

A Review of Novel Coronavirus: Cross-Disciplinary Perspective

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Recommended Citation

Asim, I., Rehman, H., Anwar, R., & Yasmeen, H. (2021). A Review of Novel Coronavirus: Cross-Disciplinary Perspective, *Journal of Bioresource Management*, 8 (3).

DOI: <https://doi.org/10.35691/JBM.1202.0191>

ISSN: 2309-3854 online

(Received: Mar 17, 2021; Accepted: Apr 21, 2021; Published: Aug 2, 2021)

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A REVIEW OF NOVEL CORONAVIRUS: CROSS-DISCIPLINARY PERSPECTIVE

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ABSTRACT

The whole world is under the influence of coronavirus after its first report from Wuhan, China in December 2019. The virus is from coronaviridae family which has zoonotic viruses that can spread from animals to humans. The coronavirus like other viruses of this family produces mild flu-like symptoms within 2-14 days in the human host which progresses to death in severe cases. Unlikely coronavirus spread fast among humans-infectious diseases. Up till now (27/04/2020) around 2.97M cases and 207K deaths have been reported. The presence of a virus in respiratory secretions is diagnosed through molecular methods and chest scans. For this method, published articles on COVID-19 up to April 19, 2020, were screened. Keywords used were "Covid-19," "novel coronavirus," "SARS-CoV-2," "2019-nCoV," "Wuhan coronavirus," and "Wuhan seafood market pneumonia virus." After the cautious screening, published articles with confirmed cases were acknowledged and included. It has not only affecting physical health but has negatively affecting mental health. Vaccination has been introduced but global impact of this pandemic is still uncertain.

Keywords: SARS-COV-2, anxiety, countries management, infectious diseases, vaccination.

Abbreviations: GHSI: Global Health Security Index, WHO: World Health Organization, H1N1: Hemagglutinin type 1 and Neuraminidase type 1 Influenza strain, SARS: Severe Acute Respiratory Syndrome, PHM: Public Health Measures, USA: United States of America

INTRODUCTION

In Wuhan China, a pneumonia-like infection was reported in December 2019. Immediately Huanan Seafood Wholesale Market was sealed which was suspected as the origin site. Social distancing was implemented strictly in Wuhan, China followed by its global execution. The Chinese government had suspended all sorts of social gatherings including new year celebrations. In January 2020, the WHO declared it a pandemic and named it COVID-19 (Zhu et al., 2020).

Global Measures Taken Against COVID-19

For the development of international measures against COVID-19, a joint committee of twenty-five national and international experts from China, Germany, Japan, Korea, Nigeria, Russia, Singapore, the United States of America (USA), and the World Health Organization (WHO) was established. This committee visited community centers, health clinics, hospitals, COVID-19 designated hospital transportation hubs (air, rail, and road), wet market, pharmaceutical, and personal protective equipment stacks in Beijing, Guangdong, and Hubei (WHO, 2020). The current Global Health Security Index (GHSI) has been

continually evaluating the ability of countries for diagnosis, prevention, health system infrastructure, quick response to the pandemic, compliance with international standards, and risk setting for COVID-19. They reported that basic national health security is weak worldwide. It has been found that skilled medical workers are short in number. As Bill Gates said, we need to prepare for epidemics the way the military prepares for war, consequently with passing time we are recognizing our shortfalls and getting ready a bit better each day. Thus, COVID-19 is like a trial for up-gradation of our capacity to tackle a threat that will reappear itself over time (Duarte et al., 2020).

Catch and Isolate

Hundreds of thousands of people are contracting COVID-19 just by not following preventive measures. Previously, hemagglutinin type 1 and neuraminidase type 1 influenza strain (H1N1) and severe acute respiratory syndrome (SARS) infection was effectively managed by catch, isolate, and treatment approach. However, COVID-19 has high transferability for person-to-person transmission and robust diagnosis has straightened the COVID-19 curve in many countries. Therefore, here approach is to test, detect, isolate, and treat cases (Watkins, 2020).

Community Guidelines

The epidemiology, nature, intensity, and timing of COVID-19 vary considerably in different territories. In some regions, the transmission rate is continually increasing despite the government lockdown ordinance while in some regions the transmission rate is low. The reason behind this difference is unclear however; it has been attributed to regions, particularly specific ethnicities. However, in addition to general guidelines provided by World Health Organization (WHO), regional guidelines are also needed. Due to holy month of Ramadan, not only in different countries but in their different regions, people are following varying degree of SOPs. For public health management, only a strict social distancing approach can reduce the COVID-19 associated contact (Duarte et al., 2020). The proportion of the threat intensity increases whenever public health authorities and government-applied restrictions are breached by the individuals. The involvement of public health measures (PHM) can reduce the transmission rate of novel coronavirus to the community and therefore its consequence will be reduced. In general, a person who is at risk of COVID-19 is recommended to follow protective measures along with self-separation for 2 weeks at least (Henry, 2018). In addition to social distancing, personal hygiene measures also reduce its transmission. It includes ventilation and cleaning especially of frequently contacted surfaces like mobile phone screens, keyboards, surfaces, doorknobs. Like all viruses, COVID-19 can survive on intimate surfaces for 6 hours therefore frequent hand washing is advised (Delgado et al., 2020). Public education helps to implement policies at the individual and community levels. In an emergency, the prime step is to make the public aware of the danger in a very short time. People get information from their friends, family, social media, and from the peoples who are in leadership positions. Initially, it leads to behavioral changes at the individual level and later at the community level. Time is taken to implement safety measures that directly decrease the likelihood of the spread of disease. However, a strict implementation plan is required based on risk assessment. Any failure in the implementation of these preventive measures will amplify and spread the COVID-19 especially in close family members (Delgado et al., 2020, Zhu et al., 2020).

Countries Test Tactics

In the case of the novel coronavirus disease (COVID-19), many countries are implementing strict measures to contain the disease after WHO; World health organization declared it pandemic resulting in thousands of events being canceled, schools, restaurants, clubs being closed, and transit system put to a stop. In Italy-epicenter of COVID-19, the situation came to a point where doctors are making agonizing decisions about who to treat and who to leave to the claws of death without giving treatment and the older people are more favored victims to be left untreated in these conditions. The measures taken by various states and countries vary as some have limited the number of people gathering at a place and some have implemented a partial lockdown while others have made complete lockdown but there is still confusion as to how to keep the balance for an extended long time. No single step as testing, contact tracing, quarantine, social distancing alone will be enough narrated by WHO Director-General at a recent conference (Cohen and Kupferschmidt, 2020). Some countries like Italy, Spain, and France took draconian measures while other countries like South Korea beat the virus without taking such drastic measures and the key to their success is a large well-organized testing program with extensive efforts in isolating the infected patients followed by tracing and quarantining of their contacts (Zhou, 2020, Cohen and Kupferschmidt, 2020, Tanne et al., 2020). Breaking every possible chain of transmission by scaling up the testing capacity and tracing the contacts of infected people is the only possible way of fighting this pandemic. In the Philippines, mobile lab services have minimized the threats (Tanne et al., 2020).

The threat of COVID-19 with raw epidemiological data has suggested that the transmission frequency of COVID-19 is more than the common flu. Its symptoms do not appear immediately which means that an asymptomatic person can also a potential danger for others. It has been estimated that 60-80 persons can effectively infect millions of people (Anderson et al., 2020, Ferguson et al., 2020, Fink, 2020). Frequent hand washing along with avoidance of gathering and traveling can dramatically reduce its spread (Ferguson et al., 2020; Fink, 2020).

In this view, health officials, celebrities, politicians, and many other local businessmen have come forward to support this cause morally by urging the public to follow the measures. Among different moral theories, utilitarianism focuses solely on the outcomes of one type of measure over the other (Miles et al., 2015, Singer, 1972). However, deontological moral theory is based on our responsibilities, obligations, and duties towards communities and families (Scanlon, 2003).

Mental and Psychological Considerations

The fear of infection involves lost income, duration of quarantine, frustration and boredom, inadequate supplies, inadequate information, disturbing finances, and stigma from others are some of the key stressors of psychological issues before, during, and after a quarantine period. Quarantine often results in dramatic negative effects on mental health due to separation from loved ones, loss of one's freedom with added uncertainty over disease status. Implementation of quarantine in previous outbreaks was assisted with the reports of suicide and many other incidents of negative mental health so there is a dire need of weighing the potential benefits gained by these measures against possible psychological costs (Barbisch et al., 2015, Miles et al., 2015, Rubin and Wessely, 2020).

Increased psychological distress was reported during the quarantine period especially in individuals with a previous history of depression. Families who had lost their loved ones dealt with the depression of grief and loss while families of survivors faced disability-induced

burden and economic burden. The collapse of industries has been negatively linked with financial losses and unemployment, further intensifying the negative emotions experienced by individuals (Hossain et al., 2020). The recovery of communities is disrupted by damaged infrastructure and societal fabric and in the long run, the same issues of loss and recovery as families do (Rubin and Wessely, 2020).

Children are gravely affected during a pandemic when quarantined. Steps are taken to implement the strategies to prevent such mental health problems in children by the Chinese government. They had provided nurses in children's ward round the clock, children can talk to family over phones and volunteers act as temporary mothers to care for recovered children when their caregivers are not available due to infection, quarantine, or death (Liu et al., 2012). A study reported four times higher mean post-traumatic stress scores in children who were quarantined as compared to those who were not quarantined, and 28% of parents were presented with symptoms of trauma-related mental health disorder (Sprang and Silman, 2013). Hospital staff when examined presented with symptoms of psychological trauma depression even after 3 years of quarantine (Liu et al., 2012, Wu et al., 2009). The statistics vary among groups of different ages with symptoms more prevalent in the full-time employed elder population as compared to young adults with probably fewer responsibilities as undergraduates (Wang et al., 2011). The symptoms may be mild and can reduce after several months of experiencing a quarantine as stated in one study (Jeong et al., 2016). Emotional disturbance, depression, stress, low mood, insomnia, anger, emotional exhaustion, irritability, general psychology symptoms, and post-traumatic stress symptoms were reported in those who were quarantined with low mood and irritability standing out with high prevalence in various quantitative studies. Currently, there is no authoritative organization that plans and coordinates psychological intervention. It would be worthwhile to have psychiatrists and mental health professionals sit in the task force for COVID-19, to advise on mental health policies and psychological intervention. Without planning, the psychological and social toll of a pandemic can turn that crisis into a catastrophe. A proper plan not only will provide necessary public health relief, but also will facilitate recovery (Wu et al., 2009).

COVID-19: What Is Next for Public Health?

Stay at home, we are out to serve you. Health employees and paramedics being on the frontline are at high risk of contracting the disease. However, nonpharmaceutical practices remain vital for the management of COVID-19 in absence of any certified treatment or vaccine. However, Heymann and Shindo, (2020) have suggested a few steps that should be considered under WHO guidelines:

- Close monitoring of community health policies and social acceptance.
- Continued progression with effective communication policies along with self-protection. Besides, well-defined guidance for treatment-seeking is mandatory.
- Isolation and close monitoring of individuals positive for COVID-19 with an active nonstop surveillance system.
- Continual control actions in epicenters and their surroundings with a thorough investigation are necessary and regular reporting to WHO and the exchange of data.
- An active surveillance system on all public across the country is required.
- Establishment of isolation centers in every state is required. Special attention is required for older people.
- Failure to trace contact of COVID-19 positive individuals is a big challenge in its diagnosis and prevention. Therefore, stringent social distancing measures including call off of community meetings, school closure, distant working, home-based

isolation, observation of health of indicative persons facilitated by telephone or online health consultation, and establishment of critical life support such as mechanical ventilators, oxygen supplies, and extracorporeal membrane oxygenation (ECMO) apparatus.

- Establishment of rapid diagnosis through serological examinations is required which can diagnose COVID-19 during an incubation time of 7-14 days.

CONCLUSION

Nonstop research to investigate origin of COVID-19 proposes that it is compulsory for the prevention of forthcoming infectious outbreaks. The best available solution to prevent it from spreading is to catch and isolate infected individuals because many countries are unable to implement and/or withstand lockdown for longer.

CONFLICT OF INTEREST

Nil

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