Impacts of COVID-19 on physical, mental, psychological health and socio-economic consequences: A literature review

آثار فيروس كورونا 2019 (كوفيد-19) على الصحة الجسدية والعقلية والنفسية وعواقبه الاجتماعية والاقتصادية: تحليل عينة من الدراسات

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Abstract:

The aim of the present paper is to review the literature on the impact of COVID-19 on health, psychological, mental health, and socio-economic parameters. 34 scientific articles were analysed out of 107 studies that were selected from the web of science during the period from 23 August to 30 September 2020. The selection process used the following criteria: (1) impact of COVID-19 on physical, psychological, mental health and (2) the socio-economic consequences of COVID-19.

The results revealed that COVID-19 pandemic had and still having a very important concequeneces on all aspects of health, especially among the most vulnerable segment of the population, like diabetics and cancerous, or those who suffer from psychological and mental health impairments (stress, anxiety, depression, frustration). The socio-economic consequences were highly emphasized in the studies, at all levels (individual, society, national and international).

The discussion of the different papers analysed in this study, emphesised the importance of health protocols set-up by different countries, which should be updated and adapted to the new situations of COVID-19 locally and internationally.

Key-words: COVID-19; Physical health; Psychological & Mental health; Socio-economic consequences; Impacts.

الملخص:

الهدف من هذه الورقة هو مراجعة الأدبيات حول تأثير فيروس كورونا 2019 (كوفيد-19) على الصحة الجسدية والنفسية والعقلية والمعايير الاجتماعية والاقتصادية. تم تحليل 34 مقالاً علمياً من أصل 107 دراسة تم اختيارها من شبكة العلوم خلال الفترة من 23 أوت إلى 30 سبتمبر 2020. تم استخدام المعايير التالية في عملية الاختيار: (1) تأثير كوفيد-19 على الصحة الجسدية والنفسية والعقلية و(2) العواقب الاجتماعية والاقتصادية لكوفيد-19.

كشفت النتائج أن لجائحة كوفيد-19 آثاراً وخيمة على جوانب عديدة من الصحة، ولا سيما بين أكثر شرائح السكان ضعفاً، مثل مرضى السكري والسرطان، أو أولئك الذين يعانون من إضطرابات نفسية وعقلية (الإجهاد، والقلق، والاكتئاب، والإحباط). تم التأكيد بشكل كبير على العواقب الاجتماعية والاقتصادية في الدراسات، وعلى جميع المستويات (الفرد والمجتمع ووطنيا ودوليا).

أبرزت مناقشة الأوراق البحثية المختلفة التي تم تحليلها في هذه الدراسة أهمية إعداد البروتوكولات الصحية من قبل مختلف دول العالم، والتي يجب تحديثها وتكييفها مع المواقف الجديدة لكوفيد-19 محليًا ودوليًا.

الكلمات المفتاحية: فيروس كورونا 2019 (كوفيد-19)؛ الصحة الجسدية؛ الصحة النفسية والعقلية؛ العواقب الاجتماعية – الاقتصادية؛ التأثير.

Introduction:

Coronavirus disease 2019 (COVID-19), a highly infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Ye *et al.*, 2020, p. 4381), was firstly reported in Wuhan, Hubei Province, China (Bao *et al.*, 2020, p. e37; Bäuerle *et al.*, 2020, p. 649; Chen *et al.*, 2020, p. e15; Gharehgozli *et al.*, 2020, p. 562; McKibbin & Fernando, 2020; Szcześniak *et al.*, 2021, p. 1; Ye *et al.*, 2020, p. 4381), and rapidly spread to other domestic cities and countries beyond China (Ye *et al.*, 2020, p. 4381; Zu *et al.*, 2020, p. E15). From January 2020, the world has been facing a catastrophic outbreak of COVID-19, caused by the SARS-CoV-2 (Montagnani *et al.*, 2020, p. 1). Over the subsequent months, it rapidly

extended around the world although not all countries have been equally affected (Braquehais *et al.*, 2020, p. 1). The World Health Organization (WHO) named the disease COVID-19, and the International Committee on Taxonomy of Viruses named the virus: the SARS-CoV-2 (Szcześniak *et al.*, 2021, p. 1).

Labelled as a black swan event and likened to the economic scene of World War Two, the outbreak of COVID-19 has had a detrimental effect on global healthcare systems with a ripple effect on every aspect of human life as we know it (Nicola *et al.*, 2020, p. 185).

In a strongly connected and integrated world, the impacts of the disease beyond mortality (those who die) and morbidity (those who are incapacitated or caring for the incapacitated and unable to work for a period) has become apparent since the outbreak (McKibbin & Fernando, 2020, p. 2).

Previous research on other infectious diseases, including the Severe Acute Respiratory Syndrome (SARS), the Middle East respiratory syndrome (MERS) and the Ebola virus disease, consistently showed that many healthcare professionals (HPs) reported symptoms of anxiety and depression, both during and after the outbreak, causing a severe impact on their coping abilities, in some cases with long-lasting effects (Braquehais *et al.*, 2020, p. 2).

According to Serafini et al. (2020), as a result of the emergence of COVID-19 outbreak caused by SARS-CoV-2 infection in the Chinese city of Wuhan, a situation of socio-economic crisis and psychological distress rapidly occurred worldwide (p. 529).

According to Szcześniak et al. (2021), the impact of the current pandemic goes far beyond direct brain damage. Increased panic, public restrictions, mass quarantine and overwhelming pressure on medical professionals might have a great impact on global mental health (p. 1).

Although social activities have been restricted in most countries, almost all not essential individual movements were prohibited due to quarantine, while the local hospitals received suddenly thousands of critically ill COVID-19 patients and were forced to implement their emergency protocols (Serafini *et al.*, 2020, p. 529). The intensity of the sudden stop induced by the COVID-19 outbreak produces effects which are similar to those of a largescale, extreme, natural disaster (Bonaccorsi *et al.*, 2020, p. 15530).

In this context, the general population became vulnerable to the emotional impact of COVID-19 infection due to both the pandemic and its consequences worldwide (Serafini *et al.*, 2020, p. 529). « In order to optimize patient care and resource allocation during this pandemic, biomarkers are urgently needed for stratifying patients' risk and for actively monitoring illness severity » (Lippi *et al.*, 2020, p. 145).

In addition to dire health consequences, the COVID-19 outbreak is producing massive and far-reaching economic cost burdens for all nations including China, the US, Japan, Germany, Britain, France, and Italy - the G7 countries (Barua, 2020, p. 2). The COVID-19 pandemic has caused a massive economic shock across the world due to business interruptions and shutdowns from social-distancing measures (Martin *et al.*, 2020). Apparently, the outbreak has produced a 'de-globalization' process by forcing countries to lock-down borders, preventing normal flows of goods, capital, and humans, and business and production shut downs at least temporarily (Barua, 2020, p. 2).

It is especially important to study and aim to understand the economic consequences of the outbreak and the shutdown during this period of time, as any information as such plays a critical role in the decision making processes such as "reopening" policies and timelines (Gharehgozli *et al.*, 2020, pp. 562-563).

There is a plethora of ongoing research studies on estimating the socio-economic impact of COVID-19, in both emerging and developed countries (e.g., Barua, 2020; Bonaccorsi *et al.*, 2020; Bukuluki *et al.*, 2020; Cavallo & Forman, 2020; Gharehgozli *et al.*, 2020; Martin *et al.*, 2020; McKibbin & Fernando, 2020; Narula, 2020; Nicola *et al.*, 2020; Shubber *et al.*, 2020).

The impact of Covid-19 on individual and collective health aspects was tremendously serious at a large-scale. Psychological and mental health impact of COVID-19 was approached from different angles (Asmundson & Taylor, 2020; Bao *et al.*, 2020; Braquehais *et al.*, 2020; Chen *et al.*, 2020; Cullen *et al.*, 2020; Rajkumar, 2020; Serafini *et al.*, 2020; Szcześniak *et al.*, 2021). Data from recent public opinion polls show that COVID-19 is having a significant psychological impact. The fear of COVID-19 is likely due to its novelty and the uncertainties about how bad the current outbreak might become. Fear of COVID-19 is much greater than fear of seasonal influenza, even though the latter has killed considerably more people (Asmundson & Taylor, 2020).

More research is needed to understand the relationship between the COVID-19 on the one hand and health, psychological and mental health, and socio-economic status on the other hand. The aim of this review is to summarize the current understanding of COVID-19 (Harapan *et al.*, 2020, p. 668), This paper will focus on four broad areas: (1) The health effect of COVID-19, (2) The psychological and mental health impact of COVID-19, (3) The socio-economic consequences of COVID-19, and (4) Discussion of COVID-19 treatment proposals.

With the above objectives in mind, the current article was designed to summarize the literature addressing the impact concerns related to the COVID-19 pandemic on the health, psychological and mental health, and socio-economic status. And answer the following questions: (i) what is the impact of the COVID-19

pandemic on health?; (ii) what are the psychological and mental health effects of COVID-19?; (iii) what are the socio-economic effects of COVID-19?; and (iv) what are the treatment proposals?

1. Background:

1-1- Health impact of COVID-19:

The prophetic warning by the Nobel Laureate Joshua Lederberg that "the microbe that felled one child in a distant continent can reach yours today and seed a global pandemic tomorrow" has once again proved its relevance with the emergence of COVID-19 as the latest pandemic that is affecting human health and economy across the world (Tandon, 2020).

Studies of COVID-19 impacts on health aspects (Ceriello *et al.*, 2020; Bornstein *et al.*, 2020; Iacobellis, 2020; Liang *et al.*, 2020; Tandon, 2020; Wang & Zhang, 2020) emphasized two vulnerable patients categories, namely diabetics and concerous.

1-1-1-COVID-19 and diabetes:

The recent data from the COVID- 19 caused by the 2019 novel coronavirus (2019-nCoV), confirm that diabetes, along with advanced age, is a major risk factor for an adverse outcome. Diabetes accounted for approximately 20% of the intensive care unit (ICU) admission according to an early analysis of a small cohort in Wuhan, China. More recent data from Italy showed the more than two-thirds of those who died by SARS-CoV-2 had diabetes (Iacobellis, 2020, p. 1).

In this context, according to Bornstein et al. (2020), data from the early months of 2020 suggest that most people with COVID-19 have comorbidities, the most prevalent of which are diabetes, cardiovascular disease, and hypertension. A significant association with worse outcomes is seen in people with these

comorbidities. Studies have also shown that COVID-19 is associated with hyperglycaemia particularly in the elderly with type 2 diabetes (p. 546).

There are at least two specific mechanisms that might play a role in COVID-19 infection. First, to gain entry to its target cells, the SARS-CoV-2 virus hijacks an endocrine pathway that plays a crucial role in blood pressure regulation, metabolism, and inflammation. A second potential mechanism that might explain the link between COVID-19 and diabetes involves the dipeptidyl peptidase-4 (DPP-4) enzyme, which is commonly targeted pharmacologically in people with type 2 diabetes (Bornstein *et al.*, 2020, pp. 546-547).

1-1-2-Risk of COVID-19 for patients with cancer:

According to Liang et al. (2020), patients with cancer are more susceptible to infection than individuals without cancer because of their systemic immunosuppressive state caused by the malignancy and anticancer treatments, such as chemotherapy or surgery. Therefore, these patients might be at increased risk of COVID-19 and have a poorer prognosis (p. 335).

Accordingly, during this epidemic, in addition to better protection, patients with cancer need online medical counselling and appropriate identification and treatment of critical cases (Wang & Zhang, 2020, p. e181).

1-2- Psychological and mental health impact of COVID-19:

So far, little is known about treatment options and potential vaccinations to effectively combat COVID-19. However, the same applies for the impact of COVID-19 on people's mental health (Bäuerle *et al.*, 2020, p. 649).

While the nature and impact of COVID-19 on mental health remains to be determined, there are clues in the existing literature that may help us begin to understand what to expect. Research on the psychological reactions to previous epidemics and pandemics suggests that various psychological vulnerability factors

may play a role in coronaphobia, including individual difference variables such as the intolerance of uncertainty, perceived vulnerability to disease, and anxiety (worry) proneness (Asmundson & Taylor, 2020).

The first studies that have already been carried out, confirm that the novel coronavirus pandemic can also severely affect mental health of infected individuals (Szcześniak *et al.*, 2021, p. 4). A large number of studies document the effect of COVID-19 on psychological and mental health (e.g., Asmundson & Taylor, 2020; Bao *et al.*, 2020; Braquehais *et al.*, 2020; Chen *et al.*, 2020; Cullen *et al.*, 2020; Rajkumar, 2020; Serafini *et al.*, 2020; Szcześniak *et al.*, 2021).

According to Cullen et al. (2020), during any outbreak of an infectious disease, the population's psychological reactions play a critical role in shaping both spread of the disease and the occurrence of emotional distress and social disorder during and after the outbreak. Despite this fact, sufficient resources are typically not provided to manage or attenuate pandemics' effects on mental health and wellbeing (p. 311).

Based on Rajkumar (2020), widespread outbreaks of infectious disease, such as COVID-19, are associated with psychological distress and symptoms of mental illness. Psychiatrists across the world should be aware of these manifestations, their correlates, and strategies to manage them that encompass both the needs of specific populations and the precautionary measures necessary to contain the spread of COVID-19. They should also be aware of lacunae in the existing literature, which may need to be filled in over time through more widespread clinical experience and research (p. 1).

According to Serafini et al. (2020), many psychological problems and important consequences in terms of mental health including stress, anxiety, depression, frustration, uncertainty during COVID-19 outbreak emerged

progressively (p. 529). Common psychological reactions related to the mass quarantine which was imposed in order to attenuate the COVID-19 spread are generalized fear and pervasive community anxiety which are typically associated with disease outbreaks, and increased with the escalation of new cases together with inadequate, anxiety-provoking information which was provided by media (Serafini *et al.*, 2020, pp. 529-530).

Szcześniak et al. (2021), conclude that restrictions that have been taken to decrease the transmission of the SARS-CoV-2 increase the intensity of anxiety, depression, feelings of loneliness and perceived threat in the society. These recommendations and the necessary social isolation can have far-reaching negative consequences and might be associated with limiting the continuation of providing tailored care, support and treatment (p. 5). In this context, Braquehais et al. (2020) conclude that most studies point to an increased risk for women of having worse physical and mental health during the pandemic (p. 3).

1-3- Socio-economic impact of Covid-19 pandemic:

Although it might seem too early to talk about the economics of the COVID-19 outbreak, it remains pertinent due to the ravage it is causing through direct and indirect economic impacts across countries. The economic implications of the outbreak is broadly termed as 'Coronanomics', while some call it as the 'Black Swan' (Barua, 2020, p. 2).

The COVID-19 pandemic is, first and foremost, a health crisis. However, it is rapidly becoming an economic one too. This is not, of course, the first global economic crisis. However, this time it is different (McKee & Stuckler, 2020, p. 640).

Both World Trade Organization (WTO) and Organization for Economic Cooperation and Development (OECD) have indicated COVID-19 pandemic as the

biggest threat to global economy since the financial crisis of 2008-2009 (Tandon, 2020).

The COVID-19 pandemic is having a profound impact on the countries. It is the most serious public health crisis in most of our lives and the most significant geopolitical event of our generation. The necessary policy response to quell its spread and the resultant downstream effects have had substantial detrimental effects on the economy; economic activity in many sectors has evaporated (Cavallo & Forman, 2020, p. E141).

There are many channels through which an infectious disease outbreak influences the economy. Direct and indirect economic costs of illness are often the subject of the health economics studies on the burden of disease (McKibbin & Fernando, 2020, p. 3).

A large number of studies document the socio-economic impact of COVID-19 pandemic (e.g., Barua, 2020; Bonaccorsi *et al.*, 2020; Bukuluki *et al.*, 2020; Cavallo & Forman, 2020; Gharehgozli *et al.*, 2020; Martin *et al.*, 2020; McKibbin & Fernando, 2020; Narula, 2020; Nicola *et al.*, 2020; Shubber *et al.*, 2020).

COVID-19 has led to severe and acute losses in many economies around the world due to illness and and government-mandated social distancing orders. The impact and duration of the economic crisis on individual households, resulting from the pandemic, is difficult to predict as many uncertainties surround the crisis duration, i.e. length of "stay-at-home" orders, as well as impacted industries and the post-crisis consumption and recovery (Martin *et al.*, 2020, pp. 453-454).

Martin *et al.* (2020), also said « due to widespread business closures, especially in lower income populations, national economies are expected to contract, leading to a dramatic rise in unemployment and poverty rates » (p. 454).

Bonaccorsi et al. (2020) show that « concern is arising regarding the economic consequences of lockdown and how it can disproportionally hit the weak and the poor. Lockdown measures have affected several production sectors, value chains, and trade exchanges, motivating G20 governments to announce fiscal interventions of about $8 trillion and massive monetary measures. The supply shock, in fact, is triggering deep contractions of aggregate demand, further endangering socioeconomic recovery » (p. 15530). Amidst the slowing down of the Chinese economy with interruptions to production, the functioning of global supply chains has been disrupted. Companies across the world, irrespective of size, dependent upon inputs from China have started experiencing contractions in production. Transport being limited and even restricted among countries has further slowed down global economic activities (McKibbin & Fernando, 2020, p. 2).

Most importantly according to McKibbin and Fernando (2020, p. 2), some panic among consumers and firms has distorted usual consumption patterns and created market anomalies. Global financial markets have also been responsive to the changes and global stock indices have plunged.

In an attempt to understand the turmoil effect on the economy, Nicola et al. (2020) were summarising the effect of COVID-19 on individual aspects of the world economy, focusing on primary sectors which include industries involved in the extraction of raw materials, secondary sectors involved in the production of finished products and tertiary sectors including all service provision industries. As follows: (1) Primary sectors (agriculture; and petroleum & oil). (2) Secondary sectors (manufacturing industry). (3) Tertiary sectors (education; finance industry; healthcare and the pharmaceutical industry (healthcare, and pharmaceutical industry); hospitality, tourism and aviation (hospitality, tourism, and aviation);

real estate and housing sector; sports industry; information technology, media, research & development; and food sector). (4) Social impact (family dynamics: domestic violence & home video-gaming).

1-4- Treatment proposals:

There are many studies that have made suggestions about addressing the problems related to the COVID-19 pandemic (Asmundson & Taylor, 2020; Braquehais *et al.*, 2020; Ceriello *et al.*, 2020; Imran *et al.*, 2020; Khosravani *et al.*, 2020; McKee & Stuckler 2020; Nicola *et al.*, 2020; Pan-ngum *et al.*, 2020; Serafini *et al.*, 2020).

The study of Pan-ngum et al. (2020, pp. 1-2) aimed to produce evidence to inform (non pharmaceutical) interventions such as communications, quarantine, self-isolation, social distancing, travel restrictions and other public health measures for the COVID-19 pandemic. The study conducted in the United Kingdom, Italy, Malaysia, Slovenia and Thailand. Data collection followed the following four themes: (1) Quarantine and self-isolation (2) social distancing and travel restrictions (3) wellbeing and mental health (4) information, misinformation and rumours. At the time of the inception of the study, United Kingdom, Italy, Malaysia, Slovenia and Thailand have initiated strict public health measures and varying degrees of "lockdowns" to curb the pandemic. These public health measures changed in the coming weeks and months depending on the number of cases of COVID-19 in the respective countries. The data generated from this study could inform these strategies in real time.

COVID-19 and diabetes management: What should be considered?

In summary, our knowledge on the new SARS-CoV-2 is increasing day by day, and the lessons learnt from this pandemic in different countries are very precious to establish the best approach to manage the disease. People with diabetes are

particularly exposed to a worse prognosis if infected. Therefore, it is a scientific and clinical need to obtain data on the antidiabetic treatments used so far in type 2 diabetes mellitus (T2DM) affected by COVID-19, and particularly to clarify whether the use of the new therapies in such people is correlated, or not, to a better prognosis and less severe forms of the disease (Ceriello *et al.*, 2020, p. 2).

Managing the Psychological Impact of COVID 19:

The current outbreak of COVID-19 represents a call to action for psychosocial researchers and practitioners. It is vitally important to understand the psychosocial fallout of COVID-19, such as excessive fear (or lack of concern and due caution) and discrimination, and to find evidence-based ways of addressing these issues (Asmundson & Taylor, 2020).

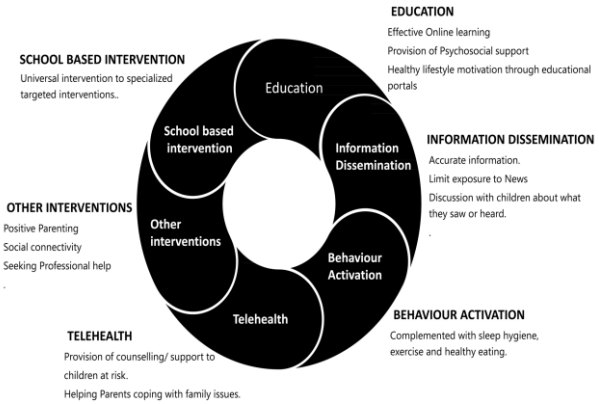
The psychobiological underpinnings of acute and chronic responses to trauma are diverse. Nevertheless, a comprehensive approach to trauma should include the specific psychosocial context within which the response to trauma is embedded. Socio-cultural narratives, including communitarian beliefs such as ideologies or religions, personal life meaning, social support or coverage of basic needs modulate human response to trauma. Although throughout history mankind has suffered many traumatic experiences, resilience is not an exception but, fortunately, it is the most common human response to suffering (Braquehais *et al.*, 2020, p. 4).

Serafini et al. (2020) suggest specific preventive strategies at the community level such as (1) implementing effective communication and (2) providing adequate psychological services should be carried out in order to attenuate the psychological and psychosocial impact of COVID- 19 outbreak (p. 533).

Imran et al. (2020) suggest as COVID-19 grips the world, many people are quarantined or isolated resulting in adverse consequences for the mental health of

youth. Fig.1 provide a framework for interventions to address psychological burden and stigma among quarantined children and adolescents.

Figure 01: Intervention to reduce psychosocial adverses of quarantine in children and adolescents.



Reference of figure: (Imran *et al.*, 2020, p. 1113).

How to cope with the socio-economic consequences of COVID-19?

According to McKee and Stuckler (2020), It is important to note that an outbreak that requires social distancing and quarantine for control is likely to develop very differently in a setting in which there is a workforce with access to free healthcare and income protection than in one in which much employment is casual and people must choose whether to go to work when ill or to starve (p. 640).

According to McKee and Stuckler (2020, p. 641), Measures commonly used by governments and central banks, such as lowering interest rates or implementing fiscal stimuli, have only limited effect. At most, they can mitigate the effects. Here they propose three sets of measures that, they believe, can help societies recover once this pandemic is over: (1) Save lives. (2) Protect financial risk, now. (3) Prepare for recovery.

Finally, Nicola et al. (2020) summarizes the treatment proposals by stating: with fears of a new recession and financial collapse, times like these call for resilient and strong leadership in healthcare, business, government and wider society. Immediate relief measures need to be implemented and adjusted for those that may fall through the cracks. Medium and longer term planning is needed to re-balance and re-energise the economy following this crisis. A broad socioeconomic development plan including sector by sector plans and an ecosystem that encourages entrepreneurship is also needed so that those with robust and sustainable business models can flourish. It is prudent that governments and financial institutions constantly re-assess and re-evaluate the state of play and ensure that the 'whatever it takes' promise is truly delivered (p. 190).

Khosravani et al. (2020, p. 1895) also conclude the potential for a breach in viral protection during the process of donning and doffing personal protective equipment (PPE) is significant. Simulation training, especially in-situ, can alleviate the anxiety of the situation and reduce safety threats.

Conclusion:

This review delved into the research related to the health, psychological, mental health, and socio-economic impact of COVID-19 that has been released. The aim is to aid further research.

The article also reviewed different research related to treatment proposals, particularly in regards to its effectiveness in mitigating the spread of COVID-19, and its compliance. Going forward, social distancing and its measurements will continue to play a key role in academic research.

Finally, the COVID-19 health protocols will continue to be an important area of research. These health protocols, which have varied both in terms of scope and

implementation, are expected to yield a profound health, psychological, mental health, and socio-economic impact.

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