

Prevalence of Suicide and Self-harm During the Coronavirus 2019 Pandemic: A Systematic Review Study

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Abstract

Introduction: During the COVID-19 epidemic, many people around the world committed suicide and self-harm due to psychological disorders. For this purpose, studies on the prevalence of self-harm and suicide attempt during COVID-19 have been reviewed in the present study.

Method: In this review study the following specialized keywords were searched between 2020 (May) and 2022 (January) in English databases such as Google Scholar, ISI, Scopus, Science Direct, and PubMed: suicide, suicidal thoughts, suicide attempts, self-harm, self-injury, self-harm deliberate, COVID-19.

Results: The results showed that the prevalence of suicide (2%-71.9%) and self-harm (2%-47.6%) during COVID-19 has increased significantly compared to the past. Economic problems, young age, being a woman, unemployment, family problems, loneliness, and psychological distress were among the factors that aggravated self-harm and suicide attempt during COVID-19. In contrast, social support, resilience, psychological resilience, and spiritual health reduced suicidal thoughts and behaviors.

Conclusion: According to the obtained results, lack of access to a psychologist was one of the important reasons for thoughts and behaviors related to self-harm and suicide during COVID-19 epidemic. For this reason, it is necessary for psychological centers, hospitals, and related organizations to take measures in order to increase tele-mental health services.

Keywords: COVID-19, Suicide, Self-harm, Systematic Review

Introduction

Since December 2019, the COVID-19 outbreak has occurred in Wuhan, China, and has quickly attracted the attention and concern of the World Health Organization (WHO). COVID-19 is one of the new cases of coronavirus that is closely related to SARS and its transmission speed is extremely fast [1]. Actually, COVID-19 spreads around the world in the shortest possible time. The spread of this unknown virus worldwide was so rapid that it became known as the greatest threat to public health in 2020 [2]. With the COVID-19 epidemic, a set of psychological, physical, and social problems associated with COVID-19 have developed in many parts of the world [3]. Images that the media and social networks have of the number of coronary patients, death statistics, bodies, and coffins buried deep underground, while their families could not say goodbye to them, caused a widespread of social unrest. If these problems are not addressed, the psychological consequences of the COVID-19 epidemic in the general population may persist for a long time and become a global medical crisis [4]. The COVID-19 epidemic hit new startups hard, with people earning

a living and not having a steady monthly income greatly affected by the COVID-19 epidemic, the prevalence of alcohol and tobacco use increased, and many turned to online gaming [5]. These harsh but necessary measures have often led to families being locked up in their homes or living far apart due to the vulnerability of some family members [6]. On the other hand, the results of studies conducted during the COVID-19 epidemic showed that cases such as job loss [7], loneliness [8], anxiety [9], decreased physical activity [10], fear of COVID-19 [11], low social support [12], decreased social communication [13], stress [14], school closures [15], and depression [16] led to increased suicidal ideation and self-harm [17, 18].

Suicide is a conscious act of self-harm that is on the rise as one of society's problems in most societies [19]. Suicidal behavior is a reaction that is defined as an attempt to escape unbearable pain and negative self-awareness in which frustration is the dominant emotion [20]. Suicidal ideation is also defined as suicidal ideation of suicide, ranging from a vague, influential desire to die to complete suicidal ideation [21]. Suicide has no borders and can occur in poor and strong countries. However, in poor countries suicide rates are higher due to insufficient infrastructure and poor economic and human resources, lower funding for mental health, and inability to keep up with the increasing demand for mental health care [22, 23]. Facial examinations during the COVID-19 epidemic also indicate a high prevalence of suicide (44%) and self-harm (32%) [24]. Self-harm can be defined as intentional behavior that directly damages a person's body and causes damage to body tissues or even amputation, which relieves the person of a feeling of misery or helplessness for a few minutes. Although this behavior initially reduces stress and feelings of calm, the person then experiences feelings of guilt, shame, and the return of negative emotions [25]. Self-harm is more impulsive and may be due to various psychiatric problems, such as depression, eating disorders, and borderline personality disorder [26]. Self-harm includes behaviors that are consciously, directly, without suicide motive, performed by the individual to damage body tissues, and are not considered cultural customs [27]. These behaviors can be done in ways such as cutting, burning, biting, grabbing, injuring the body, or preventing the wound from healing [28].

COVID-19, as an epidemic, can cause a set of feelings of anxiety, worry, and stress in any society [29]. The negative impact of epidemics is not limited to physical health problems and can lead to costly consequences such as anxiety and frustration in individuals [30]. Researchers believe that a person first experiences anxiety and depression and then turns to suicidal thoughts [31]. Most suicides are due to psychiatric disorders such as depression, bipolar disorder, and schizophrenia [32]. Studies have shown a 20% and 17% prevalence of suicide and suicide attempts in people with depression and anxiety [33]. Shrestha et al. [34] examined the prevalence of suicide and self-harm during the COVID-19 epidemic. Findings showed that the prevalence of suicidal ideation and self-harm was 44% and 71.9%, which was a significant

increase compared to previous years. Henry et al. [35] in a study, examined the effect of the COVID-19 epidemic on intentional self-harm. The results showed that the rate of self-injury was high during 2019 and 2020. Many people injured themselves due to home quarantine and depression during the COVID-19 outbreak. According to studies, two years after the COVID-19 epidemic in the world, many adults, the elderly, children, and adolescents are not in a good mental state due to unemployment, anxiety, loneliness, depression, and stress. Since COVID-19 is still mutating and global vaccination has not been able to prevent COVID-19 epidemics, measures need to be taken to identify groups at risk of suicide and self-harm. For this purpose, in this study, studies on the prevalence of self-harm and suicide attempt during the COVID-19 epidemic were reviewed.

Method

In the present review study, the PRISMA checklist was used to review studies on the prevalence of self-harm and suicide during the COVID-19 epidemic [36]. Articles indexed in research databases such as Google Scholar, ISI, Scopus, Science Direct, and PubMed were used in this study. Researchers examined valid English articles published between 2020 (May) and 2022 (January) from reliable electronic resources and by means of reviewing the full texts of these articles.

The following combinations of keywords were used in the search method: (Suicide) OR (Suicidal thoughts) OR (Suicide attempts) (abstract/title) AND (Self-harm) OR (Self-injury) OR (Self-harm deliberate) (abstract/title) AND (Coronavirus 2019) OR (COVID-19) (abstract/title) AND (Depression) OR (Stress) OR (Anxiety) (abstract/title). Research articles were purposefully selected according to the inclusion and exclusion criteria. Criteria for entering the research included being related to the purpose of the research, the existence of a structured research framework and publication in a valid journal. The exclusion criteria included articles in which full text was not available, articles in which were letters to the editor or those manuscripts without abstracts. All articles were evaluated by the present authors after extraction from the desired databases. The content of these 30 articles was analyzed individually by five researchers of this study. Each researcher analyzed the content of each article separately and entered the data in the content analysis form. The quality of the articles was assessed using the PRISMA checklist, which included the following: matching the structure of the article with the type of research, research purpose, the research community, sample selection process, data collection tools, data analysis using statistical tests related to the objectives, specified existence of entry and exit criteria, observance of ethics in research, presentation of findings by the objectives of the research and discussion of the findings were evaluated based on the results of related research. The quality of the articles in this study was evaluated based on the criteria developed by Gifford et al. [37]. Abstracts of published articles were reviewed and duplicates were removed (Figure 1).

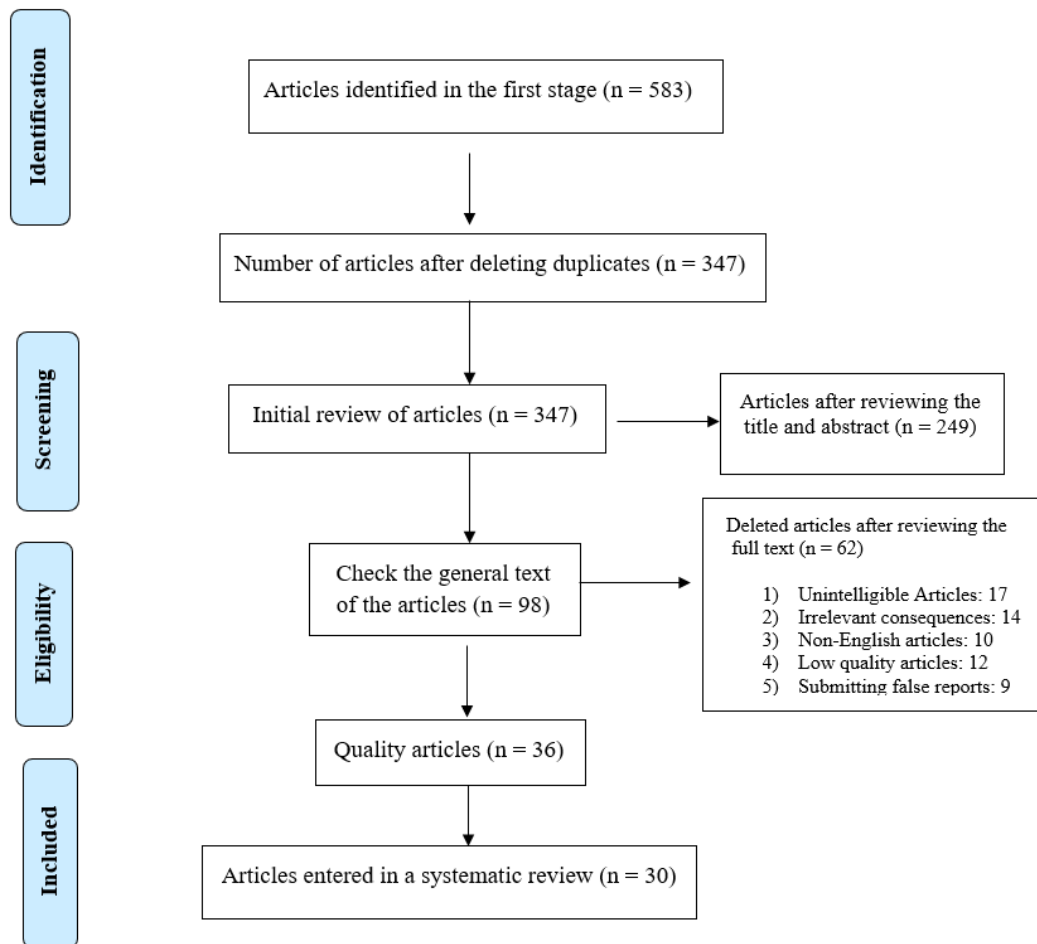


Figure 1. PRISMA flow chart outlining research results.

Results

In this review study, 30 qualified research articles were analyzed. For this purpose, Table 1 presents the results obtained from research articles on the prevalence of suicide and self-harm during the COVID-19 epidemic (Table 1).

Out of the 583 articles related to the prevalence of suicide and self-harm during the COVID-19 epidemic, 30 articles were reviewed at the end and a sample of 240,621 people were reviewed according to the criteria of the Prisma checklist. The systematic review also included 15 countries: the United Kingdom, Ireland, Canada, Lebanon, China, the United States, Bangladesh, Germany, Italy,

Indonesia, Taiwan, Thai, Japan, Nepal, and India, indicating the importance of investigating the prevalence of suicide and self-harm. The results showed that the prevalence of suicide (2%-71.9%) and self-harm (2% - 47.6%) during the COVID-19 epidemic has increased significantly compared to the past. Economic problems, young age, being a woman, unemployment, family problems, loneliness, and psychological distress were among the factors that aggravated suicide attempts and self-harm during the COVID-19 epidemic. In contrast, social support, resilience, psychological flexibility, and spiritual health reduced suicidal thoughts and behaviors.

Table 1. Summary of Published Articles on Suicide and Self-harm during COVID-19 Epidemic

Authors	Purpose	Sample	Country	Results
1 Tasnim et al. (2020) [5]	Survey of suicidal ideation among students during the outbreak of COVID-19	3331	Bangladesh	12.8% of people had suicidal thoughts during the COVID-19 epidemic. Factors such as tobacco addiction, depression, anxiety, unemployment, poor economic status, and domestic violence increased suicidal ideation among students.
2 Iob et al. (2020) [7]	Self-harm and suicidal ideation during the COVID-19 epidemic	44 775	England	Studies have shown a high rate of suicide and self-harm in women, blacks, and low-income people. Socioeconomic problems, disability, unemployment, and psychological disorders were among the factors that exacerbated self-harm during the COVID-19 epidemic.

3	John et al. (2021) [8]	Investigation of self-harm, self-harm, and loneliness during the outbreak of COVID-19	2126	England	23.9% of the subjects felt lonely during the outbreak of COVID-19. Women, the unemployed, and patients with psychological disorders were more exposed to loneliness. 10 and 2% of people had suicidal ideation and self-harm during the COVID-19 epidemic.
4	Halford et al. (2020) [9]	Check the search for ways to commit suicide and self-harm on Google in the early stages of the COVID-19	18 terms related	U.S. A	Studies have shown an increase in suicide searches on Google. During the coronavirus 2019 epidemic, many people had suicidal thoughts and self-harm due to unemployment, depression, anxiety, and family problems.
5	Xu et al. (2020) [10]	Prevalence of suicide and mental health problems among students during the outbreak of COVID-19	5931	China	During the COVID-19 epidemic, many people had symptoms of anxiety (32.6%), depression (41.5%), post-traumatic stress disorder (8.5%), and suicidal ideation (2%). Decreased physical activity, limited social relationships, and family problems were identified as aggravating factors.
6	Radeloff et al. (2021) [11]	Prevalence of suicide during the COVID-19 epidemic	643	Germany	Studies have shown an increase in suicide rates during the outbreak of coronavirus 2019. Fear of COVID-19, low education, and unemployment were among the factors influencing suicidal ideation.
7	Elbogen et al. (2021) [12]	Suicidal ideation and self-harm during the outbreak of COVID-19	6607	U.S. A	Feelings of loneliness, young age, stress, and unemployment increased suicidal ideation during the COVID-19 epidemic. Also, people with high social support had lower suicidal ideation.
8	Paul and Fancourt (2022) [13]	Investigating the thoughts and behaviors associated with self-harm during the COVID-19 epidemic	49324	England	26.1% and 7.9% of the subjects had self-harming thoughts and behaviors during the COVID-19 epidemic, respectively. Having economic problems, psychological distress and low social support were among the factors that aggravated self-harm thoughts and behaviors.
9	Czeisler et al. (2020) [14]	Evaluation of mental health, suicidal ideation, and substance abuse during the outbreak of COVID-19	5470	U.S. A	According to the results obtained during the outbreak of COVID-19, 40.9% of people had at least one of the symptoms of depression, anxiety, post-traumatic stress, and fear. Also, 10.7% of people had thought about suicide once during the last month.
10	Pramukti et al. (2020) [15]	Assess the level of anxiety and suicidal thoughts during the COVID-19 epidemic	(n=938 in Indonesia, n=734 in Thailand, and n=313 in Taiwan)	Indonesian, Taiwanese, and Thai	The results showed that Thai students had more anxiety and suicidal thoughts than other adolescents during the COVID-19 outbreak. Home quarantine and closure of schools and sports clubs were among the factors influencing the increase in psychological distress and suicidal ideation.
11	Sapara et al. (2021) [16]	Clinical correlates and Demographic of passive death wish and thoughts of self-harm in COVID-19	6041	Canada	The finding showed that suicidal ideation and self-harm increased significantly during the outbreak of COVID-19. Anxiety, young age, low education and income, sleep problems, depression, and worries about the future were all associated with suicidal ideation.
12	Hawton et al. (2021) [17]	Investigation of intentional self-harm during the Coronavirus 2019 epidemic	854	England	During the early months, the home quarantine caused by COVID-19 reduced the number of people visiting the hospital. Especially in youth and women. Most of the injuries themselves were due to medical expenses and insurance.
13	Shields et al. (2021) [18]	Investigating the role of loneliness and social isolation in increasing intentional self-harm	118	England	Studies have shown a high prevalence of self-harm during the COVID-19 epidemic. Women and people with low education were more at risk of self-harm.

14	Wang et al. (2020) [19]	Evaluation of students' psychological health and suicidal ideation during the outbreak of COVID-19	2031	U.S. A	48.1% of people had depression, 38.4% had anxiety and 18.4% had suicidal ideation. 71.2% of participants reported that their stress levels increased during the outbreak of coronavirus 2019.
15	Fortgang et al. (2021) [20]	Increase in suicidal thinking during COVID-19	55	England	The finding showed an increase in suicidal ideation during the COVID-19 epidemic. Loneliness, unemployment, and depression also exacerbate suicidal ideation and psychological distress.
16	Berardelli et al. (2021) [21]	The role of the COVID-19 epidemic in increasing suicidal ideation and self-harm	632	Italy	Studies have shown that during the COVID-19 epidemic, suicidal ideation was more common among patients with mental disorders. Also, the hospitalization rate of people with mental health problems increased significantly during the outbreak of COVID-19.
17	Höller and Forkmann (2022) [22]	Investigation of psychological problems and suicidal ideation among nurses during the outbreak of COVID-19	1311	Germany	41.5% and 52.7% of the subjects had depression and anxiety during the COVID-19 epidemic. Also, 14.7% of people had suicidal thoughts during the last month. Unemployment, psychological distress, and age were among the factors influencing suicidal ideation.
18	Rahman et al. (2022) [23]	Investigating the factors affecting student suicide during the COVID-19	2100	Bangladesh	47.9% of students were at risk of suicide during the COVID-19 epidemic. Being a girl, young age, depression, family problems, and low income was also among the factors that aggravated suicide.
19	Turner et al. (2021) [24]	Prevalence and factors affecting suicide and self-harm in adolescents during the outbreak of COVID-19	809	Canada	44% and 32% of young people had suicidal thoughts and self-harm during the COVID-19 epidemic. Factors such as addiction, family problems, and poor mental health were associated with suicide and self-harm.
20	John et al. (2021) [25]	Investigation of the prevalence and consequences of intentional self-harm during the outbreak of COVID-19	507	India	The findings showed that compared to previous years, the rate of self-harm increased significantly during the COVID-19 epidemic. Thoughts of self-harm were more prevalent among women and young people.
21	Xu et al. (2021) [26]	Evaluation of self-injury and suicide among hospital medical staff during the outbreak of COVID-19	11507	China	Studies have shown a 47.6% prevalence of suicidal ideation and self-harm among the hospital's medical staff. Hours of work, insomnia, a family history of COVID-19, marital problems, and activity in the intensive care unit were some of the factors influencing suicidal ideation and self-harm.
22	Maatouk et al. (2021) [27]	Impact of COVID-19 epidemic quarantine on increased self-harm and suicide	191	Lebanon	The finding showed a high prevalence of suicide and self-harm during the COVID-19 epidemic. Low income, unemployment, and mental health problems were directly related to suicide and self-harm. People with mental health reported fewer suicidal ideation and self-harm.
23	Steeg et al. (2021) [28]	Investigate temporal trends in primary care-recorded self-harm during and beyond the first year of the COVID-19	13148	England	Studies have shown the prevalence of self-harm in adolescents during the prevalence of COVID-19. The rate of self-harm was more prevalent among women and people with low incomes and education.
24	McIntyre et al. (2021) [30]	Investigating the role of COVID-19 prevalence on self-harm	119	Ireland	The results showed a higher prevalence of suicide in 2020 than in the last 4 years. Also, people who were addicted to drugs and suffered from psychological disorders had more suicidal thoughts.

25	Tanaka et al. (2021) [32]	The role of COVID-19 on the severity and rate of suicide	1848		Japan	The finding showed that the suicide rate in the second wave of the COVID-19 epidemic in Japan increased by 16%, which was more prevalent among women (37%) and adolescents (49%). Long working hours, depression, and low wages were among the factors influencing suicidal ideation.
26	Shrestha et al. (2021) [34]	The role of the COVID-19 epidemic on the prevalence of suicide and self-harm	125		Nepal	During the COVID-19 epidemic, 44 and 71.9% of people had suicidal ideation and self-harm, which was a significant increase compared to previous years.
27	Henry et al. (2021) [35]	Investigating the effects of home quarantine due to the outbreak of COVID-19 on the severity of self-harm thoughts	5198 and 3059		England	The rate of self-harm was high in 2019 and 2020. Many people injured themselves due to home quarantine and depression during the COVID-19 outbreak.
28	Rahman et al. (2021) [38]	Investigating the Factors Affecting Selfish Thoughts and Behaviors during the Outbreak of COVID-19	1415		Bangladesh	The prevalence of suicide and suicidal ideation in Bangladesh during the COVID-19 epidemic was 19% and 18.5%, respectively. The probability of suicide during the COVID-19 epidemic was reported in 33.3% of individuals. Being a woman, low level of education, and loneliness was among the factors influencing suicidal ideation.
29	McIntyre et al. (2021) [39]	Prevalence and severity of suicidal behaviors during the COVID-19 epidemic	2019 (N = 57 034)	2020 (N = 11 324)	Canada	Studies show that suicide rates will increase in 2020. Unemployment was one of the most important factors in increasing the suicide rate.
30	Crasta et al. (2020) [40]	Investigating suicide risk among parents during the COVID-19 epidemic	1003		U.S. A	The results showed that people with low psychological resilience and resilience had high suicidal ideation during the COVID-19 outbreak.

Discussion

In this review research, studies on the prevalence of self-harm and suicide during the COVID-19 were reviewed. The finding of studies showed that during the COVID-19 epidemic, the rate of suicidal ideation, self-harm, and suicidal behaviors was higher than in previous years [38, 40]. Stress, depression, anxiety, and unemployment increased during the COVID-19 epidemic, resulting in increased self-harm and suicidal ideation in vulnerable individuals [10, 15].

An overview of the results of studies can be said that the consequences of the COVID-19 epidemic in several groups of psychological disorders (stress, anxiety, fear, depression, helplessness, differences and domestic violence, insomnia), social factors (social disconnection, social stigma, loneliness), economic factors (recession, job loss, unemployment, poverty) and educational problems (school and university closures) can be examined [25, 26]. Since suicide and self-harm are directly related to individuals' psychosocial health, it can be expected that people who have been harmed in these areas are at higher risk of attempting suicide and self-harm [9]. Fortgang et al. [20] examined suicidal ideation during the COVID-19 epidemic. The results showed an increase in suicidal ideation during the COVID-19 epidemic. Loneliness, unemployment, and depression also exacerbate suicidal ideation and psychological distress. In another study, Paul and Fancourt [13] examined factors influencing self-harm thoughts and behaviors during the COVID-19 epidemic. Findings showed that 26.1% and

7.9% of the subjects had self-harming thoughts and behaviors during the COVID-19 epidemic, respectively. Having economic problems, psychological distress and low social support were among the factors that aggravated self-harm thoughts and behaviors.

In a diagnostic classification, Walsh [31] divided different self-harming behaviors into direct and indirect categories. Direct self-harm refers to behaviors that directly cause tissue damage and the purpose of the behavior is generally known (such as self-harm, suicide attempt, and self-immolation), and indirect self-harm refers to behaviors in which the effect of the injury is determined later and the underlying motives are unclear (such as risky behaviors, overeating, substance abuse, and high-risk sexual function). During the coronavirus 2019, we witnessed direct, and indirect self-harming behaviors. Based on this issue, it was found that self-harm is the strongest predictor of suicide attempts [22]. Having a previous history of self-harm without suicide, frustration, female gender, previous history of suicide attempt, negative self-assessment, suicidal ideation, and poor family functioning are among the risk factors identified in previous studies [7, 25]. According to research, self-harm is more chronic in nature and is repeated more often. Actually, the motivation of people who commit suicide is more related to death and dying, while in self-harm, the main motivation is to get rid of mental disorders [16]. During the COVID-19 epidemic, many people became severely depressed due to economic problems and unemployment [9, 11], people's social relationships were

limited and they felt lonely [10, 12], students experienced many academic problems [15], and their families had many problems [26]. All of this caused many people to experience high levels of psychological distress and attempt suicide [24-34]. Wang et al. [19] examined the mental health of individuals during the COVID-19 epidemic. The results showed that 48.1% of people had depression, 38.4% had anxiety and 18.4% had suicidal ideation. In addition, 71.2% of participants reported that their stress levels increased during the outbreak of COVID-19.

Among the limitations of the current review, we can mention the unavailability of the full text of some articles, which led to these articles not being included in the review process. Also, due to the filtering of some scientific databases, researchers could not access them. In addition, some studies were descriptive and one should be careful in generalizing their results. In this regard, it is suggested to carry out descriptive studies on the prevalence of thoughts and behaviors related to self-harm and suicide in Iran, so that vulnerable people can be identified with proper planning and the necessary psychological interventions can be adopted.

Conclusion

Two years after the COVID-19 epidemic, this deadly virus is still mutating. School and university closures, job losses, declining incomes, deaths, fear of developing COVID-19, and declining social relationships exacerbate depression, anxiety, family problems, drug abuse, and self-harm behaviors in many of these periods. In other words, psychological distress, uncertainty, and unpredictability due to the loss of definitive treatment and the uncertainty of the end of the COVID-19 outbreak have led to many psychological problems such as depression, anxiety, and stress. In addition, images posted on social media and networks of the number of coronary patients, death statistics, corpses, and coffins buried deep underground; while their families could not say goodbye to them, caused widespread social unrest. Also, severe social distancing and quarantine measures have led to the bankruptcy and closure of many businesses around the world. Accordingly, conducting more studies in this field, easy access to psychiatric and mental health services, avoiding listening and publishing information, videos and images from unreliable sources, getting help from crisis hotlines, activating the labor market, support and financial aid can reduce all the negative consequences of this pandemic. Governments can also be effective in reducing the trend of suicides and self-harms to the vulnerable groups by publishing and promoting appropriate messages, and providing adequate equipment for the medical staff of hospitals and health centers.

Conflict of Interest

The authors of this study state that they have no conflicts of interest.

Ethical Approval

Ethical principles in writing the article have been observed according to the instructions of the National Ethics Committee and the COPE regulations.

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