



## Studying COVID-19 Disease Management: A Review Study

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### ABSTRACT

**Background:** This study has been examined in order to examine the studies conducted on disease management in the field of coronavirus caused disease in the type of COVID-19 in the form of area review regarding the development of coronavirus caused disease as a significant challenge in the 21st century and the importance of managing and controlling this disease.

**Methods:** This study was conducted in the form of a field review to identify non-clinical and non-laboratory aspects of coronavirus in both Persian and English and the keywords such as "corona", "coronavirus", "COVID-19" were searched in the databases from "Scopus", "Web of Science", "PubMed", "SID" as well as "Google Scholar" search engines since the beginning of 2020.

**Results:** The contents were searched in the adopted databases, and a total of 1257 studies were discovered, and eventually, 18 main papers were extracted and applied after applying the inclusion and exclusion criteria. As the results obtained by the studies explain, a high percentage of the papers focused on stress management, crisis control, and management, focusing on employees and providing the solutions to decrease stress, including exercise, establishing beneficial relationships with relaxation, and so on.

**Conclusion:** It is better governments provide remote health care services for patients to diagnose and treat this disease due to the speedy spread of coronavirus, lack of definitive treatment, and absence of sufficient quarantine infrastructure for developed patients. Crisis conditions cause all populations engaged in society to share a common purpose and utilize common values in a cooperative movement and progress.

**Key words:** Coronavirus, Corona disease, COVID-19 virus

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## Introduction

Historiography and studying the progress trend of science and technology obviously indicate the fact that the research has constantly been developed under the bitter human experiences in significant crises and crises as threatening factors with all their harms and bitterness, willingly or unwillingly, have constantly been considered as the most significant factors to transform, grow, and develop the science and technology paths (1). Despite all made advancements, human beings still should conduct many studies in various newfound scientific fields. The Corona crisis in this short period of its emergence, while affects the human thoughts and beliefs directly, has been able to show its potential to provide new developments in the science, technology, economics, politics, culture fields, and other aspects of human life and force the thinkers to rethink and make necessary to present a transforming redefinition of the current structures of societies in the early years of the third millennium (2).

Research originally analyzed the causes of the disease, but there has been an increase in papers related to prevention and control of the disease by passing the time. So far, research has determined that the virus is originated in the Wuhan Seafood Market, but no specific species of animals have been confirmed. Symptoms that were reported in patients include fever, cough, fatigue, pneumonia, headache, diarrhea, hemoptysis, and dyspnea/shortness of breath and preventive measures such as masks, observing the hand hygiene measures, avoiding the public contact, diagnosing the cases, contact tracing and quarantine have been discussed as methods to reduce the spread of the disease, and no specific antiviral treatment has been proven up to now; hence, infected people rely originally on symptomatic treatment and supportive care (3). Some measures should be taken to follow up patients after discharge from the hospital in addition to treating patients suffering from corona disease during hospitalization, for example, to contact the medical centers accountable to follow

up patients suffering from corona disease after discharge from the hospital; to provide the patient's medical records and files, and to send information and statistics associated with discharges to upstream committees and centers (4).

This disease's mortality rate is 2 % despite its highly contagious value, which is lower than many infectious diseases such as the flu. The virus is as contagious as the SARS virus. As the studies conducted by the Chinese explain, each patient suffering from corona disease can infect an average of 2.2 persons. Each patient suffering from SARS could also infect an average of 3 persons (3). As stated, this disease causes a lot of difficulty for the health system and hospitals because of its contagious nature and unknown techniques to treat it. Hence, this review paper was conducted to collect non-clinical (laboratory) and managerial studies in the field of corona disease in Iran and other countries and collect experiences in this respect and provide a model in this regard and apply techniques that help to reduce the difficulties of this disease in the field of treatment and health. Notwithstanding all conditions that were not realized to collect the data, this paper has been written in the form of a field review paper to better influence and provide experiences and solutions.

## Materials and Methods

We conducted this study in the form of a field review. This method provides an image related to the current situation of research in the field under study. There is one common reason to conduct field reviews that is to identify gaps in research. Unlike a systematic review, a field review is not proper for evaluating the quality of texts, analyzing them, or increasing the findings' potential and generalizability. These kinds of research are suitable when no review has been completed before, and different searches have been applied for the studies. The five proposed steps to conduct these studies include: 1) recognizing the research question; 2) recognizing the related studies; 3) selecting the studies; 4)



data tabulation 5) summary and reporting (5) Studies conducted from the beginning of 2020 until now, means studies from 01/01/2020 to 10/05/2020 were searched in both Persian and English, and the keywords "Coronavirus", COVID-19 were also searched in the databases "Scopus" and "Web of Science", "PubMed", "SID", "Iran medex", "Iran doc" and also in two search engines, "Google scholar".

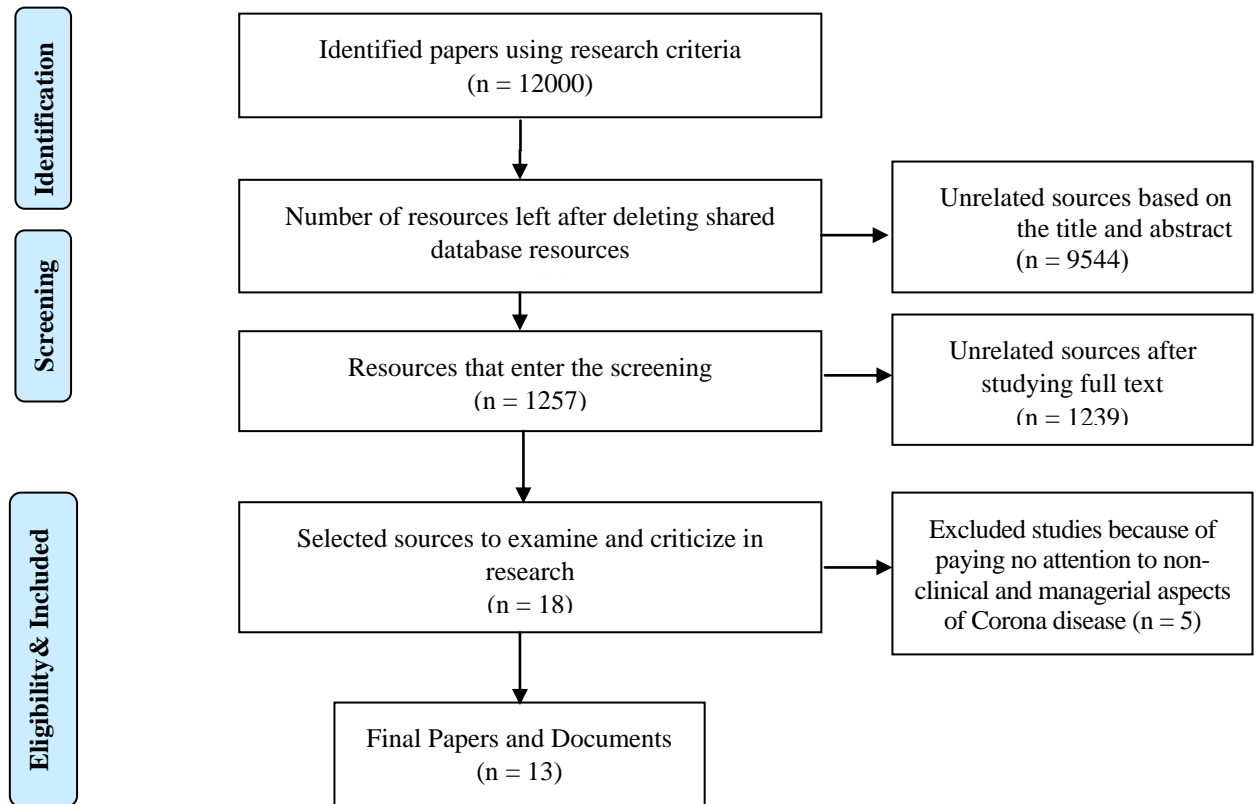
Pubmed database search strategy (for example):

((Covid-19\*[Title/Abstract] OR Coronaviruses [Title/Abstract]) AND ("Disease management\*" [Title/Abstract] OR " Management policies\*" [Title/Abstract]))

The titles, abstracts, and keywords were first analyzed to choose the used documents in terms of thematic connection. The articles that can be practiced in this paper were then extracted by applying the inclusion and exclusion criteria as follows. Inclusion criteria covered all papers associated with the field of coronavirus that were prepared for non-clinical and non-laboratory goals since the beginning of 2020 in the form of the review or non-review experiences, and

exclusion criteria included papers unrelated to the field of corona disease, papers related to the clinical and laboratory aspects of coronavirus and repetitive papers, papers with incomplete text, and the summary that did not contain new material to present in this paper. Also, the papers that have been covered in the review papers, and the review paper has been selected as one of the papers have not been mentioned in the list of papers. The results were then tabulated, summarized, and reported.

In the initial search, approximately 12,000 papers associated with Corona were discovered in all fields, including treatment, management, finance, and so on. Then, 1257 studies remained by examining the titles, abstracts, and keywords. The text of 18 related and required studies of this paper was ultimately used by applying inclusion and exclusion criteria and deleting papers unrelated to Coronavirus's non-clinical and non-laboratory field deleting duplicate papers and papers with incomplete text. In fact, the results of 12 studies were practiced to evaluate the studies conducted by applying the limitations imposed in this study.



**Figure 1.** The Process of Selecting Documents

## Results

Around 12,000 papers were recognized in an initial search. Ultimately, 12 studies were used to examine the studies with restrictions applied in this study by studying the titles, abstracts, and applying inclusion and exclusion criteria and deleting papers unrelated to the non-clinical and non-laboratory field of coronavirus, and removing repetitive papers and papers with incomplete text. After finalizing the papers and studying them fully, the contents obtained by the results were summarized, and the author criticized the contents in necessary cases and mentioned in the study.

Different review studies have always been conducted in various fields in the world, particularly in developed countries. Since Corona is a newfound disease, many review studies have not been conducted in this field after passing more than four months since its outbreak. However, we explain the results of studies conducted in this respect in the following part. Studies conducted by Tavakoli et al. (4) in 2019 prove that the new coronavirus epidemic is more extensive in humans than earlier

coronaviruses, which indicates that this virus is remarkably spread. Consequently, this study's results can be explained that the first recommended solutions to prevent the incident of Corona disease are quarantine, staying at home, not attending in the community, and crowded places except in emergency times.

A study conducted by Weys (6) with the subject "Assessing the psychometric properties of the short form of a fear scale of coronavirus" explains that the short form of a fear scale of coronavirus can be employed as a proper measurement instrument in research about fear of new diseases such as the coronavirus. The results of this study have not been very consistent with the objective of the study, but it is recommended that studies are expanded in this respect according to the importance of the issue of fear of Corona disease among the people and researchers can utilize the instruments discussed in this study.

Since the consequences caused by fear of the disease are not similar to the consequences of the disease, but can cause many significant problems,



and this feature of fear can unquestionably influence the spirit of healthy and sick people.

A study conducted by Cheraghi (7) in 2020 with the subject of the destruction of corona infectious wastes confirms that there are several methods to manage infectious wastes that there are various approaches to them in Iran. Wastes caused by corona sections of hospitals and medical centers, like all infectious wastes, should be converted into safe wastes. So that if this is not realized, it will drive to the spread of the disease from medical centers to the community.

According to the study conducted by Farnoush (8), there are significant methods and points to cope with this disease including the epidemiological and etiological properties of the new coronavirus 2020-2019, not creating stress and anxiety among people, as well as advising and educating people to observe all the health principles, inducing and maintaining peace.

Society can be resistant to disease by coping with stress. There are several measures to protect yourself and reduce stress, including avoiding watching, hearing, or reading repetitive news of corona disease through social media. It will be stressful to hear the repeated news about the spread of this disease in Iran and the world and raises fears and worries. While we are in-home quarantine, it is doubly significant to take care of your body with stress control. Relaxation techniques, deep conscious breathing, stretching exercises such as yoga are extremely advised, and complete information can be achieved about each of them by searching in browsers like Google.

According to studies (9,10), the symptoms of this virus in people suffering from chronic diseases such as cardiovascular disease, diabetes, cancer, hypertension, and chronic respiratory diseases are more critical. The risk of the virus is increased by increasing the age, and there is no definitive cure for this disease. Currently, the only way to control coronavirus 19 is to observe personal hygiene, increase body immunity, and avoid crowding in congested places.

According to a study conducted by Ali Maher et al. (11) as the review paper in the field of COVID-

19, disease management entitled: Reengineering the health care system in Iran stated that electronic health systems are especially significant in recording and tracking cases with corona disease that Iran has had the inevitable activities in this field.

In his study entitled A New Decade with Corona in 2020, Perlman Stanley declared that COVID-19 was spread quickly throughout China during the first 2 months of the current outbreak and caused different rates of disease. Patients referred frequently without fever, and many had no unusual radiological findings. First, stress and individual emotions should be controlled to control and manage the disease in the first stage (12). Although clinical trials and laboratory experiences have caused this study's results, they assist to state facts and experiences related to the objective of our study. Accordingly, since the disease can emerge without common symptoms, the first solution is in-home quarantine and preventing the crowded gathering.

Shen stated in his study on the cases with the SARS-CoV-2 virus in Wuhan, China that the virus can spread quickly in homeless shelters. Speedy interventions, including testing and isolation, are required to distinguish cases and minimize transmission. The CDC recommends that homeless service providers apply proper infection control methods (13) Wei-jie stated in his study on the coronavirus properties in China in 2020, that all populations are susceptible to develop into COVID-19 infection, old age and elderly are highly significant risk factors. The diagnosis rate can be improved significantly by increasing the number of tests, except in people with pneumonia. In fact, proper management and the right implementation of health protocols are among the significant causes of disease control in any country and place. There should also be close monitoring of the performance and treatment process (14).

Buonsenso (15) concluded in his study on acute coronavirus infection in 2020 that healthy nutrition and balance in diet, regular exercise, and stress management in each individual are considered the key causes of saving lives hao Y (16), in a study on the genetic sequence of COVID-19 in China in 2020



has declared that the world is endangered to a unique epidemic in the form of coronavirus 2019 (COVID-19) that has destroyed all aspects of life, particularly health systems. Radiology and diagnostic departments are also at the forefront of the struggle against corona disease and should be considered significantly.

Xu K et al. (17) concluded in their 2020 study on coronavirus disease management that anxiety and fear were common in patients with COVID-19. It is required to follow-up after discharge. Crisis management is the key factor to success in this field.

**Table 1.** The table to examine the conducted studies

Row	Title	Author	Year of publication	Research environment	study method	Aspects of the study	Findings
1	New Coronavirus, a newfound infectious disease in the 21st century	Tavakoli and et al (4)	2019	-	Review	General awareness of the coronavirus	This virus's mortality rate in the elderly and people suffering from underlying diseases is considerably higher than healthy people. The high-risk groups for this disease include cardiovascular patients, diabetics, patients suffering from chronic respiratory diseases, and hypertension, respectively. The mortality rate in healthy people has been estimated to be less than one percent.
2	Evaluating the psychometric properties of the short-form fear scale of developing into coronavirus disease	Saeed Weysi (5)	2020	People all around Iran	Quantitative	Fear of developing into corona disease	The model's fit characteristics showed that the proper research data fit with the factor structure of the fear scale to develop into Coronavirus. The correlation coefficient of convergence validity of the scale with future anxiety was 0.59. With the death phobia scale, the correlation coefficient was 0.58, and the significant level was 0.01, which indicates the convergence validity of this scale.
3	The most appropriate method of disposal of infectious wastes to optimally manage corona wastes	Cheraghchi (7)	2020	Iran	Qualitatively	The most proper method of disposal of infectious wastes to manage optimally the corona wastes	There are several methods to manage infectious wastes, and there are different perspectives on them in Iran. According to the environmental health expert's perspective, the most important priorities in sterilizing infectious wastes are maintaining public health and non-transmission of pollution to the environment.
4	Identifying modern coronavirus-2019 and COVID-19 based on an available evidence-	Mr. Farnosh (8)	2020	Iran	Review	Corona identification	Studies conducted by Wang et al. showed that the mortality rate is 1.10 %. According to Huang et al., this rate was 24 %. A study conducted by Wu et al. estimated that the mortality rate had been 20 %. In the study conducted by Zhu et al., this rate was 99%. Guan et al. reported a mortality rate of 0.2 %. According to official data published by China,



Row	Title	Author	Year of publication	Research environment	study method	Aspects of the study	Findings
	review study						the mortality rate of COVID-23 patients was 9.1 %, and this rate is 7.0 % according to the published meta-analysis, this rate.
5	A summary of coronavirus disease and what has been known about it.	Taheri (9)	2020	Iran	Review	General aspects of coronavirus include prevention, prevalence, and control	Causes of the incubation period's prevalence and the way it occurs are more critical in high-risk individuals. There is no definite cure yet.
6	Distributing the wrong information in the global corona crisis	Zare Gavvani (10)	2020	Iran	Review	Corona rumors	The crisis has been started in China; the prevalence of corona in Iran is growing, Iran and Italy have the highest death rates after China.
7	COVID-19 disease crisis management: Reengineering the Health Services System in Iran	Ali Maheer (11)	2020	Iran	Review	Crisis Management	The COVID-19 disease crisis, led to forming a new system called the health/Salamat system from the existing infrastructures hospital HIS, etc., to communicate the first, second, and third levels.
8	A new decade with Corona	Perlman Stanley (12)	2020	China	Review	Corona state	During the first 2 months of the current outbreak, COVID-19 was spread quickly throughout China, caused differing degrees of disease. Patients were frequently referred to without fever, and many had no abnormal radiological findings.
9	Cases of SARS-CoV-2 virus in Wuhan, China	Shen N (13)	2020	Wuhan	Cross section	Infected cases	The shortness of virus management and control can cause to spread this virus quickly in homeless shelters. Rapid interventions, including testing and isolation, are fundamental to identify cases and minimize transmission. The CDC suggests that homeless service providers should apply suitable infection control manners.
10	Examining the features of the coronavirus in China in 2020	Wei-jie (14)	2020	Wuhan	Cross-sectional	Virus features	All populations are susceptible to COVID-19 infection, and old age and being elderly are major risk factors. Increasing the number of tests can significantly improve the diagnosis, except in people suffering from pneumonia.
11	Examining acute coronavirus infection in 2020	Buonso D (15)	2020	Wuhan	Cross-sectional	Acute coronavirus infection	Healthy nutrition and balance in the diet, regular exercise (preferably indoors such as using a treadmill, roping, balanced weightlifting or hiking in the yard), adequate sleep and rest, and ultimately not utilizing



Row	Title	Author	Year of publication	Research environment	study method	Aspects of the study	Findings
12	Examining the genetic sequencing of COVID-19 disease	Zhao Y (16)	2020	China	Cross-sectional	Genetic sequencing	drugs or alcohol are the most important ways to care the body. Stress control is another significant solution.  The world is confronting an unusual epidemic in the form of coronavirus 2019 (COVID-19), which has destroyed all aspects of life, principally health systems. In particular, radiology services have been at risk that affected many patients, unless serious efforts are made to control and reduce the virus.
13	Coronavirus disease management in 2020	Xu K (17)	2020	China	Cross-sectional	Coronavirus disease management	Anxiety and fear were common in patients with COVID-19. Accordingly, dynamic assessment and warning for the psychological crises have been provided. Treatment was also used to promote disease rehabilitation in traditional Chinese medicine. The nursing process was optimized for critical patients, and their rehabilitation was improved. It is essential to follow-up on the patients after discharge.

## Discussion

According to conducted studies, the COVID-19 virus has been distinguished as a global epidemic in the new decade, which is transmitted through the respiratory tract. The virus has infected virtually all countries in less than a month. People who developed into the disease with symptoms of cough, shortness of breath, fever, and ague were quarantined to prevent the spread of the virus, but the most important carriers of the disease were the asymptomatic patients who were in the incubation period. Consequently, the countries engaged with this disease asked all their people to quarantine themselves at home and stop face-to-face contact with each other. In fact, to state more clearly, human societies, including streets, shops, businesses, etc., must all be closed and shut down until the corona disease is definitely controlled or cured. It is a more satisfying way that government provide remote health care services to diagnose and treat the disease for people according to the fast spread of the coronavirus, the absence of definitive treatment, and the absence of sufficient quarantine infrastructure for affected patients. Crises let all society populations possess a

common goal in a coordinated movement and follow common values: disease prevention and control. In other words, crises cause to emerge a new meaning in the individual's social life that has not been before or has been very low (9, 10, 12).

According to the COVID-19 crisis in the world, the countries engaged with this crisis have attempted to provide better health services to the people and made important management decisions to control the new coronavirus (11). Since the COVID-19 epidemic may be the most devastating global challenge and threat in recent history, timely, suitable, and cost-effective policies and measures should be taken to control and decrease its deadly consequences. Additionally, the consequences of the disease during an epidemic such as fear, anxiety, obsession and physical and mental injuries induced by the disease for children, destruction of social interactions, etc. should also be recognized along with this epidemic (11)

One of the problems in the United States and other countries is the low number of personal protective equipment to manage COVID-19 crisis because protective equipment is currently used every day by health care personnel to protect





themselves, patients, and others at the time of providing care. Strategies to optimize the application of protective equipment, train the application of personal protective equipment and proper methods to sterilize the surfaces should be given before patient care activities (18). Manufacturing companies and factories producing medical and therapeutic equipment and companies affiliated with the Ministry of Health increased producing the medical equipment and personal protection to several times the earlier production to satisfy the country's needs in Iran in the appearance of this crisis. Also, some non-governmental organizations automatically acted to provide masks and personal protective clothing. In Europe, crisis management has been acted based on the principles of instant separation of symptomatic or suspected individuals, prevention of gatherings, particularly indoors, observing the social distance, canceling the unnecessary travel, closing the schools and educational centers, care for the elderly, and children (19).

Anxiety is a common symptom in patients suffering from chronic respiratory disorders and can considerably reduce patients' quality of life. Anxiety includes physical cases in the form of measuring cases that can overlap with the symptoms of chronic respiratory disease and the side effects of medicines. Accordingly, it is significantly important to control anxiety and stress in the face of an epidemic of the disease (14, 16). The results of the study conducted by Shahed Hagh Ghadam et al (20) to conduct a review study on the consequences and psychological interventions in the COVID-19 pandemic determined that during the COVID-19 pandemic, negative psychological effects such as post-traumatic stress disorder, depression, anxiety, stress, sleep disorders, and anger were significantly raised in the treatment personnel and other people involved with COVID-19. Stressors include health anxiety, conspiracy theories, extended quarantine time, fear of disease transmission, frustration, fatigue, low protective equipment, inadequate information, financial loss, rumors, negative beliefs about vaccination, and syrup. Besides, the findings confirmed that the

online cognitive-behavioral therapy approach is effective at the time of the corona outbreak (20).

There are various measures to protect yourself and reduce stress, including avoiding watching, hearing, or reading repetitive news of corona disease through social media. It is stressful to hear the repeated news about the spread of this disease in Iran and the world and increases fears and worries. While we are in-home quarantine, it is significantly important to take care of your body with stress control. Relaxation techniques, deep conscious breathing, stretching exercises such as yoga are extremely suggested, and it is possible to achieve complete information about each of them by searching in browsers like Google. Additionally, healthy nutrition and providing a balance in diet, exercise regularly (preferably indoors, such as using a treadmill, roping, balanced weightlifting, or scudding in the yard), take enough sleep and rest, and ultimately avoid drugs or alcohol are the most important alternatives to take care of the body. It is more satisfying to spend your time on enjoyable activities, including reading books and novels, training a musical instrument, knitting and sewing. Conclusively, it helps us connect with people we trust through social media and talk about our concerns and emotions (21).

We should pay attention to another point in this paper that is the management of the COVID-19 epidemic crisis. The COVID-19 disease crisis was directed to form a new system called the Salamat System from existing infrastructures such as the Sepas System, Hospital HISs, the Sib System, etc., to communicate the first, second, and third levels. In such a way that after finding suspicious or infected people, if the person needs, a person should be in-home quarantine or referred to a comprehensive health center or hospital. Furthermore, it is possible to follow-up on the patient's treatment through this system, and it is recorded regularly. Hence, people who have been in contact with the patient are observed through the system and health care providers also record their information during contact with these people and, if needed, they will be referred to comprehensive



health centers (first level) or general hospital (the second level) or specialized hospital (the third level). However, until now, it was not possible to follow the status of referral patients from level one to higher levels, and crisis management of COVID-19 disease caused to create a complete chain of referrals electronically in the Iranian health system. (11) The authors of this paper believe that the most remarkable point about the effect of COVID-19 in Iran is to turn the disease threat into an opportunity to create an integrated disease management system. In this way, diagnosing and following up the patient should be started from comprehensive health centers and actively through cyberspace (Iranian Health System) and telephone, and all cases are registered in their electronic files after referring the patient to the hospital and after discharge when transferring to the convalescent home. Meanwhile, all patients' files are accessible online, including all digital images, tests, and file sheets in twenty hospitals affiliated to Shahid Beheshti University of Medical Sciences (11). According to the growing number of patients with Covid-19 disease, the Ministry of Health of each country selects a person responsible for managing this crisis, which this information is recorded and presented every day by medical centers and intelligent health systems to make better and more appropriate decisions based on their number (22). The findings obtained by other studies also show that the COVID-19 virus has a very high pandemic and is spreading quickly. There some important cases such as management strategy to control the disease, crisis management, control and prevention of virus transmission in high-risk places such as nursing homes, welfare centers, homeless care centers and among the elderly (11-13).

Hospitals produce more waste because of the spread of the new coronavirus in recent months and many hospitals' visits. Growing concern has been produced since the disease is originated by a virus, which can live on surfaces for hours and is transmitted through contact with infected surfaces. The waste produced in the control and treatment of

this disease is viewed as infectious waste because the tools utilized for people suffering from coronavirus can also transmit the virus. There are numerous methods to manage infectious wastes that there are different approaches to them in Iran. The most important priorities in sterilizing infectious waste from the environmental health expert's perspective are maintaining public health and not transmitting pollution to environmental elements. Hygienic aspects are the most significant priority in the management of infectious waste. Consequently, the most suitable methods to sterilize this type of waste are autoclave and microwave. It is not suggested to apply waste incinerators and landfills to manage and purify infectious waste. (7)

### Conclusion

It is significant to collect studies in this regard due to the epidemic prevalence of corona in the world and in Iran. Issues such as electronic health and telemedicine and electronic records and management issues such as those mentioned have been considered important in this crisis. There are some significant cases to control the disease, such as management issues and the capacity to control the situations in times of crisis and move to the disease's peak. Emphasis on observing the principles of personal protective equipment, observing the quarantine principles, proper disposal of infectious wastes, and applying the entertainment to reduce stress in individuals are among the fundamental principles to manage the coronavirus pandemic.

We had difficulty searching the papers in this field due to the Internet's slowness and the absence of access to the full PDF, and consequently, the studies' scope was decreased.

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### Conflict of interests

The authors declared no conflict of interests in this study.

**Authors' contributions**

Najafi M and Ghorbani A designed research; Najafi M and Rajaei R designed the research; Najafi M, Rajaei R and Baghian N collected data; Rajaei R, Baghian N, Jamal Mohammadi A, Pouragha B and Nazari M analyzed data; Rajaei R and Ashrafi E wrote manuscript. All authors read and approved the final manuscript.

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