REVIEW

The impact of coronavirus on mental health and welfare of the elderly

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ABSTRACT
Extreme distancing during quarantine and social isolation in periods of serious infections, such as COVID-19, affected society and the social life of the population worldwide, changing cultural habits while it was found to be associated with mental and social health problems such as depression and anxiety. It was found that the elderly is the portion of the population that is at greater risk in the COVID-19 epidemic and if they get sick, they have a greater risk of dying. This group is particularly vulnerable to infections due to a weakened immune system, comorbidities, including respiratory diseases, hypertension, diabetes and coronary heart disease. The balance that has been accomplished in the past between age-related disorders and good quality of life and health is now under high pressure. It is therefore very important to protect the elderly and if isolation can reduce the transmission of the disease and save their lives, it should be implemented, in order to maintain their quality of life as much as possible. Compliance with the instructions and recommendations of the WHO and other national, regional, international organizations can significantly reduce the risk of spreading the disease. This study examines the impact of the coronavirus pandemic on the elderly and how this disease has affected their mental health and well-being. Our goal is also to comprehend the factors associated with depressive symptoms in older people during the disease.

Key-Words: COVID-19, effects, elderly, depression, quality of life

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KEY POINTS :

- **Social distancing is vital, however, it is associated with potentially serious consequences for mental and physical health**
- **Distancing and social isolation can damage the well-being and mental health of the elderly**
- **Depression was significantly associated with loneliness and chronic illness**

INTRODUCTION

The current global problem that has alarmed humanity and monopolized the interest in recent months, concerns the outbreak of a new type of coronavirus (COVID-19), which came from the province of Hubei in the People's Republic of China, with the first cases being reported at the end of 2019. China carried a high rate of morbidity and mortality in February 2020. The epidemic spread rapidly to 140 other countries, including Japan, Korea and Italy, and the World Health Organization's emergency committee declared a global state of emergency on 30th January 2020 (WHO 2020). Europe became the epicenter of the epidemic in early April 2020, and due to the number of countries reporting cases, the WHO considered it a pandemic (Tanno et al 2020).

For the third time in decades, a zoonotic virus has crossed species to infect human populations. This virus, temporarily named 2019-nCoV, caused severe respiratory infections in humans. On 1st January 2020, the WHO requested information from the National Health Committee on risk assessment (WHO 2020). The rapid response of the Chinese public health, clinical and scientific communities has facilitated the recognition of the clinical disease and an initial understanding of the epidemiology of the infection. Early reports indicated that human-to-human transmission was limited or non-existent, but this proved to be wrong (Perlman 2020).

Current evidence suggests that the main source of SARS-COV-2 has been transmitted to humans from wild animals, which are illegally sold at the Huaman seafood wholesale market, and bats are also likely to be the main source of the virus. Specifically, SARS-COV-2, shares a high level of cognitive similarity with the bat coronavirus RaTG13, which was acquired by bats in Yunnan in 2013 (Paraskevis et al 2020).

COVID-19 is transmitted through droplets and contacts, which is why public health measures, including community isolation, as well as early diagnosis and strict adherence to universal precautions in healthcare settings, are critical to control and reduce its transmission (Perlman 2020).

The present study aims at describing the impact of COVID-19 on the mental health of the elderly and to investigate the risk factors associated with depressive symptoms.

COVID-19 SYMPTOMS

Common symptoms include several days of fever and cough, myalgia or fatigue, symptoms attributed to the flu (Guan et al 2020). Some patients may initially experience diarrhea or vomiting, abdominal pain and nausea a few days before fever, suggesting that fever is a predominant but not the main symptom of the infection (Pan et al 2020). Among patients from Europe, anosmia or hyposmia and loss of taste were reported in 85% and 88% of the cases respectively (Chowdhury & Oommen 2020).

Elderly patients with comorbidities are more likely to develop respiratory failure due to severe alveolar damage. The onset of the disease may indicate rapid progression to organ dysfunction (e.g. shock, acute respiratory distress syndrome [ARDS], acute heart failure and acute renal failure) and even death in severe cases (Wang et al 2020).

Patients may experience normal or lower numbers of white blood cells, lymphopenia or thrombocytopenia, with prolonged activated thromboplastin time and elevated C-reactive protein. In short, a patient with fever and upper respiratory tract symptoms with lymphopenia or leukopenia should be treated as a possible case (Zu et al 2020).

The symptoms of COVID-19 may vary, and some patients may even be asymptomatic. For example, gastrointestinal symptoms first appear in about 10% of cases, and this is often not reported as a symptom defining a suspected case (Koh & Cunningham 2020).

The clinical picture of COVID-19 ranges from asymptomatic or mild symptoms, characterized by respiratory failure requiring mechanical ventilation and support in an intensive care unit (ICU) to extensive multiorgan disease, septic shock and multiple organ dysfunction syndrome (MODS) (Cascella et al 2020).

The report of the Chinese Center for Disease Control has classified the clinical manifestations of the disease according to the severity into:

a) Mild illness: Non-pneumonia and mild pneumonia.

b) Severe disease: Dyspnoea, respiratory rate ≥ 30 / min, blood oxygen saturation (SpO2) ≤ 93%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio <300 and pulmonary infiltrate> 500 within 24 to 48 hours.

c) Critical illness: Respiratory failure, septic shock and/or multiple organ dysfunctions. (He et al 2020).

EPIDEMIOLOGICAL DATA

From the moment of onset, cases were observed to appear in waves and develop into larger outbreaks around the world. The first documented outbreak occurred mainly in Wuhan and had recorded 78,630 cases and 2747 deaths in China until February 27, 2020 and then spread to 46 other countries reporting a total of 3664 cases by February 27, 2020 (He et al 2020). The case detection rate increases exponentially, and only at the beginning according to a WHO report, on April 28, 2020, the number of COVID-19 cases had exceeded 2,954,222 worldwide with 202,597 deaths (Tanno et al 2020). Globally, as of December 7, 2020, 66,422,058 confirmed cases of COVID-19 have been reported, including 1,532,418 deaths (WHO 2020). (See Table 1)

As an epidemic develops, there is an urgent need to expand public health activities in order to clarify the epidemiology of the new virus and to characterize its potential impact. The impact of an epidemic depends on the number of people infected, the contagiousness of the infection, and the range of clinical severity.

The parameters to be considered according to Lipsitch, Swerdlow & Finelli (2020) are:

1. The full range of severity of the disease (which can range from asymptomatic to symptomatic, mild to severe, requiring hospitalization to fatal).

2. The contagiousness of the virus.

3. Infectious factors such as the age of the infected person, the severity of the disease and other characteristics of a case affect the risk of transmitting the infection to others. Whether the role played by asymptomatic or pre-symptomatic infected individuals during transmission is vital. When and for how long is the virus present in the respiratory secretions.

4. Risk factors for serious illness or death (see Table 2)

A study of the early COVID-19 transmission dynamic revealed that the mean incubation period was 5.2 days (95% confidence interval [CI], 4.1-7.0), with the 95th percentile of the distribution at 12.5 days (Li et al 2020). An unusual case was reported in which the incubation period was up to 19 days but this is considered a low probability event and thus experts recommend a quarantine period of 14 days (Zhai et al 2020). The period between the onset of symptoms and death varies from 6-14 days and depends on age, underlying

Table 1. WHO Coronovirus Disease (COVID-19) Dashboard

World Health Organization

WHO Coronavirus Disease (COVID-19) Dashboard

Data last updated: 2020/12/7, 3:47pm CET

Name	Cases - cumulative total	Cases - newly reported in last 24 hours	Deaths - cumulative total
Global	66.422.058	**549.946**	**1.532.418**
United States o...	14.397.135	205.837	278.806
India	9.677.203	32.981	140.573
Brazil	6.577.177	43.209	176.628
Russian Feder...	2.488.912	28.142	43.597
France	2.252.852	11.022	54.792
Italy	1.728.878	18.887	60.078

Table 2. Types of data required to control an epidemic
(Lipsitch M, Swerdlow D. & Finelli L. (2020)

Required data	Study type
Number of cases, including mild ones	Syndromic surveillance plus targeted testing
Risk factors and transmission time	Household studies
Degree of severity and attack	Community studies
"Severity" pyramid	Integration of multiple sources and data types
Risk factors for infection and serious consequences, including death	Case-control studies
Time and intensity of infectiousness	Virus eradication studies

complications, level of care and the state of the immune system (Yamamoto et al 2020). The time period from the first symptom to death was usually found to be shorter in those over 70 years of age, with an average period of 11.5 days, than in those under 70 years of age, with an average period of 20 days (Rothan & Byrareddy 2020), (Wang et al 2020).

A large number of cases from China revealed that 81% of cases had mild symptoms, 14% severe and 5% were in critical condition. While mortality in China was reported to be 2.3%, Italy, with a high rate of old people, reported a mortality rate of 7.2% due to higher rates of infection and mortality among the elderly (Dhar et al 2020).

However, many factors have been found to be predictive of poor outcomes, such as shortness of breath, comorbidities such as cardiovascular disease and COPD, and complications such as ARDS. It should be noted that once ARDS appeared, the probability of death increased dramatically (Wang et al 2020).

Also in a study by Wang, He, Yu & et al., (2020) involving 339 patients with COVID-19 (aged 71 ± 8 years old), 80 cases (23.6%) were critical, 159 were severe (46, 9%) and the 100 moderate (29.5%). However, there were common comorbidities such as hypertension (40.8%), diabetes (16.0%) and cardiovascular disease (15.7%). Common symptoms included fever (92.0%), cough (53.0%), shortness of breath (40.8%) and fatigue (39.9%). Lymphocytopenia was a common laboratory finding (63.2%). The most common complications observed were bacterial infection (42.8%), liver enzyme abnormalities (28.7%) and acute respiratory distress syndrome (21.0%). By March 5, 2020, 91 cases had recovered (26.8%), 183 cases remained in the hospital (54.0%) and 65 cases (19.2%) died. Symptoms of dyspnea (HR 2.35, P = 0.001), comorbidities including cardiovascular disease (HR 1.86, P = 0.031), chronic obstructive pulmonary disease (HR 2.24, P = 0.023) and acute respiratory distress syndrome (HR 29.33, P <0.001) were strong predictors of death. The findings of this study indicated a high rate of severe to critical cases and a high mortality rate in elderly patients with COVID-19 (Wang et al 2020).

In mental health, as well, according to Chinese research findings, in addition to physical complications, the prevalence of depression in COVID-19 patients was 43.1% (95% confidence interval (CI): 39.6% -46.6%). Specifically, the prevalence of mild, moderate and severe depression was 24.5% (n = 189), 12.1% (n = 93) and 6.5% (n = 50), respectively. The average overall score of PHQ-9 was 5.06 (standard deviation (SD) = 5.19). Patients with depression were older (P = 0.01) confirming once more the negative effects of COVID-19 on the well-being of the elderly (Ma et al 2020).

CAUSE

COVID-19 has a high mortality rate among older people. Resistance to viral infections decreases with age due to the inevitable reduction or disruption of the normal functioning of the immune system, susceptibility to infectious diseases and reduced immune response to medication. The reasons for the dysfunction of the immune system are multifactorial, indicating the emergence of permanent susceptibility to significant bacterial and viral infections, which deplete the immune system (Abdelbasset 2020). For example, in the case of severe acute respiratory syndrome, the damage caused by aging is closely related to the deterioration of the patient's condition and as older adults are more likely to have underlying comorbidities, they are therefore at greater risk of deterioration (Pang et al 2020).

The susceptibility of the elderly to infectious diseases increases due to the significant reduction in the number of T cells, which play an important role in detecting and responding to evolving pathogens such as viral infections. Although this reduction is closely related to reduced adaptive functions of the immune system, the innate parts of immunity cannot resist to the negative effects of the aging process (Abd el basset 2020).

RISKS

What should happen in public health virus outbreaks is to identify the groups most likely to have an adverse outcome so that prevention and treatment efforts can be focused on such groups of people (Lipsitch et al 2020).

The present COVID-19 threat is more dangerous for the elderly because an aging immune system is less able to clear the virus as it leads to poor virus recognition and eradication and an overall reduction of the normal cells immune response (Pang et al 2020).

Data published by Chinese researchers showed that they did not believe that children were infected with the virus, or were infected at low rates. However, after tracking contacts - that is, checking people who come in contact with a confirmed case - children appeared to be infected at the same rate as adults. Young children also appeared to serve as carriers for additional transmission. School closures were therefore effective in slowing the rate of transmission, as children often contracted the infection transmitting the virus to parents, relatives and to the wider community (Wan & Achenbach 2020).

The risk of transmission is also particularly high in long-term care facilities where the elderly are particularly vulnerable to outbreaks of respiratory disease. In long-term care, large groups of patients coexist in confined spaces with shared meals and many group social activities. Unfortunately, many cases of infected elderly people were caused by uninformed visitors, who caused an increased burden on healthcare facilities. Healthcare facilities should restrict visitors, regularly monitor care staff and residents for fever and COVID-19 symptoms and limit activities to keep residents safe. In addition, many residents are unable to apply the levels of personal hygiene required to stop transmission (Gardner et al 2020).

Also, it is quite difficult for people with dementia or Alzheimer's to take preventive measures against COVID-19 (such as social distancing, hand washing, staying at home, following the instructions of their caregivers, etc.) (Suzuki et al 2020). Recognizing that people with dementia have difficulty in understanding and taking preventative measures, caregivers should try to give instructions in a simple and understandable way, with regular daily programs and activities, which should be tailored to the interests of patients with dementia.

CORONAVIRUS IMPACTS

Most countries around the world have recommended staying home and isolation with the aim of controlling and preventing the spread of COVID-19 infection.

Frenkel-Yosef, Maytles & Shrira (2020) examined loneliness and related factors in the elderly during the pandemic, assuming that the feeling of loneliness would be higher among older people, those with medical problems, those with a more negative perception of old age and low activity. The sample of 295 older people in Israel showed that the loneliness they experience is actually mainly related to a negative perception of aging, higher psychological distress, limited face-to-face interactions and reduced activity. The recommendation of this study is that mitigating certain factors such as activity, maintaining interactions, etc., can improve the feeling of loneliness in the elderly in these difficult times.

Hwang et al. (2020) as experts in the field of psychogeriatric, describe the nature of loneliness and social isolation of the elderly in terms of the effects on physical and mental health, its effect on their health and ways to deal with loneliness and social isolation during COVID-19 pandemic. Advice on crisis management, while simple, requires effort from the elderly and their families or caregivers as the pandemic was thought to highlight the pre-existing threat of social isolation and loneliness that older people often experience.

Also, older people, whether they live in their own home or in a facility, depend on frequent visits from family and friends to socialize with them. Without these visits, they may feel more and more lonely, abandoned and frustrated. This is a medical problem in itself, leading to depression, weight loss and stressful behavior. Limited visits and increased absence of staff might cause the quality of care - already low in many facilities - to decline further, which extends to a problem beyond the existing psychological and health issue (Gardner et al 2020).

As cases multiply in geriatric facilities, the healthcare system will come under severe pressure. First of all, long-term care facilities are neither designed nor equipped to treat patients with severe COVID-19. They have limited patient isolation options and no ventilators. Staff is not trained to take care of serious respiratory illnesses and they do not have the personal protective equipment to protect themselves. The role of these facilities is to care for elderly patients in an environment that is different from a hospital and intended to operate alongside with hospitals (when residents become ill, they are transported to hospitals that can provide more intensive care) (Gardner et al 2020).

According to Stapleton (2020), isolation instructions kept the elderly safe in their homes. However, they also restricted access to much-needed support services for the elderly. Many of them have underlying chronic conditions such as heart disease, lung disease, hypertension and diabetes and to some extent, they keep

the elderly tied to the medical community for support. Without proper professional attention, these comorbid conditions can have a detrimental effect on the quality of life of the elderly. Unfortunately, physical distance instructions and restraint measures, while important in limiting the spread of the virus, they create inevitable barriers to social support, as well as to emotional and medical help.

In addition, these restrictive recommendations can lead to a lack of physical activity which can lead to physical and psychological complications. Self-isolation can lead to increased rates of anxiety and depression in the general population and especially in the elderly who are most affected by this pandemic. In addition, lack of physical activity can lead to elevated blood glucose levels, vulnerability to infection, cardiovascular disorders, cognitive impairment and musculoskeletal disease. Fighting the COVID-19 pandemic can continue for a long time and this can worsen the psychological and mental state, including anger, hostility, despair and depression which can lead to cardiovascular or cerebrovascular dysfunction and intensify the mortality rate. In addition, aging is associated with loss of muscle mass, decreased muscle strength and decreased functional activity known as sarcopenia, which can be increased due to such isolation, increase mortality, and decrease quality of life (Abdelbasset 2020).

Social distancing is intended to save the lives of vulnerable older adults, but there is a high cost associated with potentially serious mental and physical health consequences. The strategic response to COVID-19 crisis must not only aim at saving lives, developing effective therapies and revitalizing the economy, but also at protecting individuals and societies from the social, intellectual and cognitive adverse effects. Adopting appropriate measures to maintain social and family ties, to maintain activities and to manage emotions can help alleviate the negative consequences experienced by the elderly in social isolation. Social inclusion is necessary to exist as it is beneficial to both vulnerable individuals and society (Vernooij-Dassen et al 2020).

In addition, it is important to remember that people today in their eighties and nineties are the ones who experienced World War II and the subsequent "economic boom." In the past, they learned how to deal with a difficult situation and develop a kind of "post-traumatic growth" and now they prove it with courage and patience (Petretto & Pili 2020).

CONCLUSIONS

The COVID-19 pandemic has proven to be a public health emergency of global concern and all countries need a coordinated effort to fight it. The rapid spread of the virus, the lack of medical and nursing staff, the lack of targeted treatment, the strict measures imposed by governments and the lack of vaccines, have caused anxiety, distress, uncertainty and fear in society.

There is a need to understand the transmission of the disease and to implement guidelines for its better management in order to limit its spread. Health professionals should be properly trained to manage this new disease.

It is essential that policymakers comprehend the situation and get prepared to improve treatment protocols and develop effective drugs and vaccines as soon as possible.

Distancing and social isolation are necessary measures to prevent the spread of viruses during a pandemic, but they cause significant concerns in the mental health of older people. Alertness for the health of the elderly and especially in long-term care is necessary not only for their health, but also for the protection of the health care system, which is flooded by the spread of the virus. Healthcare workers play a central role in adopting appropriate management measures to eradicate this harmful disease.

In addition, severe COVID-19 infection has been found to cause depression at a higher rate to the elderly. In old people depression can reduce the willingness to take antiviral therapy and the willingness to recover. That is why, in the field of mental health of the elderly, as the pandemic floods the health systems, the collaboration of health professionals, scientists, researchers, psychiatrists, counselors, for the successful management of diseases such as depression, is crucial.

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