

# COVID-19 IMPACT ON STUDENT'S MENTAL AND SOCIAL HEALTH: STRATEGY EXPLORATION

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## ABSTRACT

*This study analyses the impact of the COVID-19 outbreak on students' mental health, particularly psychological stress, anxiety, and depression. This study was exploratory. 40 Articles related to this study were searched on Google Scholar using combinations of terms like the impact of COVID-19, COVID-19 stressors, COVID-19, and students' psychological health. The study concluded that COVID-19 has a negative impact on the mental health of the students. Stressors that affected their mental health were; 1. Fear about health and risk of contagion; 2. Changes in sleep and eating patterns; 3. Unreliable sources of news; 4. Isolation and Social Distancing.*

**Keywords:** COVID-19, Mental Stress, Student Stress, Stressors, Health, Strategy

## INTRODUCTION

At the end of 2019, an unusual virus emerged in Wuhan, China which was termed COVID-19. There were almost 830 cases reported in China, Japan, South Korea, Thailand, Nepal, Taiwan, Vietnam, Singapore, and the United States of America. There were twenty-six mortalities, mostly in patients with a severe illness history. The details of this deadly virus, like the occurrence and the capability of the virus to spread among humans, are still not identified. The human-to-human interaction has caused this virus to spread swiftly. COVID-19 is the third type of coronavirus that emerged in humans. The 1st coronavirus outbreak occurred in 2002, termed as Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), and the 2<sup>nd</sup> coronavirus occurred in 2012, termed as the Middle East Respiratory Syndrome Coronavirus (MERS-CoV). COVID-19 is the third type of coronavirus which is emerged in humans in the last two decades, and on January 30, 2020, World Health Organization (WHO) has declared COVID-19 as a public health emergency, which has turned the global medical institutions on high alert and stated it as a pandemic on March 11, 2020 (Munster et al., 2020).

In cold seasons, respiratory diseases are common among humans worldwide, and patients avoid taking medical consultations; instead, they try to treat themselves with symptomatic medicines (Dorcea et al., 2020). COVID-19 is also a respiratory disease that occurs in patients because of (SARS-CoV-2) Severe Acute Respiratory Syndrome and has lately become a global pandemic (Huang et al., 2020). The symptoms of (COVID-19) include dry cough, fever, and difficulty in breathing, shortness of breath, tiredness, body aches, and pains. Most of the patients suffering from (COVID-19) show symptoms that are mild to moderate, almost 15% of patients proceed to severe pneumonia, and almost 5% of patients suffer from Acute Respiratory Distress Syndrome (ARDS) or organ failure (Xu et al., 2020).

The efforts to control the spread of (COVID-19) include quarantine and isolations measures, appropriate clinical management of patients by proper screening, and diagnostic tools. As (COVID-19) is spreading, different respiratory infections are becoming common in the local community. On January 31, 2020, the World Health Organization (WHO) had published guidelines on the clinical observations of (COVID-19) (Harapan et al., 2020).

The clinical treatment of (COVID-19) patients with respiratory failure consists of

symptomatic management and oxygen therapy with ventilation treatment. Now the major global focus is on vaccine development (Cao, 2020). COVID-19 emerged as a disease that has threatened all the nation's biosecurity and economic conditions on this planet. While facing a new disease, it requires efforts in diagnosis, therapies, treatments, and preventive measures during a pandemic which can spread among all the countries and areas (Rodriguez-Morales et al., 2020).

When there is an outburst of a contagious disease, people's psychological reactions play a vital part in managing the spread of infection and the emergence of emotional suffering and societal disturbance during and after the pandemic. Regardless of this circumstance, adequate resources are not delivered to manage pandemic, affect psychological health. It is reasonable in the critical stage of the pandemic where priorities include the diagnosis, testing, reduction of transmission of the virus, and critical care of patients. However, psychological and psychiatric issues should not be ignored during the stage of pandemic management. There are several reasons to address the psychological needs of patients, and proper treatment is a necessity. It is considered that psychological features play a vital part in the observance of public health and review how people cope with the hazard of disease and subsequent losses. There are critical problems in managing the contagious disease, including COVID-19 as well. Psychological effects consist of suicidal behaviours, emotional stress, and suspicious responses. People with a history of psychological stress are more vulnerable (Cullen et al., 2020).

Clinical features of psychological stress have not been recognized throughout the people who have suffered from the global pandemic, COVID-19. An increased stress level has been observed from the overall population and frontline health workers (Zhang et al., 2020). Many people are enduring psychological issues when compared to those people who have suffered from physical illness, and psychological stress has long-lasting effects than a physical ailment. However, mental health remains unnoticed and negatively impacts the general population (Kang et al., 2020).

The pandemic has caused deaths and physical illness because of the coronavirus and has also increased severe psychological pressure worldwide. The constant increase in the spread of the pandemic, severe quarantine measures have caused postponements in the commencement of schools, colleges, and universities all over the world which has affected the psychological health of students (Cao et al., 2020). The outbreak of COVID-19 has affected the routine life of many people around the globe. The level of stress has been increased with an increase in affected cases. People are always under the stress of uncertainty and fear about what will happen in the future. These psychological effects have caused a negative impact on the health of students as well. Students who are away from their homes for educational purposes are concerned about the wellness of their families and their health because they are unable to return and meet their families. The global pandemic COVID-19 may have a severe impact on the career of students as students are undergoing the disturbance in their academic routine. Students are also suffering from the mental stress of the recession crisis caused by COVID-19, as this crisis can negatively affect their future (Sahu, 2020). Mental stress during a pandemic requires a detailed analysis of the negative effects on people's mental health and efficiency to avoid disastrous events in the future (Al-Rabiaah et al., 2020). The anxiety of uncertainty is very distressing. The main important ways to avoid stress during this pandemic are washing hands, avoiding gatherings, proper sleep routine, balanced diet, and physical workout (Kafka, 2020). The awareness of social and psychological health effects during this undetermined period of anxiety is crucial for updating existing societal guidelines and declaring awareness for forthcoming pandemics (Huckins et al., 2020).

## METHODS AND DISCUSSION

The exploratory method was used in this study, which examined the latest and recent studies based on various topics in fluctuating stages of inclusiveness and broadness. The topic included in the present study was the COVID-19 pandemic, which is being faced by nations worldwide. We analyzed its impact on student's mental health particularly, comprising stressors, and we discovered the factors that instigate the stressors. The descriptive form was the major feature of this sort of study (Grant & Booth, 2009) adopted in the present study. We searched the 40 related articles from Google Scholar using combinations of terms like the impact of COVID-19, COVID-19 stressors, COVID-19, and student's psychological health. Articles were selected which were related to our topic. We searched the articles that presented the information related to the impact of COVID-19 on student's mental health, and we concentrated on the articles published during 2019-2020. Due to the scarcity of research on the impact of COVID-19 on student's mental health, we had to depend on the research related to previous pandemics like Ebola Virus and SARS (Severe Acute Respiratory Syndrome). We searched for the articles which were linked to these epidemics to psychological health. Our goal was to explore articles that support establishing a connection between psychology and the impact of the pandemic on students. Due to the scarcity of research on the impact of COVID-19 on student's mental health, we had to depend on the research related to previous pandemics like Ebola Virus and SARS (Severe Acute Respiratory Syndrome). We searched for the articles which were linked to these epidemics to psychological health. All the articles reviewed were included in this study, and references were also listed at the end of this paper. Fifteen articles were found closely related to the study that was further analyzed for understanding COVID-19 stressors.

### Background of the Study

The two main factors relevant to the impact of COVID-19 on student's mental health and social health are disturbed lifestyle and stressors during the COVID-19 pandemic. COVID-19 is a viral disease that appeared at the end of 2019 and then whizzed in the world. The continuous spread of the coronavirus and postponements in the reopening of educational institutes throughout the world are anticipated to affect the student's psychological health. Several reports are being circulated about the effect of the pandemic on common people, health workers, adults, students, children, and patients (Pragholapati, 2020).

### Disturbed Lifestyle

Young people who have developed mental health issues had proper educational routines. When the educational institutes were closed, the routine life got disturbed for the students who became the root cause of depression. As there is no access to educational institutes physically, students lock themselves in their rooms and avoid contact with the people around them. The timetable of normal life is getting unbalanced. There is no proper routine for eating, sleeping, or studying, which ends as mental stress among students (Lee, 2020).

Social distancing and quarantine life have major health implications, as isolation is an extreme form of social distancing, people have to get separated from their families and loved ones, routine life gets disturbed, people feel low, and they experience boredom. This detachment and altered lifestyle can cause depression, anxiety, and frustration in students (Islam et al., 2020). In this technological era, every person has access to social media and many news channels, and people tend to rely on unconfirmed news about the disease, which can cause confusion and fears resulting in mental illness. To remove the factors affecting

student's mental health, parents and educational institutes must set balanced academic routine and planned extracurricular and healthy activities. Medical officers must share the exact and accurate information about the disease (Greenberg et al., 2020). The medical worker must keep an eye on the psychological features of the patients and their families. If any person in the clinic premises requires psychological medical attention, the availability of counselors must be ensured. These challenges must be adequately faced so that life can return to normal during and even after the pandemic (Venkatesh & Edirappuli, 2020).

### Stressors during COVID-19 Pandemic

The major stressors during the COVID-19 pandemic are:

1. Fear about health and risk of contagion (Guitton, 2020).
2. Changes in sleep and eat patterns (Marelli et al.,2020; Rodríguez-Pérez et al., 2020)
3. Unreliable sources of news (Cinelli et al., 2020)
4. Isolation and Social Distancing

The following table presents the contribution of authors in the topic of stressors during the COVID-19 pandemic:

<b>Author</b>	<b>Fear About Health and Risk of Contagion</b>	<b>Changes in Sleep and Eating Patterns</b>	<b>Unreliable Source of News</b>	<b>Isolation and Social Distancing</b>
Guitton, 2020	✓	✓		
Marelli et al., 2020; Rodríguez-Pérez et al., 2020		✓		
Cinelli et al., 2020		✓	✓	
Javed et al., 2020				✓
Collins, 2020	✓			
Khosravi, 2020	✓			
Schimmenti et al.,2020	✓			
Marelli et al.,2020		✓		
Wang et al.,2020		✓		
Li et al., 2020				
Wilder-Smith et al., 2020				✓
Huremović, 2019				✓
Chatterjee & Chauhan, 2020				✓
Tuzovic & Kabadayi, 2020				✓
Górnicka et al., 2020		✓		

## **Fear About Health and Risk of Contagion**

The word “Pandemic” directly brings out fear in humans. As globalization is increased, enhanced transportation has allowed humans to travel across the world in just hours. It has opened ways for humans to remain inter-connected, whereas it has also opened doors for any contagious virus to spread around the globe. With a naked human eye, we cannot see the virus but can suffer from the consequences if attacked by it (Vega, 2016). The pandemic situation is not a new concept. There were many in previous decades. Still, for the first time in history, humans are confronting a pandemic to this extent, where so many countries are affected simultaneously in such a short period. COVID-19 is affecting the physical, financial, social, economic, and psychological health of humans worldwide. It is acting as a turning point in the developed and developing nations. Billions of people are isolated worldwide. Students suffer from the loss of their academic activities, which may affect their careers in the future, whereas the fear of contagion and stress about their health is also constant. This suffering and stress play a negative role in the psychological health of the students (Guitton, 2020). Lockdown has been imposed in all the educational institutes around the world. It impacted national and international students as well. Students are facing academic loss and are still bearing the financial requirements of their institutes. It has increased the level of stress among the students (Collins, 2020). However, distressing about the viral infection may alter during the period of the infection. If vaccination against the virus is introduced in the medical field, it is a possibility that students might overcome the fears of getting the disease (Khosravi, 2020).

### **There are Four Domains of Fear**

The first domain of fear consists of body signals and reactions to fear (Schimmenti et al., 2020). The body is the controller of human experiences as it handles the reaction of events and warns our mental and physical reliability. In the current pandemic experience, body fear is concerned with physical weakness resulting in less immunity, leading to the entry of viruses in the body, which becomes the reason for the disease, which can ultimately lead to death if not treated properly. In the COVID-19 pandemic, the fear of the body can be established in various modes. People may consider any changes in the body as COVID-19 disease, frightfully expecting their acceptance to it. The second body-related fear relates to the requirement to defend the body from any kind of disease or harm. In this type of fear, the body acts for survival and requires care and pre-treatments to defend itself from the virus. “the fear of the body and the fear from the body” can swap quickly, which causes the “body damaging behaviors.” There is an example from Italian news media that people who suffered from cardiac arrest during the COVID-19 pandemic chose to get treated in the home environment rather than going to hospitals because of the fear of getting infected from the virus. So, the fear of the body and requirements to defend it might get entangled, which can act as the cause of anticipated danger which is the risk of decreasing from a repetitive heart attack and its barriers plus the danger of getting affected from COVID-19, which commences the behavior which does not safeguard the body.

The second horseman of fear is fear of significant others and fear for significant others, which is associated with personal and social relationships. As it is said, humans are social animals by nature. Social relationships are the base of humans, particularly those who have close attachments with some figures in the lives such as their parents, siblings, children, spouse, friends, close relatives, etc. These relations provide a sense of security and comfort in the external world. The COVID-19 pandemic has affected the opinions of these interpersonal relationships with the term “social distancing.” We are asked to maintain some physical distance even from our close relations to slow down the spread of coronavirus diseases. It resulted in fear of loved ones also that meeting them may harm them or us. Henceforth, this

distancing has acted as our survival path where we are afraid of our close relationships. On the contrary, we consider ourselves a threat to our close relations as they might get infected from us. So, people are deprived of the right to provide normal care routines to defend and protect their loved ones.

The third domain is the fear of the unknown or fear of knowing. This fear consists of the mental effect of understanding and overcoming the situations. In the current global pandemic, information about the situation is limited and biased, which is extremely stressful. One option to cope with the current situation is utilizing investigative accessibility, which means getting information from the person who has experienced the disease. It provides an influenced analysis. Biased information helps a person obtain information about the specific circumstance and acts as a resistance to the things that are not required in any particular case and should be left as unknown. For example, we want to recognize and circumvent that how many people are infected by the virus in our circle. This information may act as a path to cope up with the pandemic situation, whereas in some cases, this information leads to mental stress and may affect the person's psychological health. The basic confusion is between the fear of knowing and fear of unknowing, and this may act as a barrier in the decision-making process. In this technological era, people start searching for the COVID-19 pandemic and its effects online, which increases stress and depression. At the same time, some useful information is required for the survival of the virus.

The fourth domain of fear is "fear of taking action or fear of inaction," which consists of behavioural effects of the fear while surviving the COVID-19 pandemic. Our lives are also based on actions. These actions are planned behaviour's that are not impulsive. Body fear, interpersonal and psychological domains have an absolute effect on the behaviour. It is insignificant when the "mutually opposing fears" fluctuate immediately, causing unclearness in the decisions and consequently affecting the actions. The main example is that a person may face difficulty deciding to visit his parents because there is a probability of infecting them with this contagious virus. This person is struck between the duties to care for his parents and responsibilities to prevent them from the virus which they could get by his visits. Some persons fear taking actions that may create confusion while taking simple decisions, like unboxing a present sent by his family, residing in the infected zone. Some people depend on the information obtained from the internet during the pandemic, which affects their decision-making process as they are afraid of taking action because of other people's irrelevant information and experiences. The use of the internet while taking any action or during the decision-making process may lead to the addictive aspect and may cause the problematic use of social media intervening in the decision-making process (Schimmenti et al., 2020).

### **Managing the Fear Domains**

The overcoming from the clinical fear of the COVID-19 pandemic needs the modes that are quite uncomplicated plus the methods that is quite complicated and can be applied with a mental health practitioner's consultation. The information related to implementing psychoeducation, psychological treatment, and maintaining social distance can be delivered through reliable media sources. Improvement in the psychological health of the students can help to avoid panic situations in the whole society. This objective could be attained by implementing the following procedures:

1. Improvement of the assessment of the body
2. Adopting affection security
3. Improvement in emotional management
4. Implementing tolerance and acceptance
5. Encouraging a sense of duty and responsibility

There is no alternative for clinical evaluations and therapies to treat severe psychological

fears for students during the coronavirus pandemic. The objectives mentioned above are traditional approaches that can help the students avoid the fears of leading a normal life and continue their academic and extracurricular activities during a pandemic. These approaches can be associated with medical treatments as well. These objectives can be applied with online and telephonic counseling sessions, and some of them can be used by students without any medical consultation to experience a smooth life routine without undergoing any fear-related psychological symptoms (Schimmenti et al., 2020).

### **Changes in the Sleeping and Eating Patterns**

The psychological impact of lockdown was more on students than on workers. In the previous literature of contagious diseases and pandemics, stress, anxiety, and depression were present in survivors and non-diseased people. There was a negative impact on people's psychological health when they endured unexpected pandemic, which cultivated post-pandemic distress. During the current pandemic COVID-19, the student's psychological health is negatively affected, which has disturbed the student's sleeping patterns. The main focus in this pandemic is on physical health, but it is very important to focus on psychological health. Poor quality of lifestyle is being adopted by the students who are developing depression and anxiety factors (Marelli et al., 2020). People under the age of 35 spend most of their time checking the latest updates in the news, which increases their anxiety levels (Wang et al., 2020). The use of electronic gadgets and social media before bedtime causes insomnia and changes in sleep patterns. People who spend most of their time in beds suffer from a bad quality of sleep which accelerates stress, depression, and anxiety (Cellini et al., 2020). Insomnia has increased in the COVID-19 pandemic, with the increased time in bed using smart gadgets, because if this sleep efficiency is drastically decreased (Li et al., 2020).

With the emergence of the COVID-19 pandemic and imposed lockdown, people had more time cooking and organizing their meals. The availability of food products has fluctuated in the pandemic situation. When the worldwide lockdown was imposed, governments ordered the educational institutes to close, and students pursued their education through online classes. So, students no spend most of their time watching TV and using social media to avoid boredom. Spending time watching TV and social media is linked with irregular eating patterns and snacking, specifically fast-foods, carbonated drinks, and other snacks. The restriction of staying at home and not being in physical contact with other people causes stress and anxiety, leading to boredom and abnormal eating patterns. In some cases, foods' choice is associated with students' psychological parameters, such as stress, depression, and anxiety (Górnicka et al., 2020). Staying at home and social distancing confines the physical activities, which affects the physical and emotional stability resulting in psychological disorders, stress, depression, and weakened immune system (Rodríguez-Pérez et al., 2020).

### **Unreliable Sources of News**

The spreading of news can robustly affect people's behaviour and can change the efficiency of the government's initiatives to overcome the current pandemic (Cinelli et al., 2020). Previous studies have concluded that risk factors are multiplied when extreme media involvement on the pandemic matters is increased. Negative risk perception leads to higher levels of stress and anxiety, which affects students' mental health during and after the pandemic (Lin & Lagoe, 2013). Exposure to news through electronic and social media has a proven effect on the student's perceived risks, but the effects vary according to the exposure to reliable and unreliable sources. According to the news and information retrieved from the electronic and social media platforms, students evaluate and complete the whole situation of the pandemic.

All the sources of the retrieved news are not reliable and accurate (Li, 2018). According to the previous literature, media coverage has played a vital role in provoking negative feelings in students such as fear and stress. The level of perceived knowledge leads to preventive decisions in the COVID-19 pandemic. When the pandemic emerges, mass media plays a positive role as well. They help to educate the students by providing accurate and exact information about the disease. They can take precautions to survive during the pandemic. The most important factor is to find reliable sources for getting accurate information. Educational institutes must guide the students about the reliable media sources (Zhang et al., 2015).

### **Isolation and Social Distancing**

Isolation refers to the separation of non-infected persons from infected ones. Quarantine is the restriction, with an objectified observation of the suspected people to be infected but do not present any symptoms. Societal containment involves ways to increase social distancing to stop the spread of the contagious disease. Social distancing is adopted to reduce the physical interaction between humans to reduce the spread of the disease (Wilder-Smith et al., 2020). Various isolation measures have been adopted in this pandemic. Quarantine centres have been established worldwide to keep the infected and suspected people away from the non-infected people. It protects physical health but at the same time affects the mental health of the students.

While considering social distancing and isolation, educational institutes must involve the students in some healthy online activities and assignments to keep them busy to avoid mental stress (Tuzovic & Kabadayi, 2020). If students spend time while remaining busy, boredom could be avoided, improving sleeping and dietary patterns, which ultimately improves mental health (Huremović, 2019). Quarantine time is required to be spent with physical activities and mental exercise by staying at home. Students should spend their time reading books, relaxation exercises, and limited entertainment. Developed technology helps people to stay connected in these difficult times (Chatterjee & Chauhan, 2020). The mental state of a person contributes to social and professional development. When they stay away from their schools, friends, and academic routines, students may get curious about the pandemic details and look upon their parents and internet sources to get appropriate answers. It creates stress among them, which sets long-term psychological effects. Some major changes in the behavior of students during isolation are:

- Difficulty to maintain attention in the academic routine
- Changed dietary behaviours
- Developing irritating and annoying habits
- Increased stress and anxiety
- Avoiding activities that could help to spend time effectively

To help students deal with the stress during pandemic, parents should remain calm while dealing with their children and solve all the queries. Parents should spare some time to discuss the COVID-19 pandemic by sharing positive aspects of staying at home. Parents should assure their children that they are secure and safe at home and should involve them in physical and cognitive activities to kill their boredom and stress. Teachers should provide an academic timetable to maintain their study routine. Parents should not express their stress and worries regarding the pandemic and should not let negative energies emerge into their children. The contribution of parents and teachers is significant to maintain healthy activities during the isolation period, which could consequently lessen the stress levels and anxiety among the students (Javed et al., 2020).



## Contribution of the Present Study

The present study is exploratory that analyses the effects of COVID-19 on students' mental health, especially anxiety, stress, and depression. It represents the review of the key stressors during the pandemic. This paper aims to understand the effects of students' mental health and recommend the required action from parents, educational institutes, and mental health practitioners. Very limited studies related to the psychological impact of COVID-19 on students is available. This study helps extend the opportunities to perform more research on the psychological impact of COVID-19 on students and provide recommendations to the educational institutes and parents. Teachers and parents need to discover effective solutions to maintain academic performance and develop student's interest in their education. Educational institutes are not properly equipped with the required information, resources, and ideas to overcome this pandemic situation. This study provides some effective information that helps the educational institutes to identify the main stressors during coronavirus COVID-19 and those factors which are anticipated after this pandemic. It also presents knowledge about the factors that instigate negative feelings which result in mental stress. The suggestions proposed in this study should help the teachers, parents, students, and educational institutes to create an intermediation strategy that can be used during and after the current pandemic situation, to sustain an effective connection to improve the mental health of the students and to improve their academic performance as well during this pandemic.

## Conclusion and Future Research

The emergence of the COVID-19 pandemic and its prospective effect on student's mental health required this sort of study. The main objective of this study was to deliver the required material to alleviate and prevent the destructive influence on student's mental health. We considered that the attributes of the previous research in this study supported accomplishing this objective. There was a negative impact of COVID-19 on students' mental health and they are losing their interest in studies as well. Parents and educational institutes should take the required measures to improve the health of the students. The present paper has provided some required literature related to student's mental health during this pandemic as previously and there is very little research conducted regarding the impact of Covid-19 on the student's mental health. It is recommended that future research can be conducted regarding the post-pandemic psychological effects because of coronavirus COVID-19.

## REFERENCES

- Al-Rabiaah, A., Temsah, M.H., Al-Eyadhy, A.A., Hasan, G.M., Al-Zamil, F., Al-Subaie, S., ... & Somily, A.M. (2020). Middle East Respiratory Syndrome-Corona Virus (MERS- CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *Journal of infection and public health*.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry research*, 112934.
- Cao, X. (2020). COVID-19: immunopathology and its implications for therapy. *Nature reviews immunology*, 20(5), 269-270.
- Cellini, N., Canale, N., Mioni, G., & Costa, S. (2020). Changes in sleep pattern, sense of time and digital media use during COVID-19 lockdown in Italy. *Journal of Sleep Research*, e13074.
- Chatterjee, K., & Chauhan, V. S. (2020). Epidemics, quarantine and mental health. *Medical Journal, Armed Forces India*, 76(2), 125.
- Cinelli, M., Quattrocioni, W., Galeazzi, A., Valensise, C. M., Brugnoli, E., Schmidt, A. L., ... & Scala, A. (2020). The covid-19 social media infodemic. *arXiv preprint arXiv:2003.05004*.
- Collins, F. (2020). The contagion fear and threat scale: Measuring COVID-19 fear in Australian, Indian, and Nepali University Students.

- Cullen, W., Gulati, G., & Kelly, B.D. (2020). Mental health in the Covid-19 pandemic. *QJM: An International Journal of Medicine*, 113(5), 311-312.
- Docea, A.O., Tsatsakis, A., Albulescu, D., Cristea, O., Zlatian, O., Vinceti, M., ... & Dumanov, J.M. (2020). A new threat from an old enemy: Re-emergence of coronavirus. *International journal of molecular medicine*, 45(6), 1631-1643.
- Górnicka, M., Drywień, M.E., Zielinska, M.A., & Hamułka, J. (2020). Dietary and lifestyle changes during COVID-19 and the subsequent lockdowns among Polish adults: A Cross-sectional online survey PLifeCOVID-19 study. *Nutrients*, 12(8), 2324.
- Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *bmj*, 368.
- Guitton, M.J. (2020). Cyberpsychology research and COVID-19. *Computers in Human Behavior*.
- Harapan, H., Itoh, N., Yufika, A., Winardi, W., Keam, S., Te, H., ... & Mudatsir, M. (2020). Coronavirus disease 2019 (COVID-19): A literature review. *Journal of Infection and Public Health*.
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., ... & Cheng, Z. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The lancet*, 395(10223), 497-506.
- Huckins, J.F., DaSilva, A.W., Wang, W., Hedlund, E., Rogers, C., Nepal, S. K., ... & Wagner, D.D. (2020). Mental health and behavior of college students during the early phases of the COVID-19 pandemic: Longitudinal smartphone and ecological momentary assessment study. *Journal of medical Internet research*, 22(6), e20185.
- Huremović, D. (2019). Social distancing, quarantine, and isolation. In *Psychiatry of Pandemics*, 85-94.
- Islam, S.D.U., Bodrud-Doza, M., Khan, R.M., Haque, M.A., & Mamun, M.A. (2020). Exploring COVID-19 stress and its factors in Bangladesh: A perception-based study. *Heliyon*, 6(7), e04399.
- Javed, B., Sarwer, A., Soto, E.B., & Mashwani, Z.U.R. (2020). Impact of SARS-CoV-2 (Coronavirus) pandemic on public mental health. *Frontiers in Public Health*, 8, 292.
- Kafka, A. (2020). Shock, fear, and fatalism: As coronavirus prompts colleges to close, students grapple with uncertainty.
- Kang, L., Ma, S., Chen, M., Yang, J., Wang, Y., Li, R., ... & Hu, S. (2020). Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. *Brain, behavior, and immunity*.
- Khosravi, M. (2020). Perceived risk of COVID-19 pandemic: The role of public worry and trust. *Electron J Gen Med*. 2020; 17 (4): em203.
- Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet Child & Adolescent Health*, 4(6), 421.
- Li, X. (2018). Media exposure, perceived efficacy, and protective behaviors in a public health emergency. *International Journal of Communication*, 12, 20.
- Li, Y., Qin, Q., Sun, Q., Sanford, L.D., Vgontzas, A.N., & Tang, X. (2020). Insomnia and psychological reactions during the COVID-19 outbreak in China. *Journal of Clinical Sleep Medicine*, 8524.
- Lin, C.A., & Lagoe, C. (2013). Effects of news media and interpersonal interactions on H1N1 risk perception and vaccination intent. *Communication Research Reports*, 30(2), 127- 136.
- Marelli, S., Castelnuovo, A., Somma, A., Castronovo, V., Mombelli, S., Bottoni, D., ... & Ferini-Strambi, L. (2020). Impact of COVID-19 lockdown on sleep quality in university students and administration staff. *Journal of Neurology*, 1-8.
- Munster, V.J., Koopmans, M., van Doremalen, N., van Riel, D., & de Wit, E. (2020). A novel coronavirus emerging in China—key questions for impact assessment. *New England Journal of Medicine*, 382(8), 692-694.
- Pragholapati, A. (2020). COVID-19 impact on students.
- Rodriguez-Morales, A.J., Cardona-Ospina, J.A., Gutiérrez-Ocampo, E., Villamizar-Peña, R., Holguin-Rivera, Y., Escalera-Antezana, J. P., ... & Paniz-Mondolfi, A. (2020). Clinical, laboratory and imaging features of COVID-19: A systematic review and meta- analysis. *Travel medicine and infectious disease*, 101623.
- Rodríguez-Pérez, C., Molina-Montes, E., Verardo, V., Artacho, R., García-Villanova, B., Guerra-Hernández, E.J., & Ruíz-López, M.D. (2020). Changes in dietary behaviours during the COVID-19 outbreak confinement in the spanish COVIDiet study. *Nutrients*, 12(6), 1730.
- Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, 12(4).
- Schimmenti, A., Billieux, J., & Starcevic, V. (2020). The four horsemen of fear: An integrated model of understanding fear experiences during the COVID-19 pandemic. *Clinical Neuropsychiatry*, 17(2), 41-45.

- Tuzovic, S., & Kabadayi, S. (2020). The influence of social distancing on employee well-being: a conceptual framework and research agenda. *Journal of Service Management*.
- Vega, M.Y. (2016). Combating stigma and fear: Applying psychosocial lessons learned from the HIV epidemic and SARS to the current Ebola crisis. *The psychosocial aspects of a deadly epidemic: What Ebola has taught us about holistic healing*, 271-286.
- Venkatesh, A., & Edirappuli, S. (2020). Social distancing in covid-19: what are the mental health implications?. *Bmj*, 369.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C.S., & Ho, R.C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, 17(5), 1729.
- Wilder-Smith, A., & Freedman, D.O. (2020). Isolation, quarantine, social distancing and community containment: Pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak. *Journal of travel medicine*, 27(2), taaa020.
- Xu, Z., Shi, L., Wang, Y., Zhang, J., Huang, L., Zhang, C., ... & Tai, Y. (2020). Pathological findings of COVID-19 associated with acute respiratory distress syndrome. *The Lancet respiratory medicine*, 8(4), 420-422.
- Zhang, J., Lu, H., Zeng, H., Zhang, S., Du, Q., Jiang, T., & Du, B. (2020). The differential psychological distress of populations affected by the COVID-19 pandemic. *Brain, behavior, and immunity*.
- Zhang, L., Kong, Y., & Chang, H. (2015). Media use and health behavior in H1N1 flu crisis: the mediating role of perceived knowledge and fear. *Atlantic Journal of Communication*, 23(2), 67-80.