A SYSTEMATIC REVIEW OF LONG COVID MANIFESTATIONS AND THEIR IMPACT ON QUALITY OF LIFE (2020-2024)

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Abstract
Long COVID or post-acute sequelae of SARS-CoV-2 infection (PASC) has become a serious issue as long as millions of people worldwide are being impacted by this condition. The article aims to discuss long COVID symptoms and their consequences for patients in terms of subjective well-being prevalence on the basis of material from 2020 to 2024. In order to present the information gathered from peer-reviewed journals, we aim at presenting the long-term health impact, social and health-related costs, and research agenda.

Keywords: COVID, PASC, Fatigue, Cognitive, Dysfunction, Rehabilitation, PTSD, Healthcare, Systems, Anxiety, Depression, Prevalence.

Introduction
COVID-19 has caused one of the largest health crises of the century that affected millions of people and claimed many lives. Many individuals seem to have mild to moderate duration of acute illness though other patients present with chronic symptoms ranging from weeks to months which has been described as long COVID or post-acute sequelae of SARS-CoV-2 infection (PASC). Long COVID presents a broad range of enduring symptoms such as fatigue, cognitive dysfunction, dyspnea, and cardiovascular complications that severely affect the health-related quality of life of the infected patients. This review will compile the up-to-date and recent literature (2020-2024) that investigates the symptoms of long COVID and its effect on patients' working capacity, mental wellbeing, and financial security. Based on reviewing secondary sources such as peer-reviewed journals and clinical records, this paper outlines the epidemiology and future research recommendations regarding long COVID. It is therefore important to learn these long-term repercussions to help in clinic and policy making for the affected individuals.

Literature review

This is especially true as the literature on long COVID indicates that it can affect almost all the systems in the body, the mental health of the patient, as well as his overall quality of life. This section focuses on reviewing current understanding of long COVID under Physical and Neurological, Psychological and Social, and Economic and Healthcare categories.

Physical and Neurological Manifestations

According to Davis et al., 2021, this means that the care of a patient should not end when the symptoms they exhibit are no longer considered acute Covid associated symptoms. Fatigue is one of the most frequent complaints, which may also manifest as shortness of breath, chest pain and abnormal heart beats. Such symptoms point to multi-organ dysfunction with special reference to the cardiovascular and respiratory systems (Davis et al., 2021). Cognitive disorders are also reported with features such as memory disturbances and head afflictions like headaches. It stated that patients suffer from problems such as impaired concentration and difficult problem solving which hampers their daily lives. In this case, the follow-up findings reveal muscle weakness and joint pain which are other symptoms that have been observed to lead to more deterioration of the physical capacity. The detailed explanations of such manifestations have not been fully researched, however; it is considered that immunological reactiveness or rather immunological disturbances are the essential causes along with inflammation.
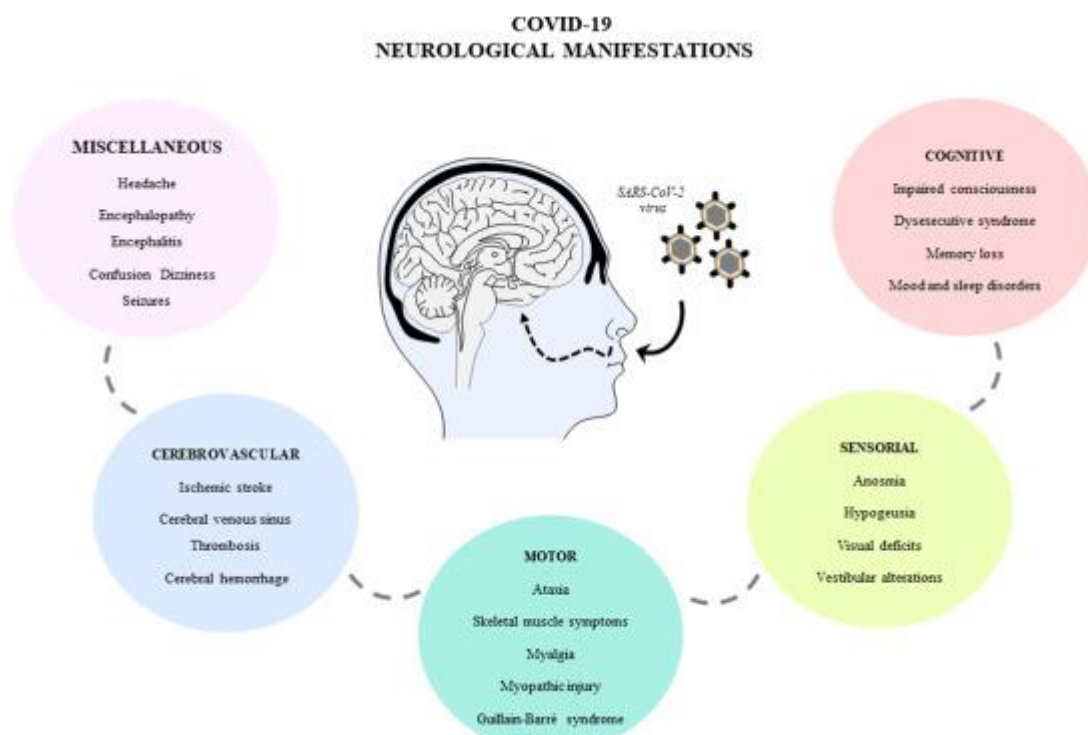

Figure 1:- Physical and Neurological Manifestations
(Source: Davis et al., 2021)

Psychological and Social Impacts

According to Huang et al., 2021, from studies, it is evident that people with long COVID commonly experience anxiety, depression, and post-traumatic stress. Stress is heightened by sustained health issues, the unknown state of the patients' health, and the inability of a patient to perform tasks they once did pre-illness. Many positive experiences are socially demobilizing, and in the case of long COVID, social isolation can be all encompassing. It is evident that people have problems with returning to work, going out and being in relationships due to constant exhaustion and problems with concentration (Huang et al., 2021). It has also affected the family aspects as the caregivers are required

to take extra roles in order to support the ill people. In some other places of work, the syndrome has been characterized by stigma which has resulted in persons with the condition feeling so unwanted especially when the place of work has not provided for the long COVID.
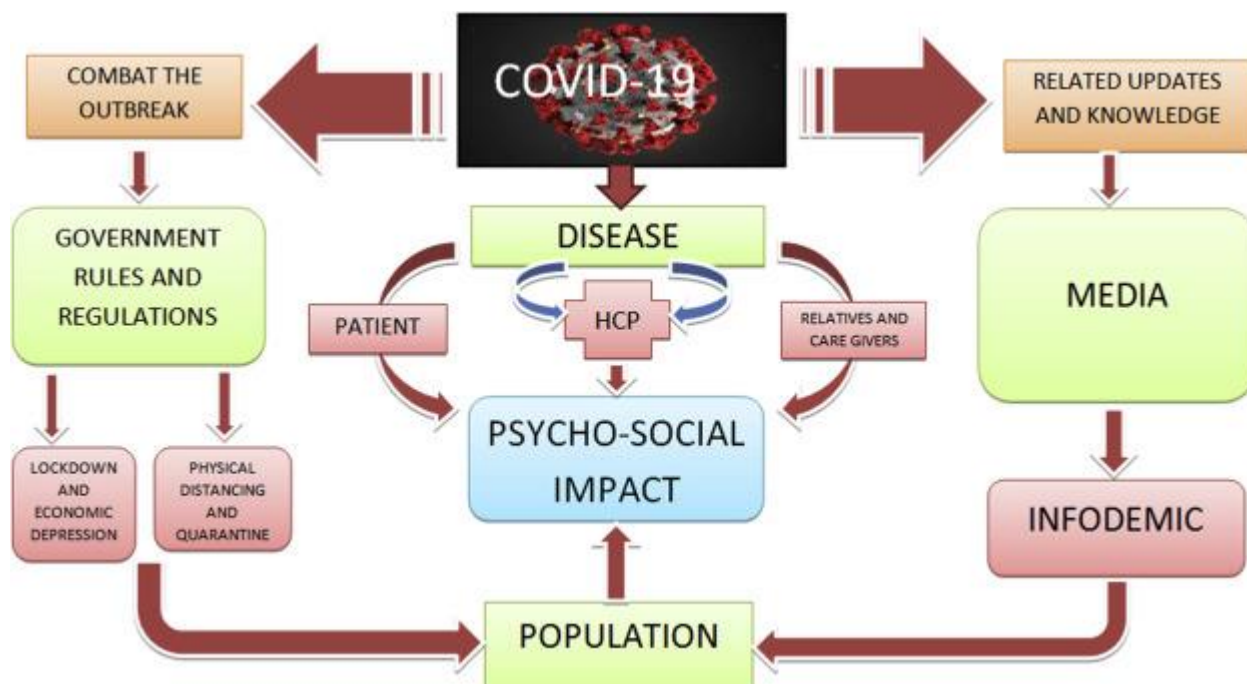

Figure 2:- Psychological and Social Impacts
(Source: Huang et al., 2021)

Economic and Healthcare Burdens

According to Taquet et al., 2021, the long COVID has proven to be a long-lasting condition that has put much pressure on the healthcare systems globally. New and special demands for originating and complex facilities, rehabilitation and mental health have contributed to the role shortages in many countries. This means that patients frequently attend care providers several times, which is still an added pressure to healthcare systems. Economically speaking, long COVID has been proving to reduce the workforce output in ongoing occupations. A large number of such patients are unable to return to work till they achieve full functionality and this results in added financial burden that forces them to continue with disability benefits (Taquet et al., 2021). Employers have equally been affected especially in organizations particularly in sectors that were closed down due to the virus thus causing long absences from work. As this paper brought to light the long COVID's economic impact on employees and employers, it reveals that there should be increased calls for employers to provide accommodations and for enhanced legislations to address the disease and its effects.
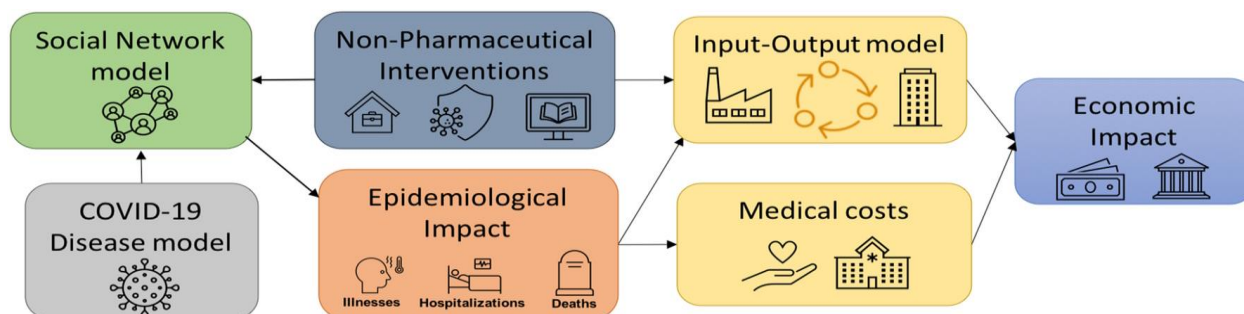

Figure 3:- Economic and Healthcare Burdens
(Source: Taquet et al., 2021)

Methods

This following systematic was carried out using secondary data obtained from journal articles, government documents, and databases. The approach adopted in the methodology is also systematic to capture all the symptoms of long COVID and the quality of life of the patients.

Data Collection and Selection Criteria

The purpose Since the end of the COVID-19 outbreak, effective for peer-reviewed articles on long COVID and post-acute sequelae of COVID-19, including the keywords "long COVID," "PASC," "quality of life," and "persistent symptoms" were utilized in PubMed, Scopus, and Google Scholar databases (Sudre et al., 2021). The criteria for choosing the articles were:

Publications from January 2020 to December 2024.

- Research concerning the presence of symptoms of long COVID and their effects on people's physical, mental, and social statuses.
- Articles published in English.
- Studies with participants infected with Covid19 and having clinical and observational evidence of Long COVID.

The studies contained ambiguous results, the papers reporting on the situations related to the acute phase of COVID-19 infections without long-term consequences, and the articles from non-refereed sources, such as op-ed pieces and a large number of anecdotes, were excluded.

Data Extraction and Analysis

In the case of each study which was deemed relevant, specific information extracted include: study type, the number of participants involved, participant characteristics, the symptoms that were reported by participants and the patients quality of life before and after the intervention. Consequences were grouped into physical, neurological, psychological, and economical consequences so as to ensure that the investigations are ordered (Evans et al., 2021). Covert, where possible, quantitative records were taken to assess symptoms' frequency and chronic impact.

Limitations of the Study

As a result of following a systematic approach, this review has some drawbacks. First of all, the use of secondary sources implies that the results completely depend on the literature review sources' credibility and coverage (Tran et al., 2022). Secondly, some amount of inconsistency could originate from differences in study methods and ways of data collection across the various geographic locations.

Result

Prevalence and Symptom Patterns

Post-COVID syndrome is a problem that impacts enough participants in the COVID-19 recovery process, with rates varying from 10%-30%. The most common symptoms are of them which includes; tiredness, difficulty in thinking and memory (cognitive dysfunction), and breathlessness, chest discomfort, and joint/muscle aches (Raveendran et al., 2021). The common neurological signs included headaches, memory impairment, and attention deficit that significantly impair psychosocial functioning. Respiratory and cardiovascular issues remain prevalent, where, in some of the patients, they may develop POTS or arrhythmia.
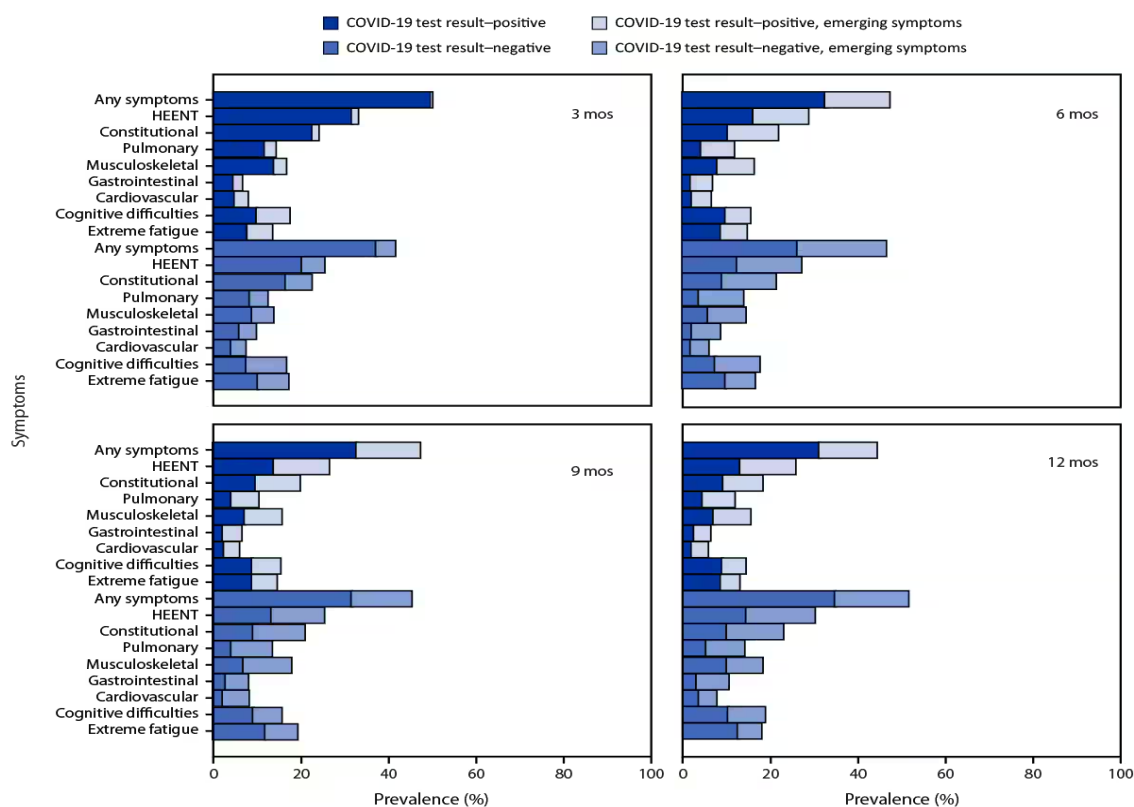
Figure 4:- Prevalence and Symptom Patterns
(Source: https://www.cdc.gov/mmwr/volumes/72/wr/figures/mm7232a2-F.gif?_=98501)

Impact on Quality of Life

Long term effects of the COVID-19 have negatively impacted physical, mental and social health of affected patients. It established that there are severe fatiguing and cognitive symptoms that deny many patients the opportunity to work or perform other tasks. Lack of cure for the disease has such indications persist for long, and this has caused high cases of anxiety, depression and post-traumatic stress disorder (PTSD) among those affected by the long COVID (Nalbandian et al., 2021). Mobility has decreased and there are ongoing health issues due to which people's interaction and relationships are compromised, and their quality of life is less than optimal. Self-employment and unemployment also pose many challenges to most patients as some of them may have to take sick leave, or need special arrangements at the workplace.
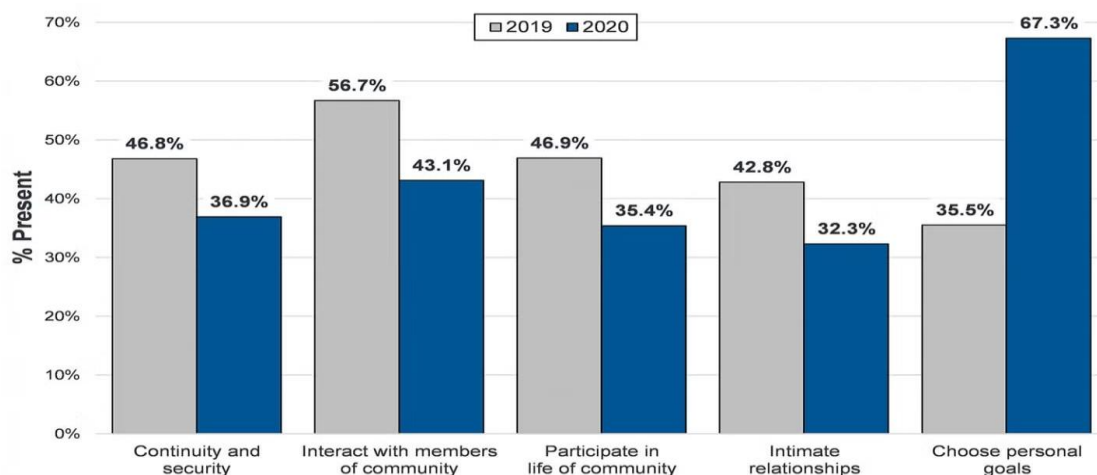

Figure 5:- Impact on Quality of Life
(Source: https://www.c-q-l.org)

Healthcare Challenges and Economic Burden

The outbreak of COVID-19 has exposed the healthcare system and it struggles to cater to the increasing demand of long-term rehabilitation, mental health, and specialty for long COVID patients. The failure to develop different practice guidelines has resulted in variation in caring for patients, and some of the patients have not been offered proper care (Doykov et al., 2021). From an economic impact perspective, it has been seen that due to long COVID, there has been loss of workforce productivity, fluctuations in economic status, and higher disability insurance claims. Some patients have lost the capacity to work full time and are forced to depend on various social benefits. These issues confirm the necessity of expanding more stringent healthcare approaches and policy frameworks on the long COVID long-term effects.
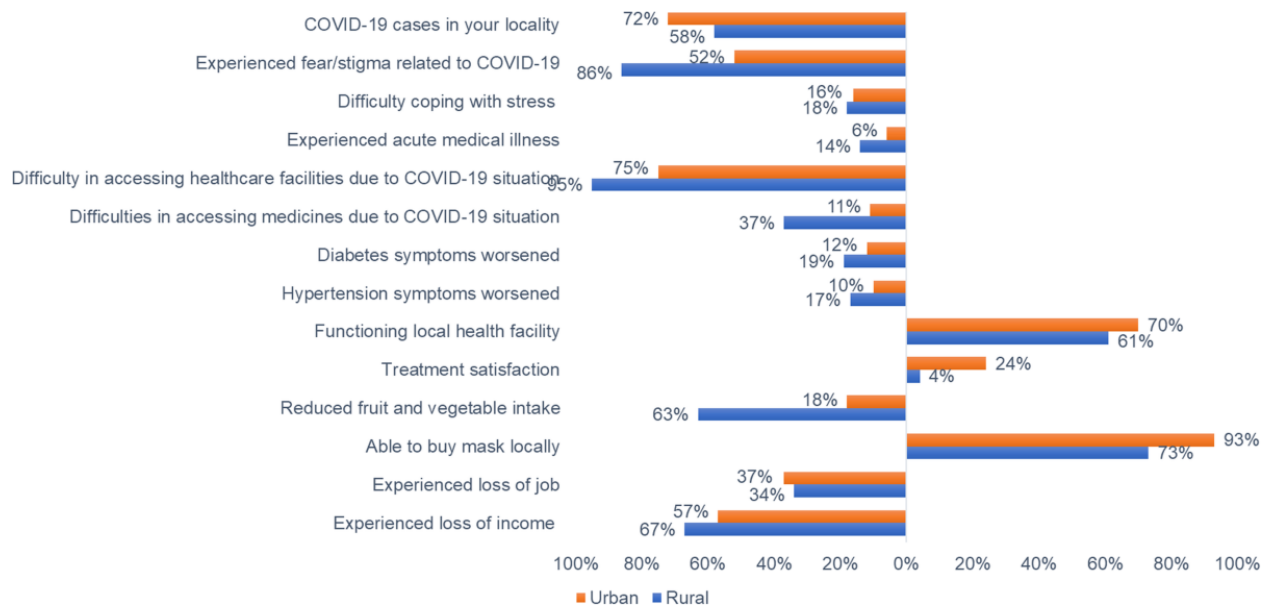

Figure 6:- Healthcare Challenges and Economic Burden
(Source: https://media.springernature.com)

Discussion

This proceeding review also puts forward that long COVID broke down its various consequences on health, cognitive system, mental health, and finances. The physical effects that continue to be noticeable are fatigue, brain fogging, respiratory difficulties, and cardiovascular complications, which if this is so, then long COVID is not just an extended healing phase, but a different condition that requires further attention from healthcare professionals. Most of the patients experiencing long COVID complain of weak health care seeking behaviors (Fernández-de-las-Peñas et al., 2021). Most people state the problem when it comes to getting the correct diagnosis, treatment, as well as rehabilitation. The absence of a common definition of Long Covid creates different lengths to care, while some patients have gained many resources, others face a challenge of getting the right care. There are additional psychological and social impacts of long COVID that greatly enhance patient suffering. There is existing literature on the prevalence of anxiety, depression, and post-traumatic stress that seems to have caused worsening effects given the loss of employment or diminution of work/productivity. Furthermore, long COVID has become a burden to health care facilities by expanding the need for extended supervised care, and psychological support.

Future Directions

Hence, to reduce the effect of long COVID in the long run, there needs to be collaboration between clinical research, health care systems and policy makers. The following is the research topic showing areas that require immediate attention:

- Hence, future studies should consider providing information on the pathophysiological processes that bring about long COVID. Research and studies conducted on critical areas such as immune dysfunction and inflammation, as well as neurologic effects may advance advances in treatment.
- There is still insufficient information to establish effective treatment strategies for long COVID symptoms, but adequate and sufficient protocols should be established to address the issues arising from the long COVID symptoms (Groff et al., 2021). This includes the programs aimed at strengthening the personality of the patient, treatment with the help of psychological techniques and sessions, and chemical treatment as well.
- Further research should explore the duration of symptoms among those with long COVID. This is because it will enable the identification of the risk factors that are inherent in the condition, how soon treatment is required and if other complications may be expected.
- Governments and healthcare organizations should therefore establish policies that facilitate the support of long COVID patients in accessing quality care (Ziauddeen et al., 2022). This theme has to do with how workplace changes can be made for physically disabled persons and the facilities available for assisting them.
- The community members, practitioners, employers, and policy makers should increase understanding about long COVID in order to avoid discriminating against them and provide support for those affected.

Such investment will not only benefit patients by promoting the reduction of long COVID's economic and social impact in the future years, but also help the healthcare system in the long run.

Conclusion

Long COVID is one of the many top health concerns that has cropped up in the last couple of years and is present in millions of people globally. The multiple symptoms ranging from the physical, neurological, and psychological nature have culminated into low quality of life, loss of employment, as well as personal and family status. The inadequate treatment profiles and healthcare care have increased the suffering of patients, as well as the medical systems. Long COVID is a relatively new phenomenon for which many fundamental questions for further investigation have not yet been answered, including its causes, and proper treatment. The present review also implies that more research needs to be done, and the current healthcare policies for long COVID be improved and strengthen the necessity of interdisciplinary approach. What the future holds for this condition is that clinical research, rehabilitation programs, and mental health programs must be improved in the future to cater for the effects created by this ailment. If disease-centered models of care are implemented and research-based approaches are promoted efficiently, then the healthcare systems will have the ability to properly address the needs and impacts of those with long COVID.

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