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Letter to the Editor

Re:(In) visible impact of inadequate WaSH Provision on COVID-19 incidences can be not be ignored in large and megacities of India



The number of coronavirus cases in India has crossed the 82,000-mark on May 15, 2020.¹ As on May 15, 2020, there are 51,401 active COVID-19 cases in the country, 27,919 patients have been cured or discharged, whereas 2649 people have died from this deadly disease. The geographic distribution of COVID-19-positive cases is not uniform in India and 10 big cities account for more than 52% of the total reported cases with Mumbai, Delhi, Ahmadabad, Chennai, and Pune are most affected² indicates a spatial clustering of the disease.

Recent studies have shown multiple environmental factors such as temperature^{3,4,5,6,7}, humidity^{8,9,10}, air pollution¹¹ and smoking¹² determine the severity and rate of spread of COVID-19. Poor availability and accessibility of water, sanitation, and hygiene (WaSH) may increase the risk of COVID-19 spread by affecting the survival and transmission of the virus in a variety of ways. Higher incidences of certain infectious diseases, such as diarrhoea, cholera, typhoid and hepatitis¹³ reported in poor WaSH conditions. Poor status of WaSH is also associated with stunted growth, impaired cognitive and mental development, especially among children.¹⁴ Surprisingly, no study has made yet that aimed to provide scientific evidence about the provision of WaSH services and incidence of COVID-19.

WaSH are essential components of human health.¹⁵ Hence, universal, sustainable, and equitable provisions of WaSH services by 2030 stand for the UN Sustainable Development Goal 6. In the Indian context, despite several policies and programme interventions such as Housing for All, Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Rajiv Awas Yojana, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Swachh Bharat Mission running over decades, the poor provision of WaSH remains a major problem, particularly in deprived areas of large cities and megacities.¹⁶ The studies related to JNNURM and AMRUT indicate that while there is sufficient funding for urban infrastructure, exclusion of expenditure in the provision of WaSH especially in socially excluded areas is quiet inevitable.^{17,18} These socially excluded areas or 'slums' are defined as areas with poorly built congested tenements and unhygienic environments usually with inadequate basic facilities and lacking in proper sanitary and drinking water facilities.¹⁹

In response to the COVID-19 pandemic, the Indian Government has imposed lockdown since March 24, 2020, on its 1.32 billion citizens, an unprecedented act in the country since independence. India is a developing country combating the COVID-19 pandemic with limited resources.²⁰ For this reason, to manage the country's health infrastructure and services effectively in the era of COVID-19 pandemic, it is necessary to identify and target the most

vulnerable. The model microplan adopted by the ministry of health and family welfare²¹ has set the objective to break the chain of COVID-19 transmission at the community level by containment of large outbreaks through geographic quarantine thus reducing the morbidity mortality owing to COVID-19 in India. In accordance with geographic quarantine strategy, all the geographical cluster with large outbreak COVID-19 from a single or multiple foci complete restriction has been imposed on the movement of people to and from those identified neighbourhoods.²¹ In the context of COVID-19 while the effectiveness of the geographic quarantine strategy cannot be overlooked, but it has completely overlooked the trajectory of the previous infectious diseases reported in India. For infectious diseases such as diarrhoea, cholera, typhoid and hepatitis, higher incidences reported in areas of poor availability of WaSH combined with poverty, pollution and congestion.^{22–24} Unfortunately, to date microlevel planning to combat COVID-19 has only targeted the clusters with outbreaks of the disease at the local level.

In times when social distancing, self-isolation and hygiene are the most effective strategies to contain the pandemic, most affected Indian large cities and megacities facing a challenge that is unknown to European or North American cities: the living environment deprivation especially poor WaSH provisions in several clusters within large and megacities (Fig. 1). These socially and spatially excluded clusters in large cities and megacities usually characterise urban slum and living areas of lower socio-economic class, which recharacterised by deprived WaSH conditions in the form of congested housing conditions, lack of safe water, poor sanitation facilities and resultant unhygienic practices which increases the risk of its inhabitants to be infected by the new coronavirus and to propagate the spread of the disease.

At a time when community transmission of COVID-19 has reported in Mumbai megacity, populations who live in clusters with deficient WaSH services, especially in metro cities, appear as an additional concern. More than 50 percent of slum household (HH) in India accommodate themselves within one single room.¹⁹ In Gujarat and Maharashtra near about two-thirds of slum HH are roofed under a one-room facility. In these clusters, standard prevention practices such as social distancing, self-isolation, and hygiene are virtually impossible.²⁵ In these HH, where four or more individuals share the same room and bathroom/toilet and with limited private indoor and outdoor spaces, keeping sick individuals isolated during quarantine becomes impractical. Previous study reported overcrowded HH are at higher risk for lower respiratory tract infections.²⁶

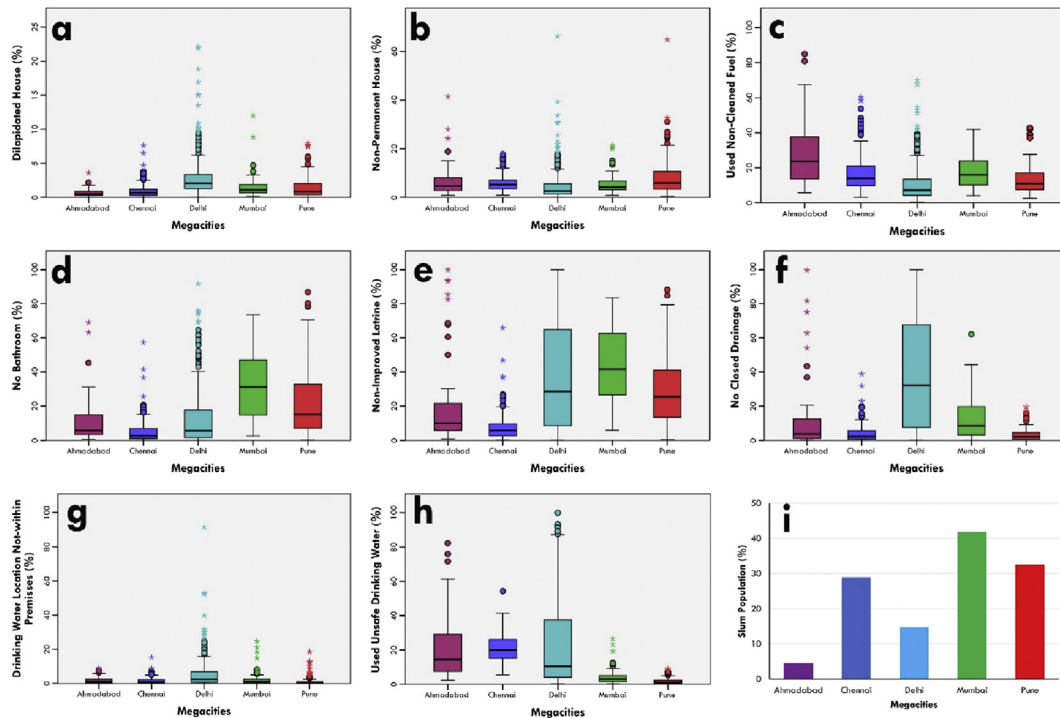


Fig. 1. Graphical representation of poor WaSH performance in large and megacities of India. WaSH, water, sanitation, and hygiene.

In Maharashtra, 40% of urban households and 60% of the slum HH did not have a private toilet facility inside their homes¹⁹ and 35% HH need to step out of their homes to collect drinking water from public taps, tube wells and wells.¹⁹ About 25% HH of Ahmedabad, there is no drainage/open drainage for wastewater disposal. Insanitary conditions coupled with people crowding around public taps owing to hourly restrictions on water availability increases their susceptibility to COVID-19 infection. Other large and megacities also facing similar conditions especially in the socially excluded slum areas, where WaSH provision is poor. Outbreaks of COVID-19 in slum areas with poor WaSH provisions in these densely packed cities increase challenges for the city authorities to manifold, who are already struggling with the faulty choice of the containment strategy. An increasing number of COVID-19–positive cases is reported from these clusters in Mumbai, Chennai and Ahmedabad.²⁷ For example, as of May 15, 2020, Dharavi of Mumbai, the largest slums of have reported 1145 positive cases.²⁸ The complete disregard of WaSH deprived and other socially excluded areas with inadequate WaSH provisions, in which the majority of the socio-economically disadvantaged (urban poor) reside, is a major loophole and critical gap in COVID-19 mitigation measures implemented so far in India. The Ministry of Health and Family Welfare (MoHFW) have not considered these WaSH-deprived cluster in the COVID-19 containment strategy which hinder the chances of prior identification of potential COVID-19 hotspots in the large and megacities. The sidelining of WaSH-deprived and socially excluded areas increase the chances of emergence of several potential hotspots of COVID-19 particularly in large cities and megacities in the near future. Poor WaSH conditions increase the risk of diarrhoea, typhoid and hepatitis among children living there, and this leads to weaken immune system of children, increasing susceptibility to COVID-19. Finally, people living in areas with poor WaSH conditions have prevalence of cardiovascular disease, obesity, diabetes and hypertension which remain unnoticed owing to limited access to healthcare.²⁹ It is well established that

hypertension and diabetes are risk factors for death from COVID-19.³⁰

In this way, WaSH-deprived clusters and socially excluded slum areas in large and megacities may emerge as a major public health concern in the face of a COVID-19 pandemic. There is every possibility that the COVID-19 can spread to these clusters, with irreversible consequences for the entire country. The model of COVID-19 risks detection ignoring WaSH-deprived clusters and socially excluded slum can increase exposure to and mortality from COVID-19 in large and megacities of India.

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