

## The effects of coronavirus (COVID-19) on mental health

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### **Abstract:**

Worldwide, the general population is made aware of the physical impacts of SARS-CoV-2 and procedures to prevent corona viral exposures and to manage COVID-19 symptoms where they emerge. The implications on the mental health of a pandemic have not yet been thoroughly investigated and are currently unknown. Since all efforts focus on epidemiology, clinical character, modes of transmission and management of an outbreak of COVID-19, little concern was raised about the impacts on mental health and stigmatic strategy. People's behavior, through changing the severity, transmission, disease flow, and impact, can dramatically influence the pandemic. The existing scenario needs to increase public awareness, which can help address this disaster. This page provides an overview on the mental health impacts of the COVID-19 outbreak

**Keywords:** COVID-19, mental health, pandemic, SARS-CoV-2, stigma

### **1. Introduction**

It impacts individuals and society and generates disturbance, worry, tension, stigma and xenophobia. A pandemic has an impact on people and society. The conduct of an individual as a society unit or a community has a significant impact on the dynamics and after-effects of a pandemic. 1 SARS-CoV-2 has led to rapid human-to-human transmission to prevent the future spread of the disease. The isolation of education institutes, working places and amusement venues, social separation and closing of these institutions have consigned people in their homes to aid breach the transmission chain.

As more people are being compelled to stay in isolation at home in order to avoid the pathogens from flowing at society level, governments need to adopt the measures necessary to provide mental health assistance as the specialists prescribe. In a publication, Professor Tiago Correia emphasized that health systems throughout the world are assembling exclusively in order to combat the COVID-19 epidemic, which is able to have a substantial effect on the control of other diseases, including mental health.

The psychological state of an individual who contributes to the health of the community depends on his/her background and his/her career and social status.

Mental health may probably be adversely affected by quarantine and self-isolation. The Lancet review stated that the loss of independence, forbearance and uncertainty in the separation from loved ones may lead to a deterioration of the mental health status of a person. 6 Measures at the personal and social levels will be necessary to overcome this. Both children and adults experience a combination of emotions under the current world circumstances. They can be placed in a new setting or setting that can damage their health.

Coronaviruses are a group of related RNA viruses that cause diseases in mammals and birds. In humans and birds, they cause respiratory tract infections that can range from mild to lethal. Mild illnesses in humans include some cases of the common cold (which is also caused by other viruses, predominantly rhinoviruses), while more lethal varieties can cause SARS, MERS, and COVID-19. In cows and pigs they cause diarrhea, while in mice they cause hepatitis and encephalomyelitis.

Coronaviruses constitute the subfamily Orthocoronavirinae, in the family Coronaviridae, order Nidovirales, and realm Riboviria.[4][5] They are enveloped viruses with a positive-sense single-stranded RNA genome and a nucleocapsid of helical symmetry.[6] The genome size of coronaviruses ranges from approximately 26 to 32 kilobases, one of the largest among RNA viruses.[7] They have characteristic club-shaped spikes that project from their surface, which in electron micrographs create an image reminiscent of the solar corona, from which their name derives.[8]

The name "coronavirus" is derived from Latin corona, meaning "crown" or "wreath", itself a borrowing from Greek κορώνη korónē, "garland, wreath".[9][10] The name was coined by June Almeida and David Tyrrell who first observed and studied human coronaviruses.[11] The word was first used in print in 1968 by an informal group of virologists in the journal Nature to designate the new family of viruses.[8] The name refers to the characteristic appearance of virions (the infective form of the virus) by electron microscopy, which have a fringe of large, bulbous surface projections creating an image reminiscent of the solar corona or halo.[8][11] This morphology is created by the viral spike peplomers, which are proteins on the surface of the virus.[12]

The scientific name Coronavirus was accepted as a genus name by the International Committee for the Nomenclature of Viruses (later renamed International Committee on Taxonomy of Viruses) in 1971.[13] As the number of new species increased, the genus was split into four genera, namely Alphacoronavirus, Betacoronavirus, Deltacoronavirus, and Gammacoronavirus in 2009.[14] The common name coronavirus is used to refer to any member of the subfamily Orthocoronavirinae.[5] As of 2020, 45 species are officially recognised.[15]

The earliest reports of a coronavirus infection in animals occurred in the late 1920s, when an acute respiratory infection of domesticated chickens emerged in North America.[16] Arthur Schalk and

M.C. Hawn in 1931 made the first detailed report which described a new respiratory infection of chickens in North Dakota. The infection of new-born chicks was characterized by gasping and listlessness with high mortality rates of 40–90%. [17] Leland David Bushnell and Carl Alfred Brandly isolated the virus that caused the infection in 1933. [18] The virus was then known as infectious bronchitis virus (IBV). Charles D. Hudson and Fred Robert Beaudette cultivated the virus for the first time in 1937. [19] The specimen came to be known as the Beaudette strain. In the late 1940s, two more animal coronaviruses, JHM that causes brain disease (murine encephalitis) and mouse hepatitis virus (MHV) that causes hepatitis in mice were discovered. [20] It was not realized at the time that these three different viruses were related. [21] [13]

Human coronaviruses were discovered in the 1960s [22] [23] using two different methods in the United Kingdom and the United States. [24] E.C. Kendall, Malcolm Bynoe, and David Tyrrell working at the Common Cold Unit of the British Medical Research Council collected a unique common cold virus designated B814 in 1961. [25] [26] [27] The virus could not be cultivated using standard techniques which had successfully cultivated rhinoviruses, adenoviruses and other known common cold viruses. In 1965, Tyrrell and Bynoe successfully cultivated the novel virus by serially passing it through organ culture of human embryonic trachea. [28] The new cultivating method was introduced to the lab by Bertil Hoorn. [29] The isolated virus when intranasally inoculated into volunteers caused a cold and was inactivated by ether which indicated it had a lipid envelope. [25] [30] Dorothy Hamre [31] and John Procknow at the University of Chicago isolated a novel cold from medical students in 1962. They isolated and grew the virus in kidney tissue culture, designating it 229E. The novel virus caused a cold in volunteers and, like B814, was inactivated by ether. [32]

#### Transmission electron micrograph of organ cultured coronavirus OC43

Scottish virologist June Almeida at St. Thomas Hospital in London, collaborating with Tyrrell, compared the structures of IBV, B814 and 229E in 1967. [33] [34] Using electron microscopy the three viruses were shown to be morphologically related by their general shape and distinctive club-like spikes. [35] A research group at the National Institute of Health the same year was able to isolate another member of this new group of viruses using organ culture and named one of the samples OC43 (OC for organ culture). [36] Like B814, 229E, and IBV, the novel cold virus OC43 had distinctive club-like spikes when observed with the electron microscope. [37] [38]

The IBV-like novel cold viruses were soon shown to be also morphologically related to the mouse hepatitis virus. [20] This new group of viruses were named coronaviruses after their distinctive morphological appearance. [8] Human coronavirus 229E and human coronavirus OC43 continued to be studied in subsequent decades. [39] [40] The coronavirus strain B814 was lost. It is not known which present human coronavirus it was. [41] Other human coronaviruses have since been

identified, including SARS-CoV in 2003, HCoV NL63 in 2003, HCoV HKU1 in 2004, MERS-CoV in 2013, and SARS-CoV-2 in 2019.[42] There have also been a large number of animal coronaviruses identified since the 1960s.[43]

## 2. CHILDREN AND TEENS AT RISK

Children, friends and colleagues away from school, staying at home can have many questions about the disease and seek to their parents and careers for a response. Stress is not the same for both children and parents. Children may have worry, distress, social isolation, and an abusive environment which can impact their mental health in a short or long term. Some common changes in the conduct of youngsters may be 8:

Too much cries and irritating conduct

Increased truth, depression, or concern

Concentration and care difficulties

Changes in or the avoidance of former activities

Unforeseen headaches and soreness around your body

Changes in foodstuffs

In order to counterbalance negative behavior, parents must remain calm, deal with the situation sensibly and answer every question of the child as best they can. Parents might take time to discuss the outbreak of COVID-19 with their children and provide certain positive facts, numbers and information. Parents can assist persuade themselves that indoor sports and physical and mental exertion are safe at home and urge them to conduct some wholesome activities.

Parents can also design a home plan to support their children's study. Parents should be less stressful or anxious at home as youngsters perceive and feel their parents' negative energy. Parents' participation in healthful activities with children can contribute to reducing stress and anxiety and alleviate the entire situation. 9

## 3. ELDERS AND PEOPLE WITH DISABILITIES AT RISK

Elders are more susceptible to an epidemic of COVID-19 due either to clinical and social causes such as a weaker immune system or other underlying health disorders, and because of their busy schedules distance themselves from family and friends. According to medical specialists, individuals aged 60 or older may have SARS-CoV-2 and develop a serious and life-threatening disease, even if in good health.

Physical separation from the onset of COVID-19 may have dramatic detrimental impacts on elderly and disabled people's mental health. The aged and handicapped individuals can be put at great risk from physical insulation in their families. It can cause worry, sadness and cause them to become traumatic. Self-insulation can seriously impair a family system by depending on young persons for their everyday requirements. The aged and handicapped in nursing homes confront tremendous problems with mental health.

Such a simple telephone contact, however, can assist calm the elderly throughout the pandemic outbreak. Older adults already struggling with the mental health problems can also experience increased stress, anxiety and sadness with VCOVID-19.

The following behavior modifications for elderly relatives 11 can be seen in family members; 11;

Behavior of irritation and cries

Sleep and eating habits change

Emotional explosions

The World Health Organization says that family members should check for seniors in their homes and care institutions often. Young members of the family must spend some time to talk to senior family members and, if feasible, participate in their daily activities. 12

#### 4. HEALTH WORKERS AT RISK

Doctors, nurses and paramedics acting as a primary force to combat the outbreak of COVID-19 may be more likely to develop symptoms of mental health. The mental health of health workers may be adversely affected if they are afraid to catch a disease, have long working hours, unavailability of protective equipment & supplies, load of patients, unavailability of effective COVID-19 medications, death of their colleagues from COVID-19 exposures, social distances and separation from family and friends, as well as patient disorders. Healthcare personnel can gradually reduce their job efficiency as the pandemic predominates.

Health personnel should take small pauses between working hours and handle calmly and relatedly with this scenario.

#### 5. STIGMATIZATION

In general, new quarantine patients can face a stigma and create an emotional mix. When they get out of quarantine, everyone can feel different and get another reception from society. People that have been recently recovered may have to ward off their families, friends and family in order to protect the safety of their family because of the viral nature they have never experienced. Different

age groups respond differently to this social behavior that might be short-term as well as long-term.

Health workers who want to save lives and safeguard society may endure social distance, changes in family members' behaviors and stigmatization for suspected COVID-19. Early affected people and healthcare professionals (pandemic treatment) can develop grief, rage or frustration, as a result of the erroneous concern that friends or relatives can get the infection from interaction with them while not being confirmed to be infectious.

However, in order to prevent and avoid the COVID-19 pandemic, the current situation requires a detailed understanding of the impacts of a recent outbreak on mental health of persons of different age groups.

## 6. TAKE HOME MESSAGE

Studying the mental health consequences of the COVID-19 outbreak for different communities is as important as understanding clinical characteristics and patterns of transmission and care.

Taking a vacation from both traditional and social media can all assist to overcome mental health problems through time with family members such as children and older people or through the use of various healthy exercises and sports activities according to schedule / routine.

Public awareness efforts are desperately needed to keep mental health under the current circumstance.

## INTEREST CONFLICE

No conflict of interest is declared by the authors.

## OTHER AGREEMENTS

The study was conceived by B.J. and A.S. The first draft was collected and examined by B.J. The E.B.S. manuscript has been edited and revised. Useful information was given by A.S. and Z.M. The following drafts were submitted by all authors. The writers read the final contribution and endorsed it.

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