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Water, Sanitation and Hygiene Challenges Faced in India in COVID-19 Prevention: A literature Review

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Abstract

Coronavirus disease 2019 (COVID-19) is a respiratory infection. This is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 was first found in Wuhan, China on December 2019.[1] On 11 March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic.[2] Currently, India ranks second in COVID-19 cases. There is no proven specific treatment for the infection.[3] Infection Prevention and Control (IPC) through Water, Sanitation and Hygiene (WASH) and frequent Hand Washing with Soap (HWWS) is the key in stopping the spread of COVID-19.[4] This paper, using secondary data sources discusses on challenges faced in the country in adopting WASH practises to prevent COVID-19. Besides social distancing and other hygiene protocols, HWWS is a simple and primary preventive measure to combat COVID-19 but face challenges due to water unavailability or low access to water. Poor sanitation and hygiene plays a role due to lack of water and awareness. Ensuring clean access to water, good sanitation and improved hygiene practices in the communities and health care facilities will prevent COVID-19 transmission. Policies on water management, water conservation will address the issue of water challenge, which not only will help in addressing COVID-19 transmission but in the days to come. An intensive social behavioural change programme to be conducted at various levels to eradicate myths associated with COVID-19.

Keywords: *COVID-19, Water, Sanitation and Hygiene, infection, prevention.*

Introduction

According to WHO, Novel coronavirus disease (COVID-19) is caused by SARS-CoV-2, first occurred in Wuhan China.[5] COVID-19 has affected 216 countries and has infected over 9 million people, globally.[6] In India, among the population of 1.366 Billion, about 1.8 million cases were confirmed by August 3, 2020 which has 6,07,384 active cases and 41,585 deaths as on August 7, 2020, according to Ministry of Health and Family Welfare (MoHFW). In India, the average population density is 384 persons per square kilometre. Asia's largest slum Dharavi with 3,35,907 persons per square kilometre highly associated with the COVID-19 due to the population crowd.[7] About 58.2% of the households in rural households in India have drinking water facilities outside the premises, where people go out for water. This can be a chance of transmission during COVID-19. Similarly, for households that have latrine facilities outside the premises.[8] India with extreme water stress makes it difficult to practice handwashing and hygiene during COVID-19. Providing safe water, sanitation and hygienic conditions is very essential for preventing the infectious disease outbreaks, including COVID-19.

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Methodology (Source Selection Criteria):

COVID-19 related documents published until July 2020 were extracted from various databases like PubMed Central (PMC) / MEDLINE, The Lancet,

and ResearchGate. The search terms for each online database containing COVID-19 disease, SARS-CoV-2 virus, COVID-19 India published until July 2020 were included. Other sources include WHO and the Government of India websites.

Results

WASH Challenges in COVID-19 Prevention:

Low Access to Water: Access to water is a key determinant for infectious disease control and prevention.[9]

Handwashing with Soap (HWWS) at critical times is one of the precautions to prevent any infectious diseases. The WHO recommends frequent HWWS as a preventive measure against COVID-19 transmission along with social distancing.[10] According to World Resources Institute (WRI) reports, India in 13th rank out of 17 countries on the list of extremely high water stressed countries in the world. According to NITI Aayog, nearly 600 million people in India face extreme water stress. Frequent hand washing per person, ten times a day consumes around 20 to 40 litres of water and a family of five members would need 100 to 200 litres. This increases the demand for water, where the country already faces extreme high water stress conditions, making difficult for the people to practice HWWS as per recommendations.[11]

Women and girls bear most of the responsibility in managing water at the household level, collecting water from the source to the point of use. The demand for water during this COVID-19 has indeed increased the burden on women and girls in collecting water.

According to National Sample Survey's (NSS) 2018 report, nearly 48.3% of the households in urban and rural India do not have exclusive access to drinking water. One-fourth of these households (23.6%) access it through a public, unrestricted source as per. About 30.5% of rural households access public community sources. It is also reported that in most of the community sources, people do not follow social distancing principles. A study revealed viral contamination in air samples, on frequently touched surface points and surfaces such as toilets. Touching the water, faucets by many individual can transmit COVID-19 from pre-symptomatic or asymptomatic individual to others.[12] The lack of access to water directly or indirectly contributes COVID-19 transmission.

Open Defecation and Waste Water Management: In India, according to the NSS 76th round report, 41% of households use community bathrooms, 11.2% use community latrines and 20.2% have no latrines. People from households without toilets are most likely to defecate in the open, which may contribute to the risk of transmission of COVID-19 through the faecal-oral route due to open defecation. To improve sanitation, government built more than 100 million toilets through Swachh Bharat Mission (SBM). However, many of them remain unconnected to a proper sewer system. In addition, there are not enough treatment plants to handle all the sewage. Vulnerable communities have water and sanitation services where people gather in groups, increasing the risk of COVID-19 transmission. All community sanitation facilities cause risk as it makes social distancing and hygiene difficult. The presence of poorly maintained mega community toilets and open defecation due to lack of access to toilets are major contributors to COVID-19 cases especially in urban slums and rural parts of the country, according to Ministry of Health and Family Welfare- Drinking water, sanitation and Housing condition in India.

Lack of Hygiene: According to NFHS-4 (2015-16), only 24% households have access to both soap and water as per. NSS say that only 36% of Indians wash their hands with soap before a meal.[13] A study revealed an average level of awareness on HWWS and hygienic practices among doctors and nurses and recommended for regular training to health care professionals on infection prevention and control. The health care professionals mentioned lack of handwashing facility or unavailability of alcohol based hand rub as challenge in following hand hygiene practice.[14]

Lack of Awareness: In India, lack of awareness, knowledge and negligence of COVID-19 as one of the main contributing factors for fast transmission of COVID-19 transmission.[15] A recent survey found many misconceptions in people about the COVID-19 spread. Some of the misconceptions are virus (COVID-19 infection) cannot affect the country due to its warm or hot weather, infection affects only people above 60

years of age. The results showed majority of the study participants used masks while going out, however, about 40% of these participants did not believe wearing a mask in reducing COVID-19 spread. This superstitious beliefs due to lack of education, awareness and ignorance will lead to increase in infection transmission.[16] A study conducted in India about knowledge, attitude and anxiety during COVID-19, reported that the sources for COVID-19 information were through televisions, social media and through Arogya Setu application recommended by Government of India. The result showed, study respondents had a moderate level of knowledge on COVID-19 virus transmission and the risks of getting serious COVID-19 illness.[17] COVID-19 awareness to the communities, health care workers is most needed to reduce the transmission.

Discussion

From the above findings, we see that there is humongous challenge of WASH services and practices existing in the country. This challenge pose a greater risk for overly populated country like India with a population of 1.3 billion people with a population density of 455 person per sq. km population density according to the World Bank data, compared to the global average population density of 25 persons per sq.km. Ensuring hygiene and sanitation in a densely populated and resource poor settings like India remains a challenge. Most people living in rural communities and urban slums depend on community water sources and toilets. During the time of COVID-19, many governmental and non-governmental organisations have increased access to community drinking water, handwashing station with soap and community toilets. Yet again, the challenge is observed in regular maintenance of these infrastructures due to lack of water and lack of interest from community.

Unregulated and free access to groundwater extraction has resulted in over exploitation of groundwater and reduced ground water levels. Scanty and inconsistent rainfall, limited sources of surface water add up to the water stress condition. Due to these factors, both rural and urban population have limited access to water and people face challenges to adopt to good WASH practices. The demand for water has yet increased the challenges during COVID-19.

The pandemic COVID-19 has substantially affected Indian labour. After the strict lockdown, the country has begun unlock which could be a threat in a resource poor settings like India with limited WASH services and practices. The Ministry of Health and Family Welfare has released guidelines to be followed in unlock. Guidelines being followed vehemently is dubious.

Conclusion and Recommendations

The main challenge of access to Water, Sanitation and poor Hygiene practices need to be addressed to combat the spread of COVID-19 infection. Addressing the challenge will help to control outbreak of any infectious diseases. To improve water and sanitation, government has brought in many programmes and schemes like Jal Shakti Abhiyan, Jal Jeevan Mission; Atal Bhujal Yojana, Swachh Bharat Mission. These schemes or programmes mainly focused on supply side, infrastructure approaches with limited implementation capacity. Capacity development and ownership from the community is still lagging. The priority on water conservation is to be emphasized much and simple rainwater harvesting at household level will eliminate water crisis.

The country do not have adequate wastewater treatment plants. Treated water can reduce the use of fresh water, which can reduce the consumption of fresh water significantly. Investing in sustainable solutions for wastewater treatment will reduce future water crisis, help in adopting to good WASH practices. Alongside, much efforts needed in increasing hygiene awareness in people. A strong behaviour change programme is needed to every citizen to make them realise the importance and their role in contributing to water conservation; management; hygiene practices for infection prevention control and better quality of life.

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