

ROLE OF SCIENTIFIC LITERACY IN ERADICATING SUPERSTITIOUS BELIEFS DURING COVID-19 PANDEMIC

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COVID-19 is categorized as one of the most serious respiratory diseases caused by novel coronavirus. Since its first appearance in China in December 2019 as an epidemic, the disease spread rapidly across the globe, and within few months, it became a pandemic. Due to its contagious nature and non-availability of precise therapy, many people are considering it as evil. Limited public awareness about the virus structure, its life-cycle, mode of transmission and action, diagnostic strategies, therapy, etc., is fueling such people's mindset to live with their own beliefs about the disease. Lack of proper scientific knowledge about COVID-19 prompts to nurture various myths, misbeliefs, and superstitions among people. Seeding scientific temperament and awareness based on scientific knowledge is the only way to overcome such a situation. The main focus of the study is to understand the mechanism of developed misbeliefs and superstitions among people during the COVID-19 pandemic, the merits of a scientifically literate person as an informed citizen during the current pandemic, and the role of scientific literacy at the time of COVID-19 crisis.

Keywords: Scientific literacy, superstitious beliefs, myths.

Introduction

COVID-19 crisis developed a truly global challenge, and the challenge is enormous. Our physical, social and natural environment changed due to this COVID-19 pandemic. COVID-19 has affected every part of human life across the globe including all academic activities (Sahu, 2020). It rapidly spread worldwide, posing its unintended outcomes related to health, environment, education and causing unprecedented socio-economic disturbances. Apart from this, lots of misbeliefs and superstitions have also risen during this pandemic, "On one hand, the severe outbreak of a pandemic disease of Novel Coronavirus is washing away the world's economy, and on the other hand, the Indians has triggered the surge of several superstitions to fight back with it" (Sharma,

2020). This shows that the coronavirus outbreak has severe repercussions and comes out as a global challenge. Hence, "it is vitally important that we understand the science of our new realities and have an informed citizenry. Never before in modern times have we seen such an overwhelming demonstration of the need for science & literacy" (Sinclair, Parker & Dunkelberger, 2020). Hundreds and thousands of misbeliefs and superstitions related to the COVID-19 pandemic have been found in our country's people. "A sea of misinformation and fake news has been generated over the pandemic; in particular, social media has been rife with misbeliefs and superstitions galore" (Dutta, 2020). All the misinformation spread by the non-reliable sources related to the pandemic can be prevented if we become informed citizens and take all the precautions as per

the state and central government guidelines. In this respect, the public level of scientific understanding and knowledge, and trust in science and reason, can play an important role in critically analyzing all the information conveyed by social media and other sources about the COVID-19 pandemic.

Superstitious beliefs and COVID-19 disease

Superstitious beliefs: It is believing blindly in something without verification (Kalita, 2016). It might be a product of a lack of confidence in oneself and the world of science and logic.

Dutta (2020) listed the following as agencies through which superstitions and misbeliefs about COVID19 have gone viral in India:

1. New digitally literate people, who cannot cross-check fake information, and blindly believe in forwarded messages that are going viral have been circulating misinformation about COVID-19.
2. Social media is used as a primary carrier for disseminating superstitions about COVID-19.
3. People who intend to help their loved ones and not to harm those forward illogical messages.
4. For money making 'homo digitalis' involved in spreading misbeliefs regarding COVID-19.
5. Prosumers are another category who feel pleasure by spreading misbeliefs regarding COVID-19.

Several superstitions and misbeliefs originated during the pandemic crisis such as:

1. Cow dung and urine can help cure the virus elimination.
2. The water of the holy river Ganga can be used to protect people from coronavirus infection.
3. Spraying alcohol or chlorine all over the body kills the new coronavirus (Naeem & Bhatia, 2020).
4. Taking non-vegetarian food is harmful in such a situation.
5. Eating garlic and drinking alcohol can prevent virus infection.
6. Taking hot water with lemon prevents virus infection.
7. Gargling, a cure for COVID-19 as the virus remains in the throat for four days (Sharma et al., 2020).
8. Sesame oil is used to block the virus from entering our body (Sharma et al., 2020).
9. Mosquitoes are vectors of coronavirus.
10. Tying one leg with red thread to avoid corona.
11. Indians have better immunity than others against coronavirus.
12. Different rituals are performed by the different communities, like lighting an earthen lamp, each per sibling or placing coconut shells with neem outside the village.
13. Coronavirus cannot survive in hot temperatures.
14. Only people with symptoms of COVID-19 can spread the disease, but the fact is that people having virus

infection, but without symptoms can also spread the disease.

15. Prime Minister Narendra Modi's initiative to show gratitude towards coronavirus warriors by clapping and clanging utensils, and by turning off lights for 9 minutes at 9 pm on 5th April and again lighting a candle, earthen lamp, mobile flashlight, torch, bulb, etc., were misinterpreted as measures to ward off the virus.

Scientific literacy and COVID-19 disease

Scientific Literacy: OECD/ PISA defined scientific literacy as "the capacity to use scientific knowledge, to identify questions and to draw evidence-based conclusions in order to understand and make decisions about the natural world and the changes made to it through human activity" (Gillbert, 2004).

A scientifically literate person has the following abilities:

1. He/she thinks logically.
2. He/she can seek answers to questions generated from everyday experiences.
3. He/she always analyze local, national, international, global issues and, in turn, makes informed decisions.
4. He/she evaluates the truthfulness of any information and data based on sources of information.
5. He/she has faith in science; that is why he/she can predict, analyse, describe, and explain a phenomenon rationally.

Various measures provided by scientific knowledge to fight against the menace of COVID-19 Pandemic

1. Prevention: The only formula for slowing the virus is preventing its spread.
2. Lockdown: To prevent the spread of infection by breaking the chain of transmission.
3. Physical distancing: Staying at a distance of 6 feet from others, avoiding physical contacts like handshakes, hugs, etc.
4. Using a protective face mask: Covering mouth and nose with a protective mask.
5. Good hygiene: Washing hands regularly with soap and water or using hand sanitizer, wiping home surfaces, doors, knobs, cellphones with disinfectants, not touching table tops, chairs, door handles, railing, etc.
6. Quarantine: 14 days of quarantine for someone who has been exposed to the disease, or he/she may have the disease, but symptoms are not showing.
7. Isolation: A person having COVID-19 symptoms and has been tested positive should isolate himself.
8. Monitoring symptoms: Symptoms like fever, dry cough, breathing difficulty should be monitored daily.
9. Ban of spitting in public places as it can spread COVID-19.
10. Stay at home as much as possible.

Qualities of scientifically literate person as an informed citizen during COVID-19 pandemic

- A scientifically literate person is always curious to know about coronavirus disease, including its nature, contagious effect, transmission process, and preventive measures from its transmission.
- Stays up-to-date with various information regarding COVID-19 given by authentic sources like Ministry of Health and Family Welfare, Government of India, WHO, etc.
- Communicates and shares the right information about COVID-19 disease to relatives, peers, caregivers, and others.
- Evaluates the quality of information/facts about COVID-19 that social media or other sources may disseminate and then interprets and categorized information as valid information or misbelief or superstition or false fact.
- Acts per guidelines recommended by the health ministry or designated higher authorities about COVID-19.
- He/she is aware of the present and future consequences of unnecessary information related to COVID-19 in the form of misbeliefs and superstitions.
- Follows preventive measures against COVID-19 announced by the government.
- He/she checks the source of information before sharing or forwarding it.

- By understanding the consequences of their actions during a pandemic, a scientifically literate person not only helps himself/herself but others also.

Role of scientific literacy in eradicating superstitions and misbeliefs at the time of COVID-19 pandemic

In the present situation of pandemic, people have also developed countless misbeliefs and unscientific superstitions (Sharma, 2020). "As rapidly as the virus has spread, misin-formation has spread faster" (Sinclair, Parker & Dunkelderger, 2020). In the form of rumors, misinformation, misbeliefs, and superstitions about COVID-19, particularly regarding its risk to the public, leads to greater uncertainty and fear. Fighting with misbeliefs, superstitions, or false information along with COVID-19 disease is the new front in the COVID-19 battle. We can fight with this "by fact-checking, listening to credible experts, and dispelling and debunking alternative theories, dangerous cure, and myths" (Sinclair, Parker & Dunkelderger, 2020). Scientific literacy needs to develop during this pandemic crisis, because instead of misbeliefs and superstitions, it is the only correct strategy that provides us the right path based on reason to fight this pandemic problem. Scientific literacy provides us a context for addressing societal problems, and a science-literate populace can better cope with many of its problems and make intelligent and informed decisions that will affect the quality of their lives (Zen, 2018). The scientifically literate person can effectively use all these processes for solving the various related issues/challenges of life being impacted by pandemics. One of the key issues with this "invisible disaster" is obtaining correct information about it through

various sources. WHO Director General Ghebreyesus said "we are not just fighting an epidemic; we are fighting an Infodemic" (Hua & Shaw, 2020). Experts and researchers from diverse scientific backgrounds are continuously studying and doing their best to know more about the virus so that people can easily remove the misinformation, rumors, misbeliefs, superstitions, etc., to health and other issues during the pandemic. Scientific literacy brings scientific understanding in people, and with this understanding, they can address societal issues with a scientific mindset free from misbeliefs, superstitions, misinformation, etc. In this respect, the World Economic Forum had published a three-step guideline on how to read news like scientists and avoid the COVID-19 Infodemic, which included: (i) embracing uncertainty responsibly, (ii) asking where is the information coming from, and (iii) determining who is backing up the claim" (Naem & Bhatti, 2020). The above three are qualities of a scientifically literate person because a scientifically literate person asks, finds or determines answers to questions about everyday experiences. Therefore, it is important that with the ongoing pandemic, if people are more exposed to science-based information, scientific knowledge, and scientific community more, they can know about the nature of COVID-19 disease and be able to discard the misbeliefs and superstitions about it.

Conclusion

The growing issues of COVID-19 at the global, national, and local levels impact our lives,

and it demands an insight into scientific knowledge. The process by which the scientifically literate community acquires the scientific knowledge to cope with issues like the COVID-19 pandemic includes observation, hypothesis formation, experimentation, analysis and interpretation. The scientifically literate person can effectively use all these processes for solving the various related issues/challenges of life that the pandemic impacts. One of the key issues of the "invisible disaster" is obtaining correct information. WHO's Director-General Ghebreyesus had warned of the threat of an "infodemic" — an over abundance of information, some of which can be misleading or even harmful. People also have misinformation, myths, rumors, false facts, misbeliefs, etc. (Hua and Shaw, 2020). At the rate at which coronavirus has spread around us, with the same rate, various customised information, including rumors, fake news, false fact, misbeliefs, superstition by some specific group of people, are also disseminated. COVID-19 has social, economic, psychological, and health impact. But we now have to protect ourselves not only from the pandemic but also from misinformation, myths, superstitions, etc. Therefore, there is a strong need for scientific understanding because a scientifically literate person, before believing and sharing such information, tests the authenticity of the information. Surely, COVID-19 pandemic has brought to our attention how building up scientific temperament and propagation of scientific literate culture are critically important to tackling a pandemic of this scale (Biswas, 2020).

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