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Crisis management, transnational healthcare challenges and opportunities: The intersection of COVID-19 pandemic and global mental health

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ABSTRACT

The existing literature has paid insufficient attention to crisis management of global health challenges in the advent of epidemics and pandemics. This study articulates resilience importance and opportunities in the COVID-19 from crisis management challenges in essential ways. The second wave of the COVID-19 infectious disease's rapid global spread has developed a severe threat to global peace, which has posed global mental health and crisis management issues worldwide. Public health implementations' aggressive actions recommended a series of precautionary safety measures by the health specialists to suppress, sustain, and manage the local transmission of the COVID-19 pandemic. This study explores adverse consequences of the COVID-19 on communities' behavioral and interventional changes that might specify transmission dynamics. This present study recommends two model strategies that help sustain the rapid transmission and COVID-19's adverse impacts on mental health in the general population and patients needing treatment. This study proposes mitigation and suppression models in the absence of a vaccine to decrease and manage the healthcare systems' burdens of treating patients. This global health emergency has challenged the global healthcare systems worldwide, and Governments are struggling to upgrade the healthcare systems to provide the best possible healthcare facilities to the patients. The healthcare systems in Pakistan are undeveloped to manage this global health emergency efficiently. Scientists' have already initiated experimental trials worldwide to develop vaccines to treat this infectious disease; however, the proposed two models are useful in managing the health emergency in the present situation. This study discusses global healthcare challenges, crisis management, and two model interventional strategies that help minimize the COVID-19's rapid spread with practical crisis management preventive measures to reduce burden on healthcare systems.

1. Introduction

Chronic Infectious diseases, such as the Middle East respiratory syndrome (MERS), known as camel flue, Tuberculosis and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) negatively impact human health, and people suffering from such transmittable viruses experience numerous psychological problems (Kuan et al., 2019; Laurensen, Hutsebaut, Feenstra, Van Busschbach, & Luyten, 2013). Previous studies have illustrated depression symptoms typically soar after illness; for instance, after anthrax scares and herpes exposure (Gale, Berrett, Erickson, Brown, & Hedges, 2018; Mason & Lyons, 2003). Although the effects of novel coronavirus (COVID-19) on psychological disorders and declining mental health have not been widely investigated; however, health professionals expect that coronavirus will leave massive effects, and social support is helpful in the crisis mainly based on the immediate public response and situation (Abbas, Aqeel, Abbas, & Shaher, 2019b; Aman, Abbas, Nurunnabi, & Bano, 2019). Mental health experts have taken positions exclusively to assist both the greater society and patients in comprehending a potential effect of the COVID-19. It helps communities, families, and patients in tackling this alarming threat. Under stress situations, individuals encounter various psychological problem, such anxiety, stress, depression and other psychological disorders (Azhar, Abbas, Wenhong, Akhtar, & Aqeel, 2018). The ongoing pandemic coronavirus (COVID-19) has led to substantial mental health issues, and it has developed anxiety, depressed mood. It revealed the most horrible picture of this infectious disease after the 1918 H1N1 influenza plague outbreak. The present study discussed the findings of the latest epi...
demiological models and their impact on human mental health (Rajkumar, 2020). The proposed models of present study introduces preventive measures for the policymakers to control and minimize the rapid transmission of the adverse COVID-19’s intensity that has led to severe mental health issues worldwide.

This study helps people understand how to deal with and avoid COVID-19 adverse consequences in the absence of a vaccine and explains the role of various potential public health measures to minimize the transmission of the COVID-19 pandemic. These measures are recognized; non-pharmaceutical interventions, which are useful and intend to suppress exposure of the virus to the population, thereby inhibiting the spread of this ongoing pandemic COVID-19 to minimize depressive moods, anxieties and other associated health issues (Lee, 2020; Yoosefi Lebni et al., 2020a). The study’s findings recommended that the effectiveness of any one intervention in separation advisable to restrict the transmission of the disease. Accordingly, multiple interventions and the mixed precautionary measures are useful to achieve a significant impact on sustaining and controlling the transmission of the virus.

2. Preventive measures of non-pharmaceutical interventions (NPIs)

This study also recommended two possible basic strategies: (i) mitigation, which primarily concentrates on slowing the process of transmission; however, it does not substantially prevent an increase in the ongoing pandemic (Yoosefi Lebni et al., 2020b). The mitigation strategy is helpful in declining the peak burden on healthcare needs of the infected patients. It provides opportunities to treat the critical patients at higher risk of the COVID-19 disease. (ii) Suppression, which aims to reverse widespread development of the pandemic COVID-19, either reducing the number of hospital admissions from higher to lower and minimize the infection spread to maintain the condition effectively. Every policy has vividacious challenges. This study shows that the best possible mitigation strategies (combining the home quarantining of suspect cases and maintaining the social isolation of older people/suspected individuals and those at the highest risk of getting infection) might decrease the peak burdens on the healthcare needs of the people by two-thirds, or deaths by half (Shuja, Aqeel, Jaffar, & Ahmed, 2020a). Even this pandemic has resulted in millions of infected people causing deaths and posed burdens on the healthcare systems. Suppression policy is the best choice in this pandemic to slow down and sustain the transmission of the pandemic COVID-19 worldwide. In the current global situation, suppression will demand a mixture of social distancing for the entire populace, the house isolation of suspect cases, or household quarantining for their relatives. There might be a need for supplementation of this with the university, college, and school closures (Lee, 2020). Social and physical isolation, lockdowns, disruption in economic activities, and a strict and upsetting environment led to mental health issues.

3. Global mental health challenges due to the COVID-19 pandemic

According to the WHO dashboard related to the COVID-19 infectious disease based on national and international health experts authorities worldwide, there were more than 103,307 million confirmed cases, with more than 2,2332 million deaths attributed to the lethal contagious disease. As of January 31, 2022, more than 74,938 million people recovered from the infection of COVID-19 around the world (Thorlund et al., 2020). The pandemic COVID-19 has affected the communities worldwide; however, aged people are at greater risk of this lethal disease (Shuja & Shahidullah, 2020b). Fig. 1 indicates the global patients suffering from the infectious disease COVID-19. As of April 21, 2020, there were confirmed cases of 2490,427, with deaths 174,319 in the US. However, 627,386 individuals also successfully recovered from this deadly disease worldwide. By the second wave of the pandemic COVID-19, there were over 26 million confirmed cases in the US, more than 10 million cases in India, and more than 9 million in Brazil, as of January 31, 2021. Fig. 1 shows the most affected ten countries in the world.

Fig. 1 indicates that the recorded cases of COVID-19 in the USA are almost 800,000 as of April 22, 2020. However, the confirmed cases reached over 26 million in the US as of January 31, 2020. India reported almost 11 million confirmed cases. Brazil declared over 9.2 million, the UK and Russia registered near to 4 million patients. Fig. 1 specifies the most affected countries due to coronavirus (COVID-19) cases worldwide. The United States of America is the most affected country, followed by Spain, Italy, France, and Germany.

The second level first suggests implementing several new strategies immediately, whereas, the second level, advises quarantine, with initial screening or quarantine of suspected cases and proper diagnosed affected people. (1) The tracing of the contacts, (2) Collection of clinical data, (3) monitoring, and collecting blood samples from suspected patients and healthy people. The distribution of the provinces, regions and national diagnostic criteria, professional treatment accord, built of isolation places and hospitals for patients, rapid provision of medical equipment provides and prepare outside professionals teams to Wuhan city as well as Hubei province.

The World Health Organization has implemented health emergence for (2019-nCoV) pneumonia as similar to the 2003 outbreak of profound acute respiratory syndrome (A.R.S.). It also appeared and resulted in a similar type of coronavirus that killed 349 suspects’ patients in China (Hindson, 2020). Though the infectious disease has distinct clinical features, the features, the contagious cause, quick transmission prototype, and inadequate preparedness of the health department to comprehend and tackle the outbreaks are parallel. Until now, this epidemic (2019-nCoV) pneumonia directly or indirectly affected health experts, mental health professionals and scholars have taken it under-debate because of its controversial and epic nature (Chen et al., 2020). National Health Commission of China dispensed the notice of fundamental principles for psychological emergency interventions and preventions for the 2019-nCoV epidemic on January 26, 2020 (Landi et al., 2020). Fig. 3 specifies further detail.

Fig. 2 indicated that the highest recorded cases were reported 90,788 on April 11, 2020, in a single day worldwide. However, it was just 133 patients data with coronavirus infection as of January 23, 2020. The graph shows that the rapid increase of COVID-19 started from March 12 to March 29, 2020. The second wave of the pandemic was more sever and there was a rapid increase in number cases around the world, as of October 2020 (Abbas, 2020). The highest number of positive cases was reported on December 10, 2020, as indicated in Fig. 1, and it indicated an increasing trend from October to December 2020 (Hshl et al., 2020; Yang et al., 2020). The modelers’ dealing with contagious diseases affiliated with Imperial College London have warned that ignoring mitigation strategy might infect seven billion individuals worldwide, and deaths toll may reach 40 million by the end of 2020 worldwide. Therefore, a sustainable early mitigation strategy in such severe global health emergencies is crucial in blunting the outbreak to save human lives (Walker et al., 2020). The COVID-19 epidemic has hit over 210 countries and territories worldwide so far; however, Italy was the first country from Europe, which was most severely pre-tentious with confirmed patients of coronavirus and numbers surpassed China by greater than three times (WHO, 2020). The outbreak was declared out of control in the most affected countries, and public criticized governments’ responses as systematic failures in absorbing this epidemic rapidly and effectively (Pisano, Sadun, & Zanini, 2020). Table 1 and Fig. 4 provides further detail.

Table 1 and Fig. 3 show confirmed cases in the most affected nations with COVID-19, deaths per 100,000 population, and case-fatality of the most affected countries.
The diagonal lines in Fig. 3 have corresponded to various case-fatality ratio, which means total deaths divided by the confirmed cases of COVID-19. The uppermost lines have indicated countries with the highest observed COVID-19 ratios of cases fatality. The ten most affected countries by this infectious disease (COVID-19) have corresponded with a border on the graph. Virus infectious diseases remain a global public health concern, pose global health challenges related to mortality estimation rates in both urban and rural areas worldwide (Burden, 2021).

3.1. The second wave of the COVID-19

The pandemic COVID-19 is still spreading worldwide, with more than 104 million confirmed patients and 2.25 million death number attributed to this infectious disease across 200 countries, as of February 3, 2021. The second wave of the COVID-19 is more potent and lethal as it has caused a higher number of deaths worldwide. The COVID-19 outbreak has surged across the globe, and very few states and territories are successful through preventive measures to avoid the transmission of the COVID-19. The three top countries with positive cases of the coronavirus pandemic are the US with 26,436,594 positive infections, India 10,777,284 COVID-19 patients, and Brazil 9,283,418 cases, respectively. These top countries are closed, followed by some European countries, including the United Kingdom, France, Spain, Italy, and Germany. The cumulative confirmed patients of coronavirus worldwide have increased rapidly within the last two months by hitting over 214 countries, states, and territories worldwide. The ongoing pandemic COVID-19 disrupted economic activities and massively affected tourism industry around the world (Aman, Abbas, Mahmood, Nurunnabi, & Bano, 2019; Mamirkulova et al., 2020). The ongoing global crisis has posed massive impact on the residential properties valuation worldwide (Hussain et al., 2021). The COVID-19 outbreak posed adverse economic and environmental effects to the business industry and affected performance of the firms (Mubeen, Han, Abbas, & Hussain, 2020). The pandemic caused mixed effects on the demand of dwelling units value and influenced on the price of the housing units (Hussain, Abbas, Wei, & Nurunnabi, 2019).

Fig. 3 specifies the highest absolute death numbers in the top ten countries globally, the lines of the graphs show reported deaths and confirmed COVID-19 cumulative cases in that specific country with date and time (Hindson, 2020). As of April 23, 2020, confirmed cases in the United States have reported 839,675 patients and 46,583 death.
toll. Italy reported 187,327 confirmed patients’ with and 25,085 deaths, and Spain registered 208,338 patients with total deaths 21,717. Similarly, France declared 159,297 COVID-19 patients with 21,373 death numbers, whereas, the U.K. reported 134,638 coronavirus infected people with 18,151 death number, respectively. Table 1 shows these statistics across the world as of February 2, 2021. The second wave has shown severe infection and it is more lethal worldwide. According to the WHO dashboard related to the COVID-19 infectious disease based on national and international health experts authorities worldwide, there were more than 103.307 million confirmed cases, with more than 2.2332 million deaths attributed to the lethal contagious disease. As of January 31, 2021, more than 74.938 million people recovered from the infection of COVID-19 worldwide (Thorbjornsdottir et al., 2020). The COVID-19 pandemic consequences of mental health through media coverage raised concerns about effective crisis communication, and social media platforms can play an indispensable role in providing correct information (Abbas, Aman, Nurunnabi, & Bano, 2019a). The Johns Hopkins University has announced the COVID-19 facts, and data reports on the global situation because of COVID-19 transmission. (Peer et al., Shrestha, Rahman, Zaki, Tan, Bibi, & Haque, 2020). See Fig. 5.

4. Global mental health crisis due to the pandemic COVID-19

This study investigated the psychological effects of the ongoing pandemic COVID-19 across the world. The SARS outbreak in 2003 posed severe health concerns, and the experience of the SARS and its consequences on global mental health are useful interventions to manage the burdens of the healthcare systems to treat the patients of the COVID-19 worldwide (Huang et al., 2020; Liu et al., 2020). The suspected people complete quarantine time at homes, hospitals and healthcare units in response to their close interactions with COVID-19 patients, and quarantine also develops mental health issues due to the fear of the ongoing pandemic. People needing urgent treatment against the infectious disease coronavirus should be the priority

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Table 1
Cases and Mortality by the most affected countries, as of February 02, 2021.

| Country   | Confirmed | Deaths | Case-Fatality | Deaths/100 k population |
|-----------|-----------|--------|---------------|-------------------------|
| United States | 26,321,120 | 443,355 | 1.7%          | 135.51                  |
| India     | 10,766,245 | 154,486 | 1.4%          | 11.42                   |
| Brazil    | 9,229,322  | 225,099 | 2.4%          | 107.46                  |
| United Kingdom | 3,846,851 | 106,774 | 2.8%          | 160.59                  |
| Russia    | 3,825,739  | 72,456  | 1.9%          | 50.15                   |
| France    | 3,260,308  | 76,657  | 2.4%          | 114.44                  |
| Spain     | 2,822,805  | 59,081  | 2.1%          | 126.45                  |
| Italy     | 2,560,957  | 88,845  | 3.5%          | 147.02                  |
| Turkey    | 2,485,182  | 26,117  | 1.1%          | 31.73                   |
| Germany   | 2,232,327  | 58,059  | 2.6%          | 70.01                   |
| Colombia  | 2,104,506  | 54,272  | 2.6%          | 109.31                  |
| Argentina | 1,933,853  | 48,249  | 2.5%          | 108.44                  |
| Mexico    | 1,869,708  | 159,100 | 8.5%          | 126.08                  |
| Poland    | 1,515,889  | 37,222  | 2.5%          | 98.01                   |
| South Africa | 1,456,309 | 44,399  | 3.0%          | 76.84                   |
| Iran      | 1,424,596  | 58,038  | 4.1%          | 70.95                   |
| Ukraine   | 1,263,833  | 23,931  | 1.9%          | 53.63                   |
| Peru      | 1,138,239  | 41,026  | 3.6%          | 128.25                  |
| Indonesia | 1,089,308  | 30,277  | 2.8%          | 11.31                   |
| Netherlands | 995,300  | 14,135  | 1.4%          | 82.03                   |

Source: John Hopkins University CSSE COVID-19 Data

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**Fig. 3.** Worldwide mortality due to COVID-19. **Source:** John Hopkins University, CSSE COVID-19 data.
at healthcare units to minimize the risk of the further transmission in the common population. Epidemiological examinations have reported on mental health issues and psychiatric comorbidity of the COVID-19's patients and further investigations are still in the process around the world.

The WHO published the findings of a survey that examined the effects of the coronavirus pandemic (COVID-19) on individuals' mental health, neurological, and substance use services based on 130 member countries of the World Health Organization on October 10, 2020, ahead of "Mental Health Day." The survey results indicated that most member states had experienced disruption to avail mental health services, neurological and substance use (MNS). The reason included insufficient health workers to combat the COVID-19 in countries (30%), about 19% of the countries faced difficulties for the mental health facilities use during the COVID-19 quarantine, or facilitating patients to avail treatment, and 28% of the countries faced lack of personal protective equipment. However, 89% of the WHO member states admitted that they included individuals' mental health and psychological support in the national plans to tackle the ongoing infectious disease COVID-19. In comparison, 17% of countries committed additional resources. The WHO report appears on the back of mounting evidence that the ongoing pandemic has developed a monumental impact on mental health and communities' wellbeing worldwide. Apparently, with limited capacity to respond to this pandemic COVID-19, it is still

![Fig. 4. Case fatality rate of the ongoing COVID-19 pandemic, as of January 31, 2021. Source: John Hopkins University, CSSE COVID-19 data.](image)

![Fig. 5. Cumulative COVID-19 cases in the most affected countries, as January 31, 2020. Source: John Hopkins University, CSSE COVID-19 data.](image)
unclear how the world would deal with this present looming global mental health crisis.

The literature evidenced that epidemics or pandemics develop detrimental effects on affected communities’ mental health. Previous studies on Ebola virus disease (EVD) outbreaks showed widespread anxiety, panic, and depression among affected populations due to sudden deaths of colleagues, friends, relatives, and survivors’ social exclusion and stigmatization. A meta-analysis identified that 33% to 42% of patients registered with hospitals for treatment against the Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS-CoV) showed anxiety, depressed mood, impaired memory, and insomnia. In some patients, the effects of the epidemics remained after recoveries. The ongoing pandemic COVID-19 increased the family problem, which resulted in higher number of domestic violence cases worldwide (Abbas et al., 2020).

In the case of the ongoing pandemic COVID-19, preventive measures, such as non-pharmaceutical interventions (NPIs), although indispensable in halting the rapid transmission of the coronavirus, responses have led to social isolation, closure of the educational institutions, including schools, and loss of jobs (Maqsood, Abbas, Rehman, & Mubeen, 2021). It has developed untold impacts on children’s well-being and development. The emergence of the COVID-19 pandemic has led to direct neurological consequences (Su et al., 2020). According to the WHO publication, mental health services, neurological and substance use (MNS) disruptions have disproportionately affected communities and general populations with pre-existing mental health problems due to limited access to essential psychological support and medical treatment services (Nejhadadgar et al., 2020). Frontline health workers have experienced increased workloads and trauma, resulting in workers susceptible to depression, stress, burnout, and post-traumatic stress disorder (PTSD). The development of effective vaccines is essential to treat the patients of the COVID-19, and it needs strict adherence to non-pharmaceutical interventions to minimize the adverse impact of the pandemic (Zhaohui Su et al., 2021). Health experts advise addressing the substantial mental health needs for the whole communities worldwide, with the prime focus on the most susceptible people.

5. Conclusion

This study’s creativity lies in the fact that it interprets the adverse effects of ongoing pandemic COVID-19 on global mental health, global economies, environment, and business industries and governments support to healthcare systems, business industries, and communities. The WHO and governments’ implications for healthcare systems and global supply chains are helpful. The pandemic has provided opportunities from the global challenges, and dependency on various Asia countries might be reshaped due to the COVID-19 global health crisis. This review study contributes to the broader literature of crisis management under the global challenges of the pandemics by identifying the nuanced linkages between the responses to combat the damages of COVID-19 pandemic to business industries healthcare systems worldwide.

The primary aim of suppression is to control, sustain, and manage rapid spread of the pandemic COVID-19. The strict interventions combination is useful in decreasing the rapid transmission process until the vaccination is available to treat this infectious, deadly disease. It is probably 18 months or more to time according to estimations of the medical specialists. The health experts have not suggested or predicted to relax suppression strategies, as epidemic spread may rise again if authorities do not implement measures strictly. This study has shown that irregular social distancing would stimulate the trends of increasing disease rapidly. It might permit action implementation on a reasonable basis. Otherwise, authorities may rethink and refine their strategies if suspect cases again start increase at fast speed. The suspension model of China has been very successful in sustaining and controlling the rapid spread of COVID-19, as the Chinese Government strictly applied suspension/lockdown policy. Accordingly, practices in China, South Korea, the United Kingdom, and the U.S.A. have demonstrated that suppression is one of the best possible approaches to slow down and control the local transmission of COVID-19 temporarily in developing nations. This suspension policy was very successful in Pakistan as far as the total number of confirmed cases is over 9200 by April 22, 2020, which is comparatively lower than the developed nations like U.K., Italy, Spain, and the U.S.A. The question remains answerable. It needs further investigations whether this is a useful strategy in the long term in developing and under-developing countries. Whether the social and economic costs by imposing interventions acceptable to decrease the local transmission of COVID-19.

The critical ingredients to respond affectively recommends the need for extensive testing suspects at a larger scale, tracing of proactive transmitters, strict emphasis on care and home diagnosis. Besides, there is a great need for healthcare, medical professionals, and other paramedical staff care and protection, as they are fighting at the front against this deadly infectious disease worldwide. The rapid increase and fast speed of this outbreak are challenging healthcare systems worldwide, and the required pace to tackle this epidemic seems exponentially quicker than bureaucratic procedures in health systems. There is a greater need for learning to identify the most suitable approach to sustain and control the COVID-19 pandemic worldwide until vaccination reaches to cure the patients. Therefore, the preventative strategies’ are useful, such as mitigation and suppression in the prevailing situation of a health emergency. In conclusion, understanding the multifaceted aspects of the COVID-19 global health and crisis management, which posed crisis management and global health challenges, can better understand and predict the consequences, antecedents, and contingencies associated with global health challenges and crisis management issues at multiple levels. This study intends to encourage international scholars to join this debate and move forward to investigate the consequences of the COVID-19 pandemic’s research agenda.

Conflicts of interest

The authors have knowledge about the study objectives, provided their consent, and declared that there no competing interest among them.

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Author contributions

Jaffar Abbas has conceptualized the idea, contributed to study design, completed the entire article, including introduction, literature, discussion, and conclusion.

References

Abbas, J. (2020). The impact of coronavirus (SARS-CoV2) epidemic on individuals mental health: The protective measures of pakistan in managing and sustaining transmissible disease. Psychiatria Danubina, 32(3-4), 472–477. https://doi.org/10.24869/pysyd.10.24869/pysyd.2020.472.
Abbas, J., Aman, J., Nurmansabi, M., & Bano, S. (2019a). The impact of social media on learning behavior for sustainable education: Evidence of students from selected universities in Pakistan. Sustainability, 11(6), 1683.
Abbas, J., Aqeel, M., Abbas, J., Shaker, B., A., J., Sundas, J., & Zhang, W. (2019). The moderating role of social support for marital adjustment, depression, anxiety, and
stress: Evidence from Pakistani working and nonworking women. Journal of Affective Disorders, 244, 231-238. doi:10.1016/j.jad.2018.07.071
Abban, J., Aqeel, M., Ling, J., Zhiarou, A., Raza, M. A., & Rehna, T. (2020). Exploring the relationship between intimate partner abuses, resilience, psychological, and physical health problems in Pakistani married couples: A perspective from the collectivist culture. Sexual and Relationship Therapy, 1-30. https://doi.org/10.1080/14681994.2020.1851673.
Aman, J., Abbas, J., Mahmood, S., Nurunnabi, M., & Bano, S. (2019). The influence of Islamic religiosity on the perceived socio-cultural impact of sustainable tourism development in Pakistan: A structural equation modeling approach. Sustainability, 11(11), 3039.
Aman, J., Abbas, J., Nurunnabi, M., & Bano, S. (2019). The relationship of religiosity and marital satisfaction: The role of religious commitment and practices on marital satisfaction among Pakistani respondents. Behavioral Sciences, 9(3), 30.
Azhar, A., Abbas, J., Wenhong, Z., Akhtar, T., & Aqeel, M. (2018). Linking in
Liu, K., Chen, Y., Wu, D., Lin, R., Wang, Z., & Pan, L. (2020). Effects of progressive
Lee, A. (2020). Wuhan novel coronavirus (COVID-19): Why global control is
Gale, S. D., Berrett, A. N., Erickson, L. D., Brown, B. L., & Hedges, D. W. (2018).
Hussain, T., Abbas, J., Wei, Z., Ahmad, S., Xuehao, B., & Gaoli, Z. (2021). Impact of
Kuan, V., Denaxas, S., Gonzalez-Izquierdo, A., Direk, K., Bhatti, O., Husain, S., ...
Hussain, T., Abbas, J., Wei, Z., & Nurunnabi, M. (2019). The Effect of Sustainable Urban
Laurenssen, E. M. P., Hutsebaut, J., Feenstra, D. J., Van Busschbach, J. J., & Luyten, P.
Hingorani, A. D. (2019). A chronological map of 308 physical and mental health
Shuja, K. H., Ageel, M., Jaffar, A., & Ahmed, A. (2020a). COVID-19 Pandemic and
Shuja, K. H., Shahidullah, Ageel, M., Khan, E. A., & Abbas, J. (2020). Letter to highlight the
effects of isolation on elderly during COVID-19 outbreak. International Journal of Geriatric Psychiatry, n/a(a). https://doi.org/10.1002/gps.5423
Su, Zhouchui, McDonnell, Dean, Wen, Jun, Konak, Metin, Abbas, Jaffar, Şêgalo, Sabina, ...
Xiang, Yu-Tao (2021). Mental health consequences of COVID-19 media coverage: The need for effective crisis communication practices. Globalization and Health, 17 (1). https://doi.org/10.1186/s12992-020-00654-4
Su, Zhouchui, Wen, Jun, Abbas, Jaffar, McDonnell, Dean, Chenhmehezang Ali, Li, Xiaohan, ... Cai, Yuyang (2020). A race for a better understanding of COVID-19 vaccine non-adopters. Brain, Behavior, and Immunity - Health, 9, 100159. https://doi.org/10.1016/j.bbih.2020.100159.
Thorlund, K., Dron, L., Park, J. H., Forrest, J. I., & Mills, E. J. (2020). A real-time dashboard of clinical trials for COVID-19. Lancet Digital Health, 2(6), e286-e287. https://doi.org/10.1016/S2589-7500(20)30086-6.
Walker, P. G., Whitlaker, C., Watson, O., Baguelin, M., Ainslie, K., Bhattia, S., ...
Cattarino, L. (2020). The global impact of COVID-19 and strategies for mitigation and suppression. Imperial College London. https://doi.org/10.25561/77735.
WHO. (2020). Coronavirus disease 2019 (COVID-19): situation report, 68.
Yang, J., Zheng, Y., Guo, X., Xu, P., Chen, Z., Guo, Q., ... Zhou, Y. (2020). Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: A systematic review and meta-analysis. International Journal of Infectious Diseases. https://doi.org/10.1016/j.ijid.2020.03.017.
Yoosefi Lebni, J., Abbas, J., Khosravi, F., Khosravi, B., Jalali, A., & Ziapour, A. (2020a). Challenges Facing Women Survivors of Self-Immolation in the Kurdish Regions of Iran: A Qualitative Study. Frontiers in Psychiatry, 11(778). 778. https://doi.org/10.3389/fpsyg.2020.00778.
Yoosefi Lebni, J., Abbas, J., Moradi, F., Salasabhoor, M., Chaboksvaer, F., Irandoost, S. F., ... Ziapour, A. (2020b). How the COVID-19 pandemic affected economic, social, political, and cultural factors: A lesson from Iran. International Journal of Social Psychiatry, 2020.764020935988. https://doi.org/10.1177/0263402320935988.