



Review Article

COVID-19 Pandemic Outbreak; Critical Review on the Effectiveness of Social Quarantine as Preventive Public Health Measure

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ABSTRACT

The emergence of novel coronavirus diseases (COVID-19) poses a global threat to public health security. The infectious disease was first identified in Wuhan, China and spread rapidly to multiple countries all over the globe. Gradually, this pandemic caused the casualties of people who have been exposed to the infected virus. Different countries have implemented several interventions to mitigate the human-to-human transmission of this disease including travel restrictions, setting up isolation centers, clinical therapeutics, lockdowns, and social quarantine. The study sheds light on the critical aspects of social quarantine preventive intervention to avoid the spread of COVID-19. The lessons learned from the current pandemic can help the future preparedness and response plan to combat the progression of the disease. Although the scientific basis of social distancing might be effective and robust, however, the implementation of social quarantine will result in several repercussions. The wake of the coronavirus pandemic becomes a serious concern for public health that shut down the workplace or any business activity. In this situation, the governments must combat the coronavirus disease and take steps to improve the economic condition of the country. Special attention must be paid to the most disadvantaged and vulnerable populations such as the disabled, older population, homeless and poor populations to lessen the risks of coronavirus disease. Policymakers must ensure transparency in communication and provide evidence-based interventions to tackle the worse situation. In the hour of need, the countries must coordinate their effort to develop antivirals and vaccines for the treatment of the infectious fatal disease. All countries must use print, electronic and social media wisely and they must be coordinated and provide education and social awareness among citizenry regarding how to avoid being infected by coronavirus.

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INTRODUCTION

The cascading outbreak of coronavirus (COVID-19) becomes a life-threatening epidemic that causes serious threats to human health. The novel coronavirus outbreak has emerged from Wuhan, city of Hubei province in China since December 2019 (Wilder-Smith and Freedman, 2020; Zhou et al., 2020). Gradually, the virus spread to different regions of China and other countries as well. On 11 March 2020, the virus has exported to more than 113 countries and the number of confirmed cases exceeded 118,162 and the number of deaths reached 4290 in China (Saqlain et al., 2020). WHO declared that the coronavirus outbreak has been considered a pandemic and issued public health emergency to countries that are at risk of getting COVID-19 (Kandel et al., 2020; Rodriguez-Morales et al., 2020).

Subsequent reports found that COVID-19 has been expanding rapidly to North America, Europe regions, the Middle East, and Asia countries through community transmission (Bedford et al., 2020). According to World Health Organization (Situation Report), the number of cases rises to 2626,321 that were found confirmed positive cases and 181,938 deaths due to coronavirus all over the globe till 25th April 2020 (Wu and McGoogan, 2020a).

Clinical Manifestation

Coronavirus is RNA infectious disease that causes moderate to severe respiratory illness among infected patients such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) that cause severe fatalities earlier (Kandel et al., 2020; Rodriguez-Morales et al., 2020). Infected patients have shown clinical symptoms of nasal congestion, fever, dry coughing, runny nose, and diarrhea in 2-8% of

patients (Wu and McGoogan, 2020b). Few patients have difficulty in breathing and become seriously ill after an incubation period of 14 days. In severe cases, it will lead to pneumonia, organ failure, respiratory paralysis and death (Zhou et al., 2020). Patients with a medical history of cancer, respiratory disorder, liver infection, or cardiovascular illness are more vulnerable to new (COVID-19) infections. Older people and young patients are at greater risk to confront serious illnesses from coronavirus disease. This estimate nevertheless camouflages the reality that fatality rates differ by age, and for those over 80 years the rate is closer to 15%. Similar findings were reported after Ebola Virus Disease (EVA) outbreak, EVA survivors suffer with higher odds of persisting disability in mobility, vision, and cognition and mental health issues a year after an acute episode of this illness (Gao et al., 2020).

In our opinion, the peer review literature supports the notion that survival from an infectious disease is only the first step and that infectious disease can lead to long-term impairment, activity limitation and participation restrictions. Given this growing body of evidence, there is a need to more fully incorporate multidisciplinary rehabilitation teams inclusive of physiotherapy along the disease trajectory from acute and inpatient care, through to the ambulatory settings and onwards into the community.

Prospective Therapeutics and Clinical Trials

As the virus is progressing at a rapid rate globally, scientists are striving hard to discover effectual drugs against the virus. In CHINA previously presented malarial drug chloroquine phosphate showed some evident effectiveness against COVID-19 pneumonia

in clinical trials. A recommendation was given to incorporate this drug in the upcoming version of guidelines provided by the National Health Commission of the People's Republic of China for the prevention, diagnosis and treatment of pneumonia caused by COVID-19 (Gao et al., 2020). Another study confirmed COVID-19 patient was admitted to an isolation ward in China and was given supplemented oxygen through a face mask. He was given medication of interferon alpha-2b (5 million units twice daily, atomization inhalation) and anti-viral therapy lopinavir in combination therapy with ritonavir (500mg twice daily) and moxifloxacin in IV form 0.4g for prevention of secondary infection.

In patients with severe shortness of breath, corticosteroid therapy was given mostly methylprednisolone IV 80mg twice to attenuate inflammation of the lungs. These medications were mostly given in China but they have no proven efficacy against COVID-19 and most of the patients died despite the therapy (Xu et al., 2020).

COVID-19: Preparedness for potential disaster

Based on risk assessment, countries prepared their population to tackle the pandemic and increase their response actions against COVID-19 (Bedford et al., 2020). They also take unprecedented measures by providing protective medical equipment, use of facemasks and sanitizers and personal hygiene awareness among the general public. In China, the government provides support to all infected patients and develops provincial surveillance units to control this epidemic by applying local restrictions. They convert business setups and hotels into quarantine centers to assist the masses of the population in the fight against coronavirus (Saqlain et al., 2020). In the condition of social distancing with major restrictions, the role of media is

used wisely to provide awareness regarding diagnosis, transmission, and preventive measures and avoid false information to spread. It requires the close collaboration of law enforcement and other authorities to ensure compliance and provide legal punishment to the violators of the lockdown (Wilder-Smith and Freedman, 2020).

Amid the COVID-19 through Social Quarantine

The public health response to the novel coronavirus disease 2019 (COVID-19) in China has emphasized that if the governments pay attention to reliable and tested public health outbreak measures, it is possible to prevent further disease spread. China controlled the spread and confined the outbreak in Wuhan city by isolation, quarantine, social distancing and controlling the community from social interactions and gatherings. China immediately took strict outbreak responses and all the patients with positive COVID-19 were isolated in pre-existing dedicated hospitals and on the other hand started to build new hospitals on an emergency basis as the number of positive cases was increasing drastically in all the affected regions. The individuals having a contact history of COVID-19 were home quarantined and were socially isolated with the cancellation of all the gatherings immediately.

In addition to all the above measures, a community of over 60 million Chinese people was constrained. These outbreak responses by China government demonstrated a significant positive association between COVID-19 cases and mortality rate (Hopman et al., 2020). Till date, no vaccine is available for the coronavirus, so the only solution to contain the disease is by taking strong precautionary measures (Surveillances, 2020). In developing countries, the government paid significant

attention to public health and traditional prevention measures to prevent the spread of this disease and imposed lockdowns through the confinement of the community, isolation, and quarantine (Wilder-Smith and Freedman, 2020). They took strict action to stop social interaction and avoid general public gatherings to isolate the patient with positive COVID-19 from others (Lewnard and Lo, 2020).

China immediately builds new hospitals, and import new medical equipment and protective gear for the health care purpose. The common public was home quarantined and socially disconnected through the cancellation of all public gatherings. In this way, strong precautionary measures help to constrain the community of 60 million Chinese people and reduce the devastating effects of COVID-19 (Wu and McGoogan, 2020b). Studies have shown that countries use quarantine as emergency public health intervention and social containment, isolation and physical or social distancing help the masses of the population all over the countries to interfere with the human-to-human transmission of the virus (Bedford et al., 2020).

According to research findings, social quarantine is the oldest technique of controlling an outbreak which directly reduces the social interaction of persons in the broader community (Wilder-Smith and Freedman, 2020). It refers to the restriction of a person who has been exposed to an infected disease to further reduce the transmission of the virus. Effective isolation rooms have been developed in hospitals to protect the non-infected person from ill patients. All the patients quarantined in designated centers have been monitored for the occurrence of any possible COVID-19 symptoms (Saqlain et al., 2020).

Effective isolation and quarantine include the closure of educational institutes, workplaces,

and transit systems, and the cancellation of public gatherings which slow down the transmission (Lewnard and Lo, 2020). All the countries focused on various response tactics in public health including social containment and isolation of infected patients (Wu and McGoogan, 2020b). Some effective guideline regarding quarantine is also provided by World Health Organization (WHO) for the diagnosis, prevention and treatment of infection caused by COVID-19.

Most studies suggested that the most effective strategy to combat the disease is social distancing and adopting quarantine measures to reduce social contact with the common public. For this purpose, the government takes immediate action for the closing of workplaces, schools/universities, malls and common gatherings. Research findings of the authors revealed that the potential effects of social distancing have successfully prevented the community spread of the pandemic and interrupted social interaction in Singapore. In the United Kingdom, the study revealed that social isolation policy measures reduce the number of fatalities between 78 to 99% from coronavirus (Long, 2020).

Critical Aspects of Social Distancing

Social distancing as public health imperative becomes a major challenge that rapidly fuelled the concerns about global economy damages that they would wreck (Long, 2020). All the drastic coronavirus prevention measures prevent the further spread of contagious disease; on the other hand, it directly affects the health budget and overall socioeconomic condition of the world. If the drastic situation prevails everywhere, then the world economy would crash due to the coronavirus (Lewnard and Lo, 2020). This pandemic threatens the health condition of more than 2626 321 confirmed cases and 181 938 deaths people all over the world.

The study investigates the influence of physical and social distancing on the progression of the COVID-19 epidemic. The current outbreak of novel Coronavirus 2019 (COVID-19) in developing countries like Pakistan is getting disastrous even after the execution of strict precautionary measures.

Currently, developing countries lacked expensive diagnostic test kits, modern isolation centers with protective equipment, and effective medical drugs and medicines which contribute directly to the complexity of the situation. They also deal with poor health literacy, a fragile medical care system and a lack of required technology-equipped hospitals (Saqlain et al., 2020). Due to increasing demand, facemasks and sanitizers become scarce in public markets. The Pakistani government faces severe challenges to provide ventilator support and intensive care to the infected patients, as their number is increasing rapidly. They have to bear the additional cost of intensive care units and isolation facilities with very low health budgets.

Although the scientific basis of social distancing might be effective and robust, however, the implementation of social quarantine will result in several repercussions. The wake of the coronavirus pandemic becomes a serious concern for public health that shut down the workplace or any business activity.

The closing of the workplace and physical distancing intervention strikes a risk of unemployment and job loss and affects the income of daily wagers in developing countries (Lewnard and Lo, 2020). This situation shatters the livelihoods of non-vulnerable populations who may require hospitalization shortly. This will put a great burden on the government's healthcare

system. Social quarantine and ongoing isolation could lead to considerable societal disruption, anxiety, depression, and conflicts (Rubin and Wessely, 2020). Staying at home and avoiding social contact with family would deprive the multiple benefits that would come from co-presence and social interaction. The residence of people in close confinement will strain many relationships and reduce self-worth among individuals. However, nuclear family households continue to enjoy social interaction with family (Long, 2020).

Working from home would be difficult for most family members reflecting their job priority than caring for the children, whose school has been closed. The societal effect of the quarantine and social distancing includes the credibility of health officials, political leaders, major institutions and health authorities (Lewnard and Lo, 2020). But the policed lockdown leads to restrictions on the freedom of humanity and puts relationships and social interactions at stake (Rubin and Wessely, 2020).

CONCLUSION

In this situation, the governments must combat the coronavirus disease and take steps to improve the economic condition of the country. Special attention must be paid to the most disadvantaged and vulnerable populations such as the disabled, older population, homeless and poor populations to lessen the risks of coronavirus disease. Policymakers must ensure transparency in communication and provide evidence-based interventions to tackle the worse situation. In the hour of need, the countries must coordinate their effort to develop antivirals and vaccines for the treatment of the infectious fatal disease. All countries must use print, electronic and social media wisely and they must be coordinated and provide

education and social awareness among citizenry regarding how to avoid being infected by coronavirus.

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