Review Article

"Prevalence of Perceived Anxiety in General People, Students and Healthcare Professionals During COVID-19 Pandemic: A Comprehensive Scientific Review"

ABSTRACT:

The global severity of COVID-19 remains high which results anxiety and other mental health problems, also it altered people's everyday lives, affected human connections and economic operations. The goal of this comprehensive review was to identify the effects of the linkage COVID-19 pandemic on the mental health of different groups and communities. This study compiled evidences of a link between anxiety rates and the COVID-19 pandemic. The evaluation period started in June' 2022 and ended on August'2022, during this time, total four databases such as PubMed, ScienceDirect, Tailor & Francis Online, and Springer were used to search scientific literatures. A total 616 studies were identified from all four databases and 63 scientific literatures were selected based of predetermined criteria for review which were published in between 2020 to 2022. Three groups of population such as general population, students and healthcare professionals were taken for review the findings from the selected literatures. Gender, physical disorders, psychiatric disorders, COVID infection, infection rates in colleagues or family members, experience of frontline work & non-frontline work, close contact with infected patients, high exposure risk, quarantine experience, etc. were highly considered as factors associated with increased prevalence of anxiety among all three groups. During the COVID-19 pandemic, the general population, healthcare professionals, and students experienced an increase in the prevalence of mental diseases, whereas infected individuals had a decrease. Females were highly prevalent to anxiety than male. Our comprehensive review concluded significant co-relation between anxiety and COVID-19 but long-term study is needed to better understand which may define the population's mental condition in future.

Keyword: COVID-19, Coronavirus Disease, Anxiety, Mental Health Disorders, Professional Groups

Introduction:

Pandemic potential infectious illnesses like plague, cholera, flu, SARS-CoV, and MERS-CoV have regularly emerged and spread throughout history, and now the world faces COVID-19, declared a global pandemic by WHO on 11th March 2020 [1-6]. In December 2019, health workers identified a novel coronavirus 2019 (2019-nCoV) after discovering many cases admitted to hospitals with symptoms similar to viral pneumonia, including fever, cough, chest pain, dyspnea, and lung infiltration [7, 8] and the spread of the new variant of coronavirus began at the Huanan Seafood Wholesale Market in Wuhan, Hubei Province [3, 5, 6]. In order to minimize the spread of viral outbreaks in communities, nations worldwide took precautionary measures such as imposing nationwide lockdowns, shutting down institutions, and isolating infected individuals, which were essential, but they also stimulated various psychological stressors such

as experiencing fear and panic, feeling frustrated and bored, facing a scarcity of basic supplies, lacking authentic and reliable information, being overwhelmed with stigma, losing jobs, and facing financial recession [9, 10]. The possibility of contracting the virus, healthcare system overload, lack of effective treatment options, and vaccine hesitancy were significant stressors that have led to a range of mental health disorders in the population, including anxiety, depression, psychological distress, stress, post-traumatic disorders, and suicidal tendencies [11-14].

The primary aim of this investigation is to examine the association between anxiety and COVID-19 within three cohorts, including the general population, students, and healthcare workers, with the purpose of informing the development of future prophylactic interventions.

Materials and Method:

The review period began in June 2022 and updated in July and August. Popular databases, such as PubMed, ScienceDirect, Springer, and Tailor & Francis Online, were selected and the literature were search and filtered with appropriate keywords (Table-1 & Figure-1).Bibliographic referencing was done using EndNote 20.3, and literature screening was done with MS Excel. Information was analyzed by publication year, authors, sample, country, and study type. The records were categorized by demographic types in an MS Excel sheet. Sample sizes, study parameters, design, outcomes, and key findings were gathered for the review.

Table 1: Search Strategy and Results

Databases	Search Keywords	Filter Options
PubMed	• Coronavirus and Anxiety • COVID-19 and Anxiety • Covid pandemic and Mental health • Mental health disorder during pandemic • Prevalence of anxiety during Covid-19 • Behavioral changes in pandemic	Journal Article English, Full Text, 2020–2022
ScienceDirect		Journal Article Psychology, English, 2020–2022
Tailor & Francis Online		Journal Article Behavioral Science, English, 2020–2022
Springer		Journal Article Psychiatry, Public Health, 2020–2022

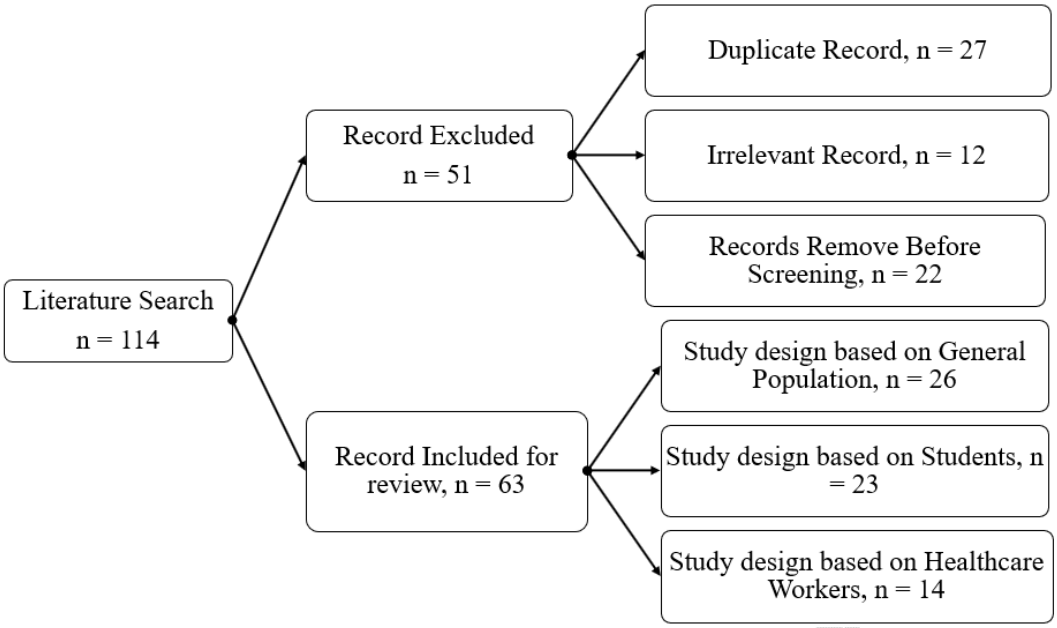

Figure 1: Literature Screening Flowchart

Results:

Anxiety can arise from changes in homeostasis, sometimes due to infectious disorders [15, 16]. However, exaggerated perceptions can lead to significant issue [7, 17]. COVID-19 has increased anxiety in recent years, especially with lockdown and isolation measures causing frustration and fear [17, 18]. Exposure to conflicting information on social media during the pandemic may cause psychological difficulties [19, 20] Pregnant women and students may mistake COVID-19 symptoms for anxiety, leading to self-isolation and medical attention-seeking [21-23]. Excessive stress can lead to abnormal behaviors, such as hand washing, social withdrawal, and panic over trivial issues, with negative consequences for individuals, families, and society, including financial resource shortages [15, 24]. Health workers, the frontline warriors in the fight against COVID-19, face anxiety over the risk of infection and transmission to others, especially as many become sick themselves [25-28].

The incidence rate of anxiety among the general population:

The largest group of studies in the present study focused on mental health in the general population, with anxiety being the most prevalent issue at almost 35%. Four studies [29-32] reported a three-fold increase in anxiety during the COVID-19 pandemic compared to previous years, with rates increasing from 6% in 2017 to 19% during the pandemic. While another study conducted by Velden et. al. found no significant change in anxiety rates between 2019 and 2020, authors noted changes in risk factors since the pandemic, particularly affecting students, job seekers, and housekeepers [32, 33]. Anxiety rates vary based on the location's COVID-19 risk level. Red zone areas had higher anxiety rates than others [30, 34-40], while areas with higher testing rates had lower anxiety rates [41]. Fang Tang's online survey of 1160 quarantined people in Wuhan, China, found that 70.78% experienced anxiety disorder due to the COVID-19 lockdown [41, 42]. Another study found that COVID-19-related anxiety was linked to the lockdown's effect on family finances, as people were worried about the expense of protective

measures [43]. Many studies have identified job loss or financial difficulties resulting from COVID-19 as common predictors or causes of increased anxiety [21, 29, 39, 44-47]. A cross-sectional study by Xi-Ru Zhang's team on 123,768 Chinese workers found that 26.2% of the population had mental health disorders, of which 3.4% had anxiety during the pandemic [38]. Similarly, Constanza Jacques-Aviñó's team reported anxiety and other mental disorders in 31.2% of women and 17.7% of men among 7,053 individuals in Spain during the pandemic [45]. Several studies supported these findings [35, 38, 48-50], but males with dependents were more anxious during the pandemic [45, 51]. Longitudinal studies in Australia and Germany reported a 23% rise in anxiety during a 12-week quarantine period, which decreased when restrictions were eased [25, 35, 52]. People who had more contact with COVID-19 infected individuals, particularly healthcare workers in hospitals, were found to be more anxious than those who stayed at home during lockdown [53-57]. Furthermore, many studies during the pandemic found that individuals infected with COVID-19 were more anxious than those who were not infected [45, 46, 56, 58].

The incidence rate of anxiety among the students:

Data on the impact of COVID-19 on college and university students' mental health is limited, but 23 reports showed anxiety levels as mild, moderate, or severe. Akhtarul et al.'s 2020 web-based survey found that more than 85% of students (n=476) experienced mild to severe anxiety symptoms, with females (26.1%) reporting severe anxiety more frequently than males (17%) [41]. Female students reported higher levels of severe anxiety compared to male students during the COVID-19 pandemic in four different studies [39, 40, 46, 47]. A study in Bangladesh found that anxiety levels among university students increased during the pandemic, with anxiety related to academic and career concerns [59]. Chinese students reported increased anxiety due to daily life restrictions during lockdowns, according to a study by Wenjun Cao and colleagues [21, 60]. Lockdowns during the pandemic led to increased loneliness and lack of social support, contributing to a rise in clinical anxiety levels among university and college students [21, 46]. In a web-based survey conducted by Iqbal and his team in Bangladesh, nearly 80% of university students and workers (n=2,350) reported moderate to severe mental health disorders such as depression, anxiety, and stress during the pandemic, with undergraduate students showing more anxiety than postgraduates or job holders [61]. Similarly, Odriozola-Gonzalez found a significant number of undergraduate students experiencing severe anxiety in a study of Spanish university students and workers (n=3,707) [60], while two other studies reported high anxiety levels for postgraduates and job holders [46, 59]. Two studies on school teachers with a combined sample size of 90,244 found that 27% to 49% of respondents had COVID-19-associated anxiety, with female teachers experiencing higher anxiety levels [62, 63]. Students' anxiety during the COVID-19 pandemic was linked to fear of infection and exposure to COVID-19 news, reported by Sun et al. and Wathelet et al. in web-based surveys on Chinese and European students [39, 47]. Anxiety was also reported by over one-third of students from various countries including Ethiopia [64], France [39, 65], India [66], Israel [67], Jordan [68], Nigeria [69], the Philippines [70], Saudi Arabia [71], and the United Arab Emirates [72].

The incidence rate of anxiety among the healthcare workers:

The COVID-19 outbreak has led to high psychological stress among healthcare workers, who are considered a high-risk group with long-term psychological repercussions [58, 73]. Factors such as challenging working conditions, heavy workloads, inadequate protective equipment, risk of infection, and difficult ethical decisions have led to mental health issues like anxiety [9, 73-75]. In Spain, a survey of 1,422 healthcare workers found that 58.6%, including doctors and nurses, experienced severe anxiety [76]. Some comprehensive reviews found that anxiety and depression rates during COVID-19 were 31-34% in the general population and community sectors, including healthcare professionals, children, and students which suggests potential mental health impacts of the pandemic [77-80]. Researchers from Imperial College London evaluated anxiety in 33,062 respondents, with a prevalence rate of 23.2% where, female medical staffs had higher anxiety rates [81-83]. Frontline healthcare workers had more anxiety due to COVID-19 exposure [73, 74, 81, 83-85]. However, some studies found higher anxiety rates in non-clinical staff and younger trainees [83, 86-90]. Non-clinical workers had decreased anxiety rates after safety training [88]. Chinese research found high rates of depression (50.4%), anxiety (44.6%), sleeplessness (34%), and psychological discomfort (71.5%) in frontline healthcare workers [90]. Argentine healthcare workers experienced high rates of sleep issues (73.7%), anxiety (76.5%), and depression (81.0%) [86]. Indonesian researchers found that lower resilience was associated with greater mental disorder with 33% having high state anxiety and 26.9% having high trait anxiety among healthcare workers during COVID-19 [91]. Gainer et. al. found a significant link between treating COVID-19 for more days and higher anxiety risk in US physician [70, 89].

Discussion:

Several recent systematic reviews have focused on the relationship between mental health and COVID-19, but many studies have only examined specific populations. Our study is the most comprehensive analysis to date, focusing on three large groups: the general population, students, and healthcare professionals. The authors reviewed numerous studies on mental health problems, particularly anxiety. The authors found that mental health concerns were common and varied among different populations, including the general community, healthcare workers, students, older adults, infected patients, and survivors. The authors identified unique mental health concerns for various demographics and proposed a preventative plan based on risk factor analysis.

Lockdowns were implemented worldwide to reduce COVID-19 transmission, but caused significant emotional distress globally and strong mental health at the beginning of lockdowns deteriorated as they became longer and more-strict [92]. Quarantine and lockdown orders increased loneliness, isolation, and anxiety in the general population, healthcare professionals, and students [59, 86, 93-95]. A group of systematic reviews showed that anxiety was more prevalent in 2020 than in 2019 due to COVID-19 restrictions, such as home quarantine, physical and social isolation, and job loss [21, 29, 39, 41, 44, 46, 96-99]. While some studies found little effect of lockdowns on anxiety, these studies had limited sample size and variability in the data [11, 19, 21, 26, 28]. However, some studies suggesting that lockdown and quarantine orders have

little or no impact on anxiety [32], the limited sample size in some of these studies, which lacked a wide range of socioeconomic diversity and exhibited data variability, could account for these results [100].

The COVID-19 pandemic has increased anxiety among healthcare workers, especially in clinical roles due to direct patient contact and greater susceptibility to illness. Non-clinical workers have also reported anxiety due to inadequate crisis training, though this improved after receiving such training. Fear of infecting family predicted health and job-related anxiety in healthcare workers in which younger practitioners reported more anxiety, possibly due to lack of experience/training. Mental health issues were equally prevalent among infected patients and the general population, which contradicts expectations given that most patients were middle-aged adults. This observation may be explained by the lower odds ratios for mental symptoms in older individuals. Current study showed that populations residing in areas with higher COVID-19 infection rates had greater rates of moderate to severe anxiety compared to those in low-epidemic regions. Increased testing within epicenters significantly reduced public worry, lowering overall health anxiety and indicating successful epidemic containment. COVID-19 exposure, whether through chance contacts, work settings, or confirmed infection, was associated with elevated anxiety levels. Contact with infected family members was especially linked to higher anxiety risk. Job loss due to COVID-19 was identified as a significant contributor to increased anxiety, alongside financial instability and other mental health problems. The study also found that individuals with pre-existing mental health problems were at higher risk of deterioration due to the disruption of daily routines caused by quarantine and limitations. In lockdown period during COVID-19, the university students become more addicted to social media such as Facebook, Instagram, twitter etc. where COVID-19 related news may make them more anxious than general population.

The COVID-19 pandemic has negatively impacted the mental health of university students by causing disruption to their daily lives and predisposing them to stress, potentially leading to a public health crisis. Similar rates of anxiety were observed among university students and the general population, with suicidal ideation also being reported [101]. The transition to online schooling during the COVID-19 pandemic has caused academic anxiety, loneliness, and decreased academic self-efficacy among students, particularly those who struggle with self-directed learning and this has been identified as a significant source of stress and may increase the risk of depression and suicidal tendencies. However, lockdown measures have provided opportunities for students to engage in hobbies and improve sleep patterns, the increased use of social media during lockdowns may contribute to anxiety related to COVID-19 news. The literature reports a mixed impact of online schooling and lockdowns on students' mental health [102]. On-campus students have higher anxiety and loneliness scores. Financial uncertainty of living on campus without work has contributed to mental deterioration among many university students [40].

The comprehensive review of literatures has limitations that need to be acknowledged. Firstly, the inclusion of only periodic literature may not fully capture the evolving nature of mental

health during the COVID-19 pandemic. Secondly, more research is needed to better understand the link between COVID-19 and anxiety, including studies that focus on different populations and collect longitudinal data. Finally, more long-term studies are needed to understand the underlying causes of pandemic fear and to better prepare for future outbreaks and emergency situations. Follow-up research can help to improve our understanding of the mental health of the population.

Conclusion:

The study demonstrated that COVID-19 significantly increased anxiety across all groups, particularly among high-risk individuals such as healthcare workers. Maintaining good mental health is essential for societal progress, and thus it is crucial to identify and provide appropriate psychological interventions for susceptible individuals from various population layers during the current crisis.The findings can help identify the factors associated with anxiety in different population groups and inform the development of targeted interventions. It can also help healthcare professionals better understand the psychological impact of the pandemic on individuals and provide appropriate support. Overall, this review can contribute to the development of effective strategies to mitigate the negative effects of COVID-19 on mental health.

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