respiratory hygiene protocol, social distancing, medical mask usage protocol
19/03/2020	WHO	Laboratory testing for Coronavirus disease in suspected human cases	Lab testing guidelines, specimen collection and shipment guidelines, and lab bio-safety practices
25/01/2020	MoHFW	Travel advisory to travellers visiting China	Travel safety measure, respiratory hygiene measures, self-isolation, and quarantine protocol
26/02/2020	MoHFW	Revised travel advisory	VISA protocol for Chinese citizens, quarantine measures for visitors from China, and protocol for travel to Singapore, Korea, Japan, and Italy
10/03/2020	MoHFW	Revised travel advisory	Restriction on travel abroad
26/03/2020	MoHFW	Advisory on the use of Hydroxychloroquine as prophylaxis for SARS-CoV-2 infection	Recommendations of the National task force for COVID-19 for the use of Hydroxychloroquine and prophylactic therapy

Timeline	Agency	Guidelines	Highlights
03/04/2020	ICMR	Guidance of expansion of SARS-CoV-2 testing platforms	Use of US-FDA approved closed real-time RT-PCR systems and confirmatory assays
08/04/2020	ICMR	SOP for detection of COVID-19 suspected human cases by RT-PCR: First line screening assay	First-line screening: E Gene assay
20/04/2020	ICMR	Invitation for setting up COVID-19 testing labs	Availability of a BSL-2 lab setup protocol, staff requirements, and biomedical waste management protocol
20/03/2020	ICMR	Environmental and social commitment plan	Environmental and social standards
05/04/2020	ICMR	Criteria for initiation of additional COVID-19 testing laboratories	Testing facility construction guidelines



Figure 1: Social-ecological model (SEM) approach for COVID-19 pandemic

**References**

- Guo Y R, Cao Q D, Hong Z S, Tan Y Y, Chen S D, Yan Y, et al. *The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak - an update on the status.* Military Medical Research. 13 Mar 2020; 7(1):11 Available on URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7068984/>
- Velavan TP, Meyer CG. The COVID-19 epidemic. *Trop Med Int Health.* 12 Feb 2020;25(3):278-80.
- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y. *Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China.* The Lancet. 15 Feb 2020;395(10223):497-506.
- Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. *Early Transmission Dynamics in Wuhan,*

- China, of Novel Coronavirus-Infected Pneumonia.* NEJM. 26 Mar 2020; 382 (13): 1199-1207. Available on URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7121484/>
5. WHO. *COVID-19 Public Health Emergency of International Concern (PHEIC) Global research and innovation forum.* Available on URL: [https://www.who.int/publications/m/item/covid-19-public-health-emergency-of-international-concern-\(pheic\)-global-research-and-innovation-forum](https://www.who.int/publications/m/item/covid-19-public-health-emergency-of-international-concern-(pheic)-global-research-and-innovation-forum) (Last accessed on 12 Feb 2020)
  6. Hale T, Webster S. Oxford COVID-19 Government Response Tracker. Available on URL; <https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker> (Last accessed on 26 Mar 2020)
  7. *Coronavirus in India: Latest Map and Case Count.* Coronavirus Outbreak in India. Available on URL: <https://www.covid19india.org/>
  8. Adhikari S P, Meng S, Wu Y J, Mao Y P, Ye R X, Wang Q, Z et al. *Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review.* Infectious diseases of poverty. 17 Mar 2020;9(1):29. Available on URL: <https://pubmed.ncbi.nlm.nih.gov/32183901/>
  9. WHO. *Country & Technical Guidance - Coronavirus disease (COVID-19).* 17 Jul 2020. Available on URL: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance> (Last accessed on 28th Mar 2020)
  10. MoHFW. *Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19).* Available on URL: <https://www.mohfw.gov.in/pdf/3ContainmentPlanforLargeOutbreaksofCOVID19Final.pdf> (Last accessed on 28th Mar 2020)
  11. ICMR | Government of India. *Media report (1st February to 7th February 2020) (ICMR IN NEWS).* Available on URL: [https://main.icmr.nic.in/sites/default/files/ICMR\\_IN\\_NEWS\\_1\\_to\\_7\\_Feb.pdf](https://main.icmr.nic.in/sites/default/files/ICMR_IN_NEWS_1_to_7_Feb.pdf) (Last accessed on 28th Mar 2020)
  12. Xiang N, Song Y, Wang Y, Wu J, Millman A J, Greene CA, et al. *Lessons from an active surveillance pilot to assess the pneumonia of unknown aetiology surveillance system in China, 2016: the need to increase clinician participation in the detection and reporting of emerging respiratory infectious diseases.* BMC Infect Dis. 3 Sep 2019;19, 770. Available on URL: <https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-019-4345-0>. doi: 10.1186/s12879-019-4345-0
  13. Grasselli G, Pesenti A, Cecconi M. Critical Care Utilization for the COVID-19 Outbreak in Lombardy, Italy: Early Experience and Forecast during an Emergency Response. *JAMA.* 2020;323(16):1545-1546. Available on URL: <https://jamanetwork.com/journals/jama/fullarticle/2763188>. doi: 10.1001/jama.2020.4031
  14. Amos O. *Coronavirus: Where will be the last place to catch COVID-19?* BBC News. 3 Apr 2020. Available on URL: <https://www.bbc.com/news/world-52120439>
  15. WHO. *COVID-19 Timeline.* 8 Apr 2020. Available on URL: <https://www.who.int/news-room/detail/08-04-2020-who-timeline---covid-19> (Last accessed on 22nd Apr 2020)
  16. WHO. *COVID-19 situation reports.* Available on URL: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/> (Last accessed on 22nd Apr 2020)
  17. Staff, O. *COVID-19 India timeline: All the major developments you want to know.* Onmanorama staff. 4 Apr 2020. (Last accessed on 22 Apr 2020). Available on URL: <https://english.manoramaonline.com/news/kerala/2020/03/29/coronavirus-india-timeline.html>
  18. WHO. *India Situation Report.* Available on URL: <https://www.who.int/india/emergencies/india-situation-report> (Last accessed on 22nd Apr 2020)
  19. Rathi S, Ish P, Kalantri A, & Kalantri S. *Hydroxychloroquine prophylaxis for COVID-19 contacts in India.* The Lancet. 17 Apr 2020;20(10):1118-1119. Available on URL: [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30313-3/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30313-3/fulltext). doi: 10.1016/S1473-3099(20)30313-3



20. *Covid-19 treatment: Hydroxychloroquine shows no benefit, according to a report.* Live Mint. 22 Apr 2020. Available on URL: <https://www.livemint.com/news/india/covid-19-treatment-hydroxychloroquine-shows-no-benefit-according-to-a-report-11587525728873.html>
21. Aravind I. *Covid-19: How healthcare workers are paying a heavy price in this battle.* The Economic Times. 12 Apr 2020. Available on URL: <https://economictimes.indiatimes.com/news/politics-and-nation/covid-19-how-healthcare-workers-are-paying-a-heavy-price-in-this-battle/articleshow/75099895.cms> (Last accessed on 24th Apr 2020)
22. Mishra H. *Up to 7 years in jail for attacking Covid warriors, govt brings in ordinance.* India Today. 22 Apr 2020. Available on URL: <https://www.indiatoday.in/india/story/central-govt-ordinance-to-protect-medical-staff-covid19-coronavirus-1669784-2020-04-22> (Last accessed on 24th Apr 2020)
23. Dwivedi A. *India is fighting Covid-19 like Liberia fought the Ebola outbreak.* The Print. 20 Apr 2020. Available on URL: <https://theprint.in/opinion/india-is-fighting-covid-19-like-liberia-fought-the-ebola-outbreak/404835/>
24. Haider T. *Timeline of how Nizamuddin Markaz defied lockdown with 3400 people at Tablighi Jamaat event.* India Today. 31 Mar 2020. Available on URL: [https://www.indiatoday.in/india/story/timeline-of-nizamuddin-markaz-event-of-tablighi-jamaat-in-delhi-1661726-2020-03-31](https://www.indiatoday.in/india/story/timeline-of-how-nizamuddin-markaz-event-of-tablighi-jamaat-in-delhi-1661726-2020-03-31)
25. Sharma N. *The Nizamuddin meet wasn't the only instance of callousness in India amid the Covid-19 scare.* QUARTZ INDIA. 1 Apr 2020. Available on URL: <https://qz.com/india/1829912/indias-coronavirus-rules-broken-by-many-not-nizamuddin-alone/> (Last accessed on 23th Apr 2020)
26. De P. *COVID-19, New Normal and India.* The Economic Times. 9 Apr 2020. Available on URL: <https://economictimes.indiatimes.com/blogs/et-commentary/covid-19-new-normal-and-india/> (Last Accessed on 24th Apr 2020)
27. *Hydroxychloroquine to be sold strictly as per Schedule H1.* OpIndia staff. 27 Mar 2020. Available on URL: <https://www.opindia.com/2020/03/coronavirus-hydroxychloroquine-government-order-schedule-h1-retail-sale-read-details/> (Last accessed on 25th Apr 2020)
28. Lee B C, Bendixsen C, Liebman A K, & Gallagher S S. *Using the Socio-Ecological Model to Frame Agricultural Safety and Health Interventions.* J Agromedicine. 2017;22(4):298-303. Available on URL: <https://pubmed.ncbi.nlm.nih.gov/28762886/> doi: 10.1080/1059924X.2017.1356780. PMID: 28762886