

# Impact of the COVID-19 Pandemic on Mental Health of the General Population, Students, and Health Care Workers.

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## ABSTRACT

**Background:** COVID-19 among human is spreading heavily and has brought about a sense of fear, anxiety, depression, and stress around the world. It has resulted in short term as well as long term psychosocial and mental health problems in general population, students and health care workers.

**Objective:** To summarize the articles related to the mental health aspects of the general population, students, and health care workers impacted by COVID-19 pandemic.

**Methods:** Published articles on mental health aspects of the general population, students, and health care workers during the COVID-19 outbreak were considered and reviewed.

**Results:** Increasing actual and suspected cases, conflicting and frustrating news, inadequate and shortage of protective measures, travel bans, isolation, concern of the infection in family, friends or colleagues, the uncertainty of return to the work station, school, college, and universities, and lack of social support are leading to different levels of psychological pressure and increased prevalence of stress, anxiety, depressive symptoms, insomnia, and fear.

**Conclusion:** Mental health symptoms of stress, anxiety, and depression are the common psychological reactions in the study population. There is a need to improve people's access to mental health services aimed towards providing measures to cope this crisis. For this, rational mental health policies along with direct or digital collaborative network of public, psychiatrists, community volunteers, and governmental and non-governmental organizations are needed.

**Keywords:** COVID-19, Mental health, General population, Students, Health care workers

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### Publisher's Note

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## INTRODUCTION

The Coronavirus Disease 2019 (COVID-19) outbreak started in China in December 2019, and by August 2020, it has spread across the globe, becoming a global threat.<sup>1,2</sup> Fever, dry cough, and shortness of breath are its major symptoms.<sup>2,3</sup> The human-to-human transmission of this virus occurs via droplets and direct contact, with an incubation period of 6.4 days and a basic reproduction number of 2.24–3.58.<sup>4</sup> The World Health Organization (WHO) declared this viral epidemic as a pandemic and announced it as the public health emergency of international concern on 30th January 2020. To date (August 31, 2020), 2,52,54,339 confirmed cases and 8,46,985 death cases attributable to this disease have been reported from 216 countries.<sup>5</sup> Evidence suggests that the outbreak of this viral disease is associated with psychological distress and symptoms of mental illness.<sup>6</sup> The development of a vaccine is on the way, and the WHO and public health authorities are acting through public health strategies to control the COVID-19 outbreak. Self-isolation (quarantine) and physical distancing (social distancing) have been enforced in nearly every country as the most effective measures to protect oneself from this dreadful disease.<sup>7,8</sup> People failed to follow these strategies during initial stages, and various countries started implementing regional and national lockdowns since January, 2020. They announced both inward and outward travel restrictions, closures of industries, both private and international business agencies, shopping malls, museums, movie theaters, hotels, swimming pools, religious places, and places with large gatherings, including all educational institutions, to fight this pandemic.<sup>9</sup> However, these are associated with a range of physical effects, such as decreased motor activity, changes in dietary habits, and no exposure to sunlight, along with adverse psychological effects, including stress, fear, anxiety, and depression.<sup>10,11</sup> As a consequence, it was also expected to increase the levels of loneliness, harmful alcohol, and drug use, and self-harm or suicidal behavior among the general population.<sup>12</sup>

Studies related to mental health about COVID-19 are scarce in Nepal. This study will assist government agencies, healthcare professionals, and other researchers by providing beneficial information that can be used to safeguard the psychological well-being of its people and motivate researchers in Nepal to conduct more studies in the field of pandemics and provide evidence-based information to the public. With the above

objectives in mind, the current narrative review was designed to summarize the articles related to the mental health aspects of the general population, students, and health care workers impacted by COVID-19 pandemic.

## METHODOLOGY

The current article is a narrative review of the literature relevant to the impact of the COVID-19 pandemic on the mental health of the general population, students, and health care workers. The search was limited to English language studies published in journals from December, 2019, till June, 2020. A search of the PubMed and Google Scholar electronic databases was undertaken using the search terms: COVID-19, novel coronavirus, anxiety, depression, stress, fear, general population, students, international students, health care workers, COVID-19 effects, COVID-19 and mental health, and psychological effects of COVID. We also included articles listed in the authors' reference lists and those listed in other narrative reviews. Studies were selected based on relevance. Full articles on those studies that were deemed relevant to our study title were fully reviewed, and irrelevant studies were eliminated.

A total of 1124 citations were retrieved, of which 87 were eligible full-text studies assessed. On reviewing these, 37 were excluded: 5 because they were in a language other than the English, 9 because they were review articles, and 23 because psychiatric symptoms relevant to COVID-19 were not reported and especially dealt with clinical characteristics, drug therapy, public health, and preventive measures. The remaining 50 studies were included in this narrative review. These 50 studies consisted of original research, letters to the editor, journal preproofs, and editorials or commentary related to COVID-19 and mental health. Our study outcomes were various mental health symptoms, such as stress, anxiety, depression, and fear, in the general population, students, and health care workers relevant to the COVID-19 pandemic. Figure 1 illustrates the study selection procedure.

## RESULTS

A total of 50 studies were included in our narrative review, and only 9 original articles were reviewed. All nine studies were online and cross-sectional surveys. The majority (5/9) of them were from China, two publications from India, and one each from Iran and Denmark. A summary of the studies included in this narrative review is presented in Table 1.

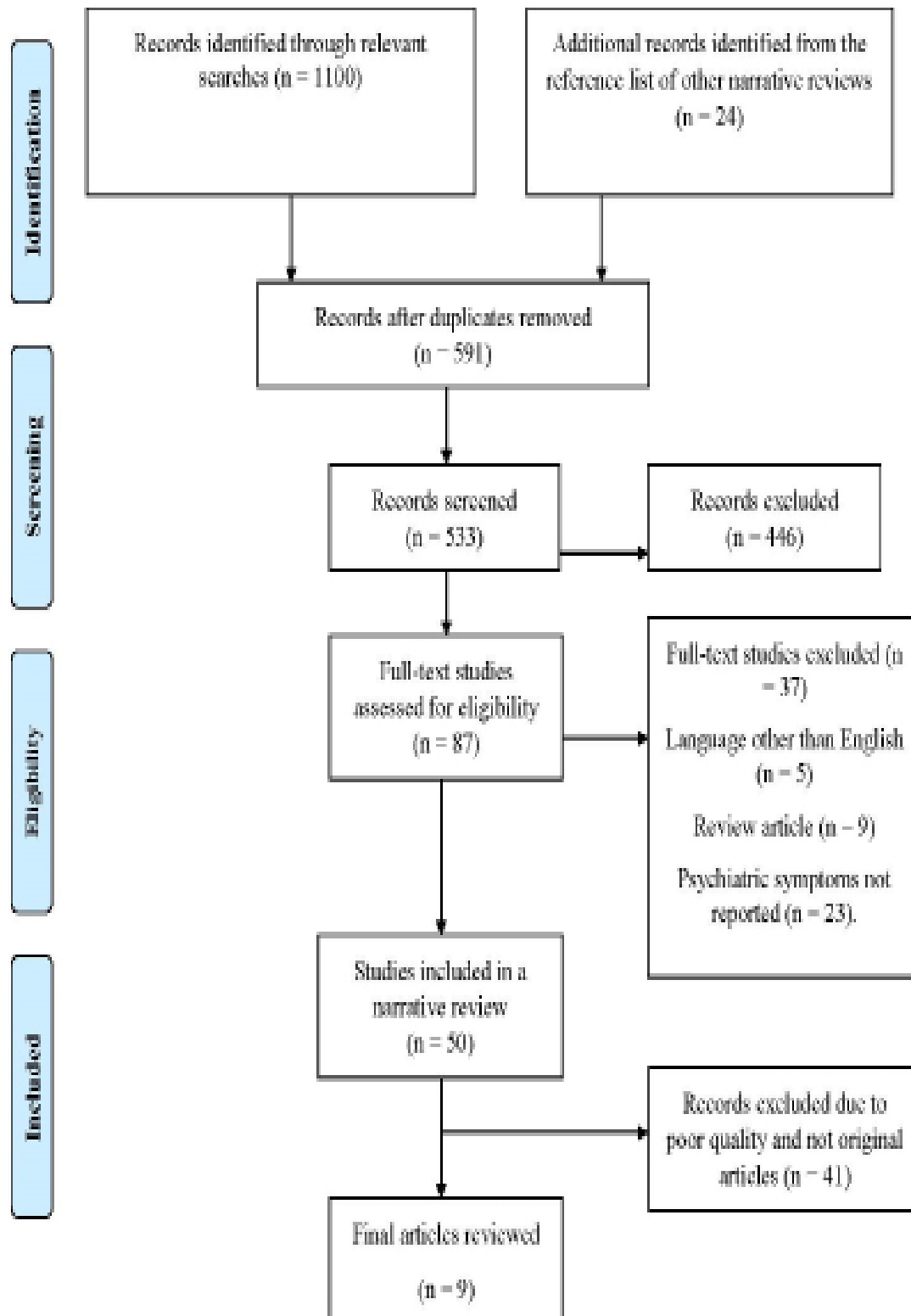


Figure 1: Study selection

**Table 1: Study, objective, methods, and major findings of the studies**

Study	Objective	Methods	Major findings
<b>Kazmi et al (2020)<sup>14</sup></b>	To assess the mental health of individuals during lockdown amid the Covid-19 pandemic in India.	Online survey Study population: general population (n=1000) Study instrument: Depression Anxiety and Stress Scale (DASS-21), to assess Depression, Anxiety, and Stress.	50% of severe stress was seen in the 21-25 years age group and women. Stress and anxiety were high in 21-25 years age group and women, whereas depression was high in the 15-35 year age group, and mostly in men. Unemployed were most affected than employed.
<b>Wang et al (2020)<sup>15</sup></b>	To establish the prevalence of psychiatric symptoms and identify risk and protective factors contributing to psychological stress.	Cross-sectional online survey Study population: general population (n=1210) Study instrument: Impact of Event Scale-Revised (IES-R), and Depression, Anxiety, and Stress Scale (DASS-21) used to assess the psychological impact and mental health status.	16.5% of people had moderate to severe depressive symptoms, 28.8% had moderate to severe anxiety symptoms, and 8.1% had moderate to severe stress.
<b>Roy et al (2020)<sup>16</sup></b>	To assess the knowledge, attitude, anxiety experience, and perceived mental healthcare need among the adult Indian population during the COVID-19 pandemic.	Cross-sectional online survey Study population: general population (n=662) Study instrument: online self-reported questionnaire	Sleep difficulties, paranoia about acquiring COVID-19 infection and distress related social media in 12%, 40%, and 41% participants respectively. About 72% were worried about themselves and their near ones.
<b>Sønderskov et al (2020)<sup>17</sup></b>	To measure the level of psychological well-being in Denmark during the COVID-19 pandemic	Online survey Study population: general population (n= 2458) Study instrument: WHO-5 well-being scale	The psychological well-being of the Danish general population was affected negatively by the COVID-19 pandemic. Females were more affected than men.
<b>Moghanibashi Mansourieh, (2020)<sup>18</sup></b>	To assess the general population anxiety level during COVID-19 spread.	Online survey Study population: general population (n=10,754) Study instrument: Depression, Anxiety and Stress Scale (DASS-21)	Anxiety level was severe in 9.3 % and very severe in 9.8 %.  The level of anxiety was significantly higher (P<0.001) in female, 21–40 years age group, highly educated people, those who followed coronavirus news, and who had at least one family member with COVID-19.
<b>Huang and Zhao, (2020)<sup>19</sup></b>	To assess the mental health burden of the Chinese population during the COVID-19 pandemic, and to explore the potential influence factors.	Web-based cross-sectional study Study population: general population (n=7236) Study instrument: GAD-7 (Generalized Anxiety Disorder-7) scale, Center for Epidemiology Scale for Depression (CES-D), and PSQI (Pittsburgh Sleep Quality Index) scale for assessing sleep quality.	Prevalence of anxiety disorders, depressive symptoms, sleep quality: 35.1%, 20.1%, 18.2%, respectively. Younger people and healthcare workers (31.1%) were more prone to develop anxiety, depression, and poor sleep quality (P<0.001).
<b>Cao et al (2020)<sup>20</sup></b>	To evaluate the mental situation of college students during the epidemic.	Cross-sectional survey Study population: college students (n=7143) Study instrument: 7-item Generalized Anxiety Disorder Scale (GAD-7)	21.3% of students had mild anxiety, 2.7% had moderate, and 0.9% had severe anxiety.
<b>Lu et al (2020)<sup>21</sup></b>	To assess the psychological status of the medical workforce during the COVID-19 pandemic.	Cross-sectional survey Study population: medical and administrative staffs (n=2299) Study instrument: Hamilton Anxiety Scale (HAMA) and the Hamilton Depression Scale (HAMD)	Medical staff who came in close contact with infected patients of respiratory, emergency, infectious disease and ICU were 1.4 times more likely to feel fear, twice more likely to suffer anxiety and depression than administrative staff.
<b>Lai et al (2020)<sup>22</sup></b>	To assess the magnitude of mental health outcomes and associated factors among health care workers treating patients exposed to COVID-19 in China.	Cross-sectional, hospital-based survey Study population: health care workers (n=1257) Study instrument: 7-item Generalized Anxiety Disorder (GAD-7) scale, 7-item Insomnia Severity Index (ISI), 9-item Patient Health Questionnaire (PHQ-9), and 22-item Impact of Event Scale-Revised (IES-R).	Of all the participants, 50.4% reported symptoms of depression, 44.6% reported anxiety, 34.0% reported insomnia, and 71.5% reported distress, respectively.

## DISCUSSION

### Impact on the general population

Epidemics and pandemics are periodic phenomena whose impacts are often intense and may even adversely affect the well-being of the general population.<sup>15</sup> The increasing number of patients, suspected cases, and affected countries have contributed in making people more worried and anxious about being infected with COVID-19.<sup>6, 13-18</sup> Since the onset of COVID-19, the use of masks and sanitizers has increased, leading to their exhaustion in the market.<sup>22</sup> Some degree of nervousness resides in public due to the unavailability of protective measures. Likewise, media also influences the mental well-being of people and can add to the level of mental symptoms.<sup>23</sup> Fear of unknown factors leads to increased anxiety levels in both normal and pre-existing mental patients.<sup>24</sup> Therefore, thorough knowledge of specific issues plays an important role in keeping oneself positive and motivated in every havoc condition. The increased curiosity of people about the global status of a pandemic and the discovery of treatment measures specially the vaccination in progress, make people seek increasingly more event-related information. In scarce information from reliable sources, misleading and conflicting information on social sites starts to create room for stress, anxiety, fear, and depression in people.<sup>25</sup> Evidence suggests that "the more people follow COVID-19 news, the more anxious they become".<sup>17, 26, 27</sup> The constant exposure to disappointing and exaggerated information on COVID-19 makes people more prone to develop higher levels of stress and anxiety.<sup>17</sup>

Many parts of the world that contribute largely to the global economy have halted their service and products due to this pandemic. As a result, the global supply chain has been broken, extremely affecting the global economy.<sup>28</sup> Although many company employees are working from home in this pandemic, it even has financial disadvantages.<sup>15</sup> In contrast, many families have lost their source of income in this outbreak, which has added more problems in their livelihood. The uncertain time of returning to work and infections associated with public transportation further exacerbated fear, stress, anxiety, and depression in people of poor economic status.<sup>19, 29</sup> Similarly, additional changes such as isolation, social distancing, restriction to travel, worry about health conditions of family, friends or colleagues, and any infected family members or people from the same community are also likely to adversely affect the mental health of

the public.<sup>30</sup>

### Impact on students

Where the whole world is facing the bad consequence of this pandemic, students alone cannot remain untouched. To reduce the spread of COVID-19 among young and adult populations, many countries have prompted the closures of schools, colleges, universities, and other educational institutions, which no doubt has a specific impact on the educational growth of students.<sup>19, 31, 32</sup> About 91% of the world's student population have been negatively impacted from the nationwide closures of educational institutes.<sup>33</sup> Continuous spread of COVID-19, home confinement, strict isolation measures are associated with anxiety in students which is attributable to hindrance in their education, physical activities and socialization opportunities.<sup>34-37</sup> Absence of structured routine of the school, colleges and universities for a long time results in disruption of timetable making students lethargy with lack of innovative ideas in academic and extracurricular activities.

Despite the closures of educational institutes, many schools, colleges, and universities are managing to provide online classes to their students to continue their course and learning process. In the present situation, computers and the internet at home are in high demand from the students, which is becoming a stressor for low-income families, as this way of learning has become expensive for them in this crisis.<sup>38</sup> Children from such an economic background develop anxiety as they fear not being able to cover their course. The students who are to be graduated this year are also affected by COVID-19 due to interruptions in the assessment of their final part of the studies. They are likely to develop anxiety with the likelihood of their late graduation and a long stay at home in their career development phase. The uncertainty in the reopening of educational institutes, cancellation of examinations and academic events are other stressors for students.<sup>15, 33</sup> Likewise, the concern about post-pandemic effect in employment opportunities might be responsible for depression in graduate students. Moreover, international students who are staying far from their parents/loved ones are at a higher risk of developing mental problems such as anxiety and depression.<sup>39</sup> They are not only worried about their health and education but also have a huge concern for the well-being of their families.<sup>39,40</sup> Students who managed to go home in this pandemic stress being unable to return to their educational institutions

for the completion of their studies.

### Impact on health care workers

The world has faced a nightmare, as many health care workers have lost their lives in their battle against the coronavirus pandemic.<sup>13</sup> During this harsh situation, where the world is facing shutdown or slowdown in daily activities and people are encouraged to obey social distancing to reduce interpersonal contacts, health care workers go in the opposite direction.<sup>20, 41</sup> Health care workers are frontline professionals who are at a higher risk of developing psychological distress and other mental health problems, as they are directly involved in the diagnosis, treatment, and care of infected patients.<sup>21, 42</sup> Health care workers around the globe are dealing with a high risk of infection, inadequate protection, overwork, frustration, and negative thought patients. On the other side, health workers are staying in isolation, discrimination, lack of contact with their family members, lack of specific drugs, and feelings of being inadequately supported,<sup>43</sup> which has become the major cause for stress, anxiety, insomnia, depressive symptoms, anger, and fear in them.<sup>21, 44</sup> These psychosocial conditions not only affects health care workers' understanding, focusing, and decision-making ability, which is essential for fighting against COVID-19, but could also have a lasting effect on their overall well-being.<sup>43, 45</sup> Despite the stressful day at work they cannot spend time with their family, they cannot hold their children.<sup>46</sup> They fear autoinoculation and the possibility of spreading the virus to their families, friends, and colleagues.<sup>47</sup> This forces them to isolate themselves from their family, change their habit, and narrow their social network, resulting in different levels of psychological pressure.<sup>47, 48</sup> This triggers the feeling of helplessness and loneliness, leading to a series of dysphoric emotional states such as stress, irritation, physical and mental fatigue, and despair.<sup>48</sup> Health care workers involved directly in the care of infected persons also have to suffer stigma. Hence, an increase in the number of confirmed and suspected cases increases pressure on them.<sup>49</sup> During this pandemic, a trend is popular, that is, giving the tag of superheroes to health care professionals. This in one way adds value to their profession but in the other way increases mental pressure to them because superheroes never fail and never give up or never get sick.<sup>50</sup> In the case of any mistake, instead of emotional support and encouragement, the media exaggerates it and makes it more sensational than an actual event. This type of moral suffering leads to the

collapse of the health system and prevents health professionals from making effective decisions because of fear and lowered self-esteem in them to face such suffering or due to hierarchical pressure, organizational problems, and lack of resources.<sup>50</sup>

### Limitations

The literatures for this narrative review were selected when the world was facing global lockdown and this mental health issues was new. Only few studies were reported from the world. Likewise, in our review, we were unable to focus on the management strategies targeted towards the study population. Last but not the least, the short study period and the only use of electronic databases might have increased the probability of missing relevant studies on the mental health care of general population, students and health workers.

### CONCLUSION AND RECOMMENDATIONS

Although the COVID-19 outbreak started in Wuhan, China, it has now become a global public health issue. Increasing actual and suspected cases, conflicting and frustrating news, inadequate and shortage of protective measures, travel bans, isolation, concern of the infection in family, friends or colleagues, the uncertainty of return to the work station, school, college, and universities, and lack of social support are leading to different levels of psychological pressure and increased prevalence of stress, anxiety, depressive symptoms, insomnia, and fear in the general public, students, and health care workers worldwide.

This review highlights the need to improve people's access to mental health services either through face to face interaction or online approach. This is possible only through the collaboration of public, psychiatrists, community volunteers, and governmental or non-governmental organizations. To prevent during and post-pandemic mental health issues, approach like 'tele mental health service' should be implemented and made accessible to the public at large. Time-limited and culturally sensitive mental health interventions should be made the focal point of health care system and policymakers to fulfill the mental health needs of every public. Likewise, there is a need for more evidence-based research from other affected countries, particularly in vulnerable populations such as children and adolescents, people of lower socioeconomic status, and those residing in rural areas, focusing the countries with less developed mental health infrastructures. So that the valid strategies can be

developed at both the individual and population levels, to eradicate this pandemic and outbreak of similar types in the near future.

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### Declaration of conflicting interests

The authors declare that there is no conflicts of interest to the research, authorship, and/or publication of this review.

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