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Editorial

Physical Distancing, Hand Hygiene and Masks

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The novel disease - Corona Virus Disease (COVID-19) of the respiratory system, responsible for the ongoing pandemic is caused by the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) which originated from Wuhan city, Hubei province of People's Republic of China during late December 2019. The mode of transmission of this acute respiratory tract infection is primarily through droplets, respiratory secretions and direct contact. Recent evidences suggest that the virus can be airborne too.[1,2,3] The number of COVID-19 cases are increasing day by day, and have affected more than 200 countries of the world with the mortality rate of 4.43%; however, the mortality rate is varied country to country, as reported by WHO. The disease has made much damage in the Americas and European countries.[4,5] After the first COVID-19 case reported in Trissur, Kerala, on January 30, 2020, at the time of writing this article, around 7 lakh cases and 21000 deaths occurred in India with a mortality rate of 2.78%.[6]

The incubation period of COVID-19 as per various studies is suggested to be 1 to 14 days, with a mean duration of 5 to 7 days, and the transmission of virus 1 to 2 days before the onset of symptoms. Asymptomatic or minimally symptomatic patients with the potential for transmission can augment the rapid spread of infection. Various non-pharmaceutical containment measures have been suggested and being implemented all over the world that include case detection, isolation, contact tracing, quarantine, etc. Several countries are executing compulsory measures of social distancing so that viral transmission can be inhibited and delayed. They implemented various options such as closing of educational institutions, offices, lockdown of cities, practice of screening at railway stations and airports, restriction of movement, work from home, and effective quarantining. The correct scheduling and period of the social distancing measures are crucial to its success.[7]

Apart from these there are other non-pharmaceutical measures which directly determine the spread of infection in populations viz. physical distancing, hand hygiene and use of face mask.[8] Because early transmission of the SARS-CoV-2 is caused by pre-symptomatic- or pauci-symptomatic-infected individuals, these non-pharmaceutical preventive behaviours are getting more attention for the containment of the COVID-19 pandemic and these have been recommended by the WHO.[9]

The pandemic of "Spanish flu" in 1918 proved physical distancing as an important non-pharmaceutical measure in its control. Use of face mask and hand hygiene reduced respiratory illnesses in shared living settings

and were useful in controlling the devastating pandemic.[10,11] According to a recent systematic review that collated information from 172 studies including those on COVID19, SARS and MERS outbreaks on physical distancing and use of face mask; keeping a distance of at least 3 feet (1 meter) from other people lowered the chances of coronavirus infection or spread by 82% and the risk of infection was 3%, against 12.8% risk if they were within a metre. Simulation and other relevant mathematical modelling suggest that the risk is halved for every extra metre, up to three metres. Wearing face masks and cloth face coverings was also linked with COVID-19 protection for the general public; the same was true for health care workers, but there was a trend suggesting that N95 masks provided greater protection in health care settings than other types of masks.The chance of infection was 3.1% for those wearing a face mask, and 17.4% for those without, while using face shields and glasses reduced the risk of transmission to 5.5%, down from 16% without their use. The review also supports universal face mask use, because masks were equally effective in both health care and community settings.[12,13]

According to a study during SARS epidemic in Hong Kong by Macintyre[14] and other studies during influenza pandemic,[11,15] early users and adherent mask users had a significant reduction in the risk for clinical infection and have been effective at limiting community spread. The relative reduction in the daily risk of acquiring a respiratory infection associated with adherent mask use was in the range of 60% to 80%.[16,17] Healthcare workers should be trained in donning (order and methods of putting on facemasks and respirators), fit checking and doffing (order and methods of removingfacemasks and respirators) techniques so that they do not contaminate themselves.[15] Model simulations, using data relevant to COVID-19 dynamics in the US states of New York and Washington suggest that broad adoption of even relatively ineffective face masks may meaningfully reduce community transmission of COVID-19 and decrease peak hospitalizations and deaths.[18]

As per randomized clinical trials conducted in community and healthcare settings, early use of face masks and hand hygiene with soap or alcohol-based sanitizer followed by compliance has a higher chance of preventing infection.[19] According to Pall Thordarson, the corona virus assemblage's weakest bond is made up of a lipid bilayer. Soap dissolves easily this fatty membrane thereby deactivating the virus. This implies that washing hands regularly with clean running water and soap is very crucial in the fight against the spread of the virus.[20] Various studies have shown that a substantial portion of human respiratory tract infection is transmitted via contaminated hand contact with the mouth, eyes, and/or nostrils. This can be due to the fact that the nose whose suction action can easily cause pathogen transfer from the hands which often actively keeps contacts with contaminated environmental surfaces.[21] According to Burton, "the rate of pathogen loss from the hands due to pathogen die-off can be increased by hand washing with clean running water and soap."[22] According to Qing-Xia Ma (2020) water containing 1.00% soap powder is not only helpful for wiping away the virus using its surfactant activity, but also efficiently inactivates enveloped viruses including coronavirus, as proved by multiple studies. As clean water is often unavailable e.g. during travelling, people can be infected through hand-mouth, hand-nose, or hand-eye contact before handwashing. In this sense, it is important to have at least one of these items at hand, i.e., 75% alcohol, hand sanitizer gel, disinfecting wipes, for instant hand hygiene after one has touched something possibly contaminated by the virus.[23]

After a three-month lockdown and during the last fifteen days of unlocking, there in an upsurge of cases with progressive reduction in doubling rate of COVID 19 positive cases in India. As per newspaper reports people are seen on streets, shops and other places violating the preventive norms.[24,25] It seems there is a release phenomenon among the people after a three-month long isolation. Utmost care is needed at this stage to educate and instruct the people for furthering the observance of all the necessary non-pharmaceutical preventive measures. After all, above the governmental provisions and efforts the role of public in strictly following the COVID 19 containment norms viz. use of face mask, physical distancing and hand hygiene would be decisive for the course of the disease that follows in any region.

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