



# A Systematic Review on the Use of E-health for COVID-19 Pandemic Management



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## ABSTRACT

**Aims** Electronic health can lead to health preservation and promotion using information and communication technologies to receive and record accurate data, appropriate storage, and retrieval, as well as the health information management approach. The present systematic review aimed to assess the E-health application during the COVID-19.

**Information & Methods** The present systematic review was done based on PRISMA protocols. The study data were retrieved using the E-health and COVID-19 keywords in the related studies from August 4, 2021, in PubMed, Scopus, Magiran, and Sid databases. Moreover, the inclusion criteria were original research studies that used E-health to manage patients with COVID-19.

**Findings** A total of 10 articles were included in the study, 40% of which focused on the impact of E-health on reducing fear and anxiety caused by COVID-19, 30% on the E-health in early diagnosis and progression of the disease, 10% on the E-health application in the field of prevention, 10% on E-health in the field of disease control, and 10% on E-health for quick investigations of the disease process and access new medical information. The used technologies included virtual training through WhatsApp video calling, Instagram, iGap and Telegram voice and text messaging, artificial intelligence, and data mining techniques.

**Conclusion** E-health tools played a prominent role during the COVID-19 in the prevention, diagnosis, control, and fear reduction of coronavirus disease. Various practical strategies such as financing, implementation and legal requirements can be considered to effectively use the capabilities of eHealth tools in disease management.

**Keywords** Coronavirus; E-health; Electronic Health Records; Telemedicine

## CITATION LINKS

[1] Coronavirus disease 2019 (COVID-19) ... [2] The outbreak of COVID-19: An ... [3] Features, evaluation, and treatment of coronavirus ... [4] Coronavirus disease 2019 (COVID-19): A literature ... [5] Characteristics of SARS-CoV-2 and ... [6] COVID-19 and ... [7] COVID-19 vaccine perception in South Korea: Web crawling ... [8] COVID-19 vaccine hesitancy among medical ... [9] Burden of disease of COVID-19 ... [10] COVID-19 outbreak: Migration, effects on society ... [11] Identifying and analyzing the resilience ... [12] A cost- effectiveness framework for COVID-19 ... [13] Stigma of Covid-19: The basic challenge ... [14] Relationship between eHealth literacy and psychological ... [15] Telemedicine and E-health research solutions ... [16] Digital technologies in the ... [17] Communicating laboratory results through ... [18] COVID-19 y vacunación: Análisis del papel ... [19] The use of E-health and m-health tools in health promotion ... [20] The role of E-health in improving control and management ... [21] The role of eHealth, telehealth, and telemedicine ... [22] Use of telehealth during the COVID-19 pandemic ... [23] Application of information technology models, approaches ... [24] Preferred reporting items for systematic reviews ... [25] The effectiveness of case virtual reality... [26] The effectiveness of internet-delivered cognitive ... [27] The effectiveness of distance education ... [28] Evaluation of lung involvement in ... [29] Modeling of self-assessment system of ... [30] Identifying and analyzing the resilience components ... [31] Fuzzy sliding mode controller design and analysis ... [32] Evaluation of the effect of education ... [33] Design of Covid 19 question answer system ... [34] Proposing an effective technological ... [35] Application of telemedicine and ehealth ... [36] Social media, ethics and the privacy ... [37] Digital health solutions to control ... [38] The electronic health literacy and utilization ... [39] Social media and health care professionals ... [40] The role of leadership in a digitalized world ... [41] Social network analysis of COVID-19 sentiments ... [42] Video consultations for ... [43] Virtual work meetings during the ... [44] Implications for online management ... [45] The role of electronic health during the ... [46] An overview of clinical decision support ... [47] Quality-in-use characteristics for ... [48] Covid-19 screening on chest x-ray the ... [49] Using information technology to manage ... [50] Cloud-based system for effective surveillance ...

## Introduction

The coronavirus disease 2019 (COVID-19), first reported in Wuhan, China, in late 2019, posed a serious global challenge to public and individual health [1, 2]. According to literature and evidence, COVID-19 is a highly contagious viral illness rapidly spreading worldwide [3-5]. The World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic on March 11, 2020 [6]. The disease has rapidly spread, so that a total of 213,752,662 cases were affected by COVID-19, and 4,459,381 deaths were reported to the WHO by August 26. In Iran, 4,796,377 cases were affected by COVID-19, and 104,022 deaths were reported to the WHO from January 3, 2020, to August 26, 2021 [7].

The COVID-19 pandemic has resulted in heavy casualties in terms of disease burden, as well as mortality and morbidity worldwide [8, 9]. This pandemic challenged the world health system and rapidly spread to other economic and social spheres [10].

Iranian society was not spared from this pandemic and its challenges, and hospitals also faced financial difficulties [11]. The costs of medical centers have increased due to factors such as the allocation of some hospitals as reception centers for patients with COVID-19, the duration of therapy, the follow-up care after patients' discharge, and the construction of hospice centers [12]. Other reasons for their income decline are the cancellation of elective surgery, the provision of personal protective equipment, the preparation of welfare facilities for medical staff, and the requirements for consideration of various aspects of public health and public education [13].

This disease has not only affected people's health but also caused social, economic, and political losses [14]. Accordingly, researchers from around the world are focusing on virus identification, treatment, and vaccine development. However, applying some technologies and systems to combat the emergence of the disease, stop its spread, and disease management is of great importance [15].

The E-health programs can reduce the spread of COVID-19, save the lives of people and healthcare providers, and significantly help better the management of epidemics worldwide [16]. E-health is the application of Information and Communication Technologies (ICT) for health, and these technologies are increasingly used due to the capacity of E-health programs to provide healthcare services in many remote and deprived communities where access to healthcare services is difficult [17]. According to the WHO reports, the E-health tool is the most important program for transforming the health system in the 21<sup>st</sup> century [18].

The E-health tool is an electronic device or monitoring system used by physicians in healthcare or individuals to monitor or improve their health. It refers to online and offline computer-based

applications as well [19]. These virtual platforms help physicians easily diagnose the early symptoms of COVID-19 before the patient arrives at the hospital [15]. Al-Ruzzieh *et al.*, in their systematic review entitled "Study of the role of E-health in the control and management of COVID-19", concluded that E-health is an alternative to education, data analysis, and safe healthcare through improved coordination and secure communication, contributing the control and management of COVID-19 [20]. Bitar and Alismail, in their SWIFT-review study, suggested that the application of E-health tools, telehealth, and/or telemedicine is required to provide healthcare services to patients with chronic diseases during the COVID-19 pandemic and even in the future and post-COVID-19 crisis [21].

According to the results of the study by Doraiswamy *et al.*, the widespread use of telemedicine during the COVID-19 pandemic is required to manage an extensive range of non-communicable and contagious diseases, including COVID-19, as well as medical education [22]. In addition, Mohammadzadeh *et al.*, in a study entitled "An overview of the applications of information technology in the management of COVID-19", found that the application of distance health technologies such as telemedicine has been more tangible to follow social distance. The results of this study also showed that screening systems and rapid diagnosis with the help of artificial intelligence are useful due to the similarity of the symptoms of COVID-19 with other respiratory diseases [23].

Since E-health is widely used in the healthcare system and its application advantages in the management and provision of healthcare are significant, the characteristics of the Iranian healthcare structure necessitate the development of this technology, particularly during the COVID-19 pandemic. Therefore, the present systematic review aimed to investigate the impact of the application of E-health tools in the management of COVID-19 disease in Iran.

## Information and Methods

### Information sources and search strategy

The present study is a systematic review to apply E-health tools in COVID-19 management in Iran. For this purpose, SID, Magiran, and Irandoc databases were searched to retrieve Persian articles, as well as PubMed and Scopus databases were used to retrieve English articles. Data retrieval and extraction steps were performed based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) model [24].

The resources in the above-mentioned scientific databases were designed based on the search strategy by combining two groups of keywords related to the research topic, including keywords describing E-health and COVID-19 disease. The

keywords used to search for articles are listed in Table 1.

**Table 1)** Search strategy in scientific databases

Criteria	Search strategy
Time	From December 2019 to August 4, 2021
Language	English and Persian
Database	SID, Magiran, Irandoc, Scopus, PubMed
#1	COVID-19 "OR" SARS-COV-2 OR "Coronavirus" OR 2019-nCoV OR Coronavirus disease 2019
#2	E-health
Search	#1 AND #2

### Inclusion criteria

The original articles regarding the application of E-health tools in the management of COVID-19, published from December 2019 to August 4, 2021, were included in the study.

### Exclusion criteria

The articles published in a period other than or unrelated to the COVID-19 pandemic were excluded from the study. The papers published in languages other than Persian and English were also excluded from the investigation. Other types of articles and studies, including reviews, short communications, letters to the editor, case reports, and technical reports, were excluded as well.

### Study selection and data extraction

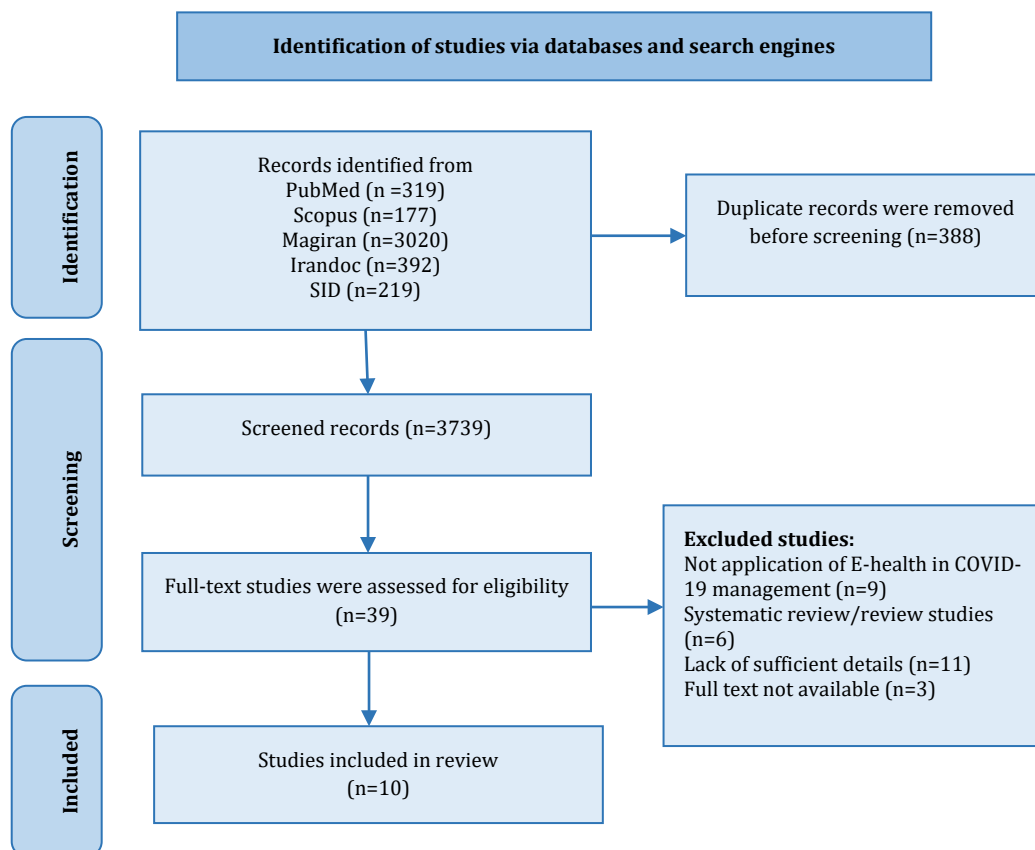
Following the selection of studies based on the inclusion and exclusion criteria, data were collected using a data extraction form following the study

objectives. The titles, abstracts, and full manuscripts were independently reviewed by two researchers, and if there was a discrepancy in the articles, they were referred to another person. The data extraction form consisted of eight parts, including the name of the first author and year of publication, the study objective, target population, methodology, impact of E-health tool on the COVID-19 management, applied technologies, duration of technology application, and conclusion. Following the data collection using the data extraction form, the data were analyzed using the content analysis method. Afterward, the results were summarized and reported based on the study objectives in the form of tables, diagrams, and figures. The retrieved articles were entered into the resource management software (Endnote).

## Findings

### Number of studies

In the initial review of five databases, a total of 4,127 articles were retrieved and entered into the software. Ten articles ultimately remained after removing duplicate, irrelevant items based on the evaluation of the title, abstract, and full text. The search strategy of these articles is shown in Figure 1. Among ten studies, five articles were clinical trials (Four quasi-experimental and one experimental), four articles were developmental, and one paper was a descriptive-applied study.



**Figure 1)** Diagram of the article selection process based on PRISMA workflow

### Objectives of studies

40% of articles (n=4) mainly focused on the impact of E-health tools on reducing fear and anxiety caused by COVID-19, 10% of articles (n=1) on the impact of E-health tools on reducing fear and anxiety associated with prevention of COVID-19 and adherence to a treatment regimen.

Moreover, 30% of the articles (n=3) analyzed the impact of E-health tool on the diagnosis of COVID-19, 10% of the articles (n=1) considered the impact of E-health tool in suppressing the spread and control of the disease, and 10% (n=1) reviewed the system for quick response to questions related to COVID-19 and increasing the speed of access of medical staff to medical, therapeutic, and diagnostic data using E-health.

### Technologies applied in E-health and the duration of their usability

To implement E-health tools, cyberspace

technologies, artificial intelligence algorithms, and data mining techniques were used in 50% (n=5), 40% (n=4), and 10% (n=1) of articles, respectively. The technologies used in cyberspace in 40% of articles (n=4) included voice, text message, and video calling in the social media platform WhatsApp, Telegram, Instagram, as well as iGap, and no special platform was mentioned for 10% of articles (n=1).

The artificial intelligence algorithms were used in the articles to model and design systems for determining the pulmonary involvement of patients with COVID-19, predicting COVID-19 disease, suppressing and controlling the pandemic, and quick responding to questions related to COVID-19 for diagnostic and therapeutic purposes. Moreover, data mining techniques were used for the timely and effective diagnosis of COVID-19 disease.

Furthermore, the intervention duration using E-health services varied between 2-8 weeks (Table 2).

**Table 2)** Major and descriptive features of E-health tool in literature

First author name/Publication year	Study type	Study objective	Target population	Methodology	Applied technologies	Technology usability duration	Impact of E-health on COVID-19 management
Shomali-Ahmadabadi [25]/2020	Study type Quasi-experimental	Study of the impact of virtual case therapy on COVID-19 anxiety	All men and women with COVID-19 disease in 2019 in Ardakan, Yazd	Pre-test and post-test research for two groups of 9 people in the control and experimental groups Virtual case therapy for the intervention group in 6 one-hour sessions and three sessions per week	Telegram software (in the form of confidential conversation through voice and written messages between the therapist and clients)	6h in two weeks	Implementation of virtual case therapy technology in a virtual way significantly reduced anxiety scores and the physical and psychological dimensions of COVID-19 anxiety.
Jani [26]/2020	Quasi-experimental	Effectiveness of internet-delivered cognitive behavior therapy on reducing corona-related anxiety	All employees aged 25-45 in hospitals and health centers in urban and rural areas of Parsabad County	Pre-test & post-test research for two groups of 10 people in the control and experimental groups. Cognitive-behavioral therapy sessions for the experimental group in 90-min six sessions twice a week. Teaching the techniques to individuals online in each session in two-way communication	WhatsApp or Instagram video call	9 h in three weeks	Distance education was effective in reducing COVID-19 anxiety.
Shabani [27]/2019	Quasi-experimental	The effectiveness of distance learning package on reducing the anxiety of English language learners	All language learners under distance education in English language schools in Ardabil province(2019)	Pre-test & post-test research for two groups of 15 people in the control and experimental groups COVID-19 prevention training protocol in ten 15-min sessions during the virtual English class Relaxation methods, cognitive reconstruction approaches, and mindfulness topics	WhatsApp and Instagram	2 h and 30 min over three weeks	Distance education had a positive effect on reducing COVID-19 anxiety.
Karsaz [28]/2020	Developmental	Determination of pulmonary involvement in patients with COVID-19 from on CT scan images using artificial intelligence algorithm	GitHub COVID-19 Image Bank	Measurement of the progression or reduction of the infection level in Chest X-ray images by multi-objective differential evolution: 1. Determining the area and volume of the patient's lung in CXR at the first visit. 2. Co-dimensioning different CXR images of a patient. 3. Determining the matching window in CXR 1. 4. Determining the matching window in CXR 2. 5. Matching two images and removing extra margins of the images. 6. Determining the area of progression of the patient's COVID-19 involvement. 7. Calculating the percentage of patient lung involvement.	Image processing techniques and artificial intelligence algorithms	-	The proposed artificial intelligence algorithm has effectively detected pulmonary involvement and disease progression in patients with COVID-19.



Continue of Table 2 from the last page.

<b>Kamarzarrin</b> [29]/2020	Developmental	Diagnosis and determination of COVID-19 disease	Data received from Corona Specialized Clinic of Ebnesina Hospital in Tehran	Development of a predictive model of COVID-19 disease using the steps as follows: - Division of inputs and outputs into fuzzy intervals to obtain system inputs from the data extracted from WHO and a questionnaire distributed in Ebnesina Clinic. - Structure of fuzzy rules based on available information and 98 rules under WHO guidelines. - Fuzzy rules to predict fuzzy membership functions. - Screening the disease and diagnosis of its type using MATLAB software.	Sugeno fuzzy artificial intelligence model	-	Sugeno fuzzy artificial intelligence model has effective results in diagnosing and determining the type of COVID-19 disease and can predict and evaluate the disease.
<b>Mohammadzadeh</b> [30]/2019	Quasi-experimental	Study of the effectiveness of distance education of healthcare and e-drug supervision for: 1. Prevention of COVID-19 2. Reducing COVID-19 anxiety 3. Increasing adherence to the treatment regimen in patients with experience of coronary artery bypass graft surgery	All patients discharged from Imam Khomeini Hospital in Ardabil after coronary artery bypass surgery	Pre-test & post-test research for two groups of 5 people in the control and experimental groups The intervention group lasted four weeks (10 sessions of 15 min each) in addition to routine care: 1. Training for COVID-19 prevention and training for coronary heart disease. 2. Online or electronic visits by a heart specialist. Content of the self-training program: Discussions on the nature of coronary artery disease, risk factors, complications, and ways to control anxiety; Emphasis of intervention on increasing the acceptance of the drug regimen, dietary pattern, weight loss if needed, regular physical activity at home, and smoking cessation; Provision of an electronic self-management training booklet for patients to do their homework to prevent COVID-19; Training regarding the nature, history, ways of transmission, and methods to prevent its risks for heart patients.	Cyberspace, video calling (WhatsApp, Instagram, iGap)	Two and a half hours over four weeks	Implementation of the distance education program of healthcare and electronic drug supervision to prevent COVID-19 disease, improve adherence to the treatment regimen and reduce anxiety against COVID-19 disease in patients with coronary artery bypass experience
<b>Mehra</b> [31]/2020	Developmental	Determining the quarantine rate for the COVID-19 pandemic using an artificial intelligence algorithm	-	1. Modeling of COVID-19 disease using the SQEIR model. 2. Modeling the control entry rate for the entry of susceptible individuals into quarantine. 3. Slip model as a controller to obtain the quarantine rate of susceptible individuals. 4. Assessment of the proposed model in the presence of a sliding mode controller. 5. Simulation by MATLAB software to evaluate the controller's performance and confirm the theoretical results.	AI fuzzy slider mode controller algorithm	-	The proposed model and artificial intelligence algorithm controlling the slip model have a good performance in suppressing and controlling the disease outbreak.
<b>Mirzaei</b> [32]/2020	Experimental	Determining the effect of virtual education on reducing mortality anxiety in diabetic patients with coronavirus	All diabetic patients with coronavirus referred to Seyed Al-Shohada Center in Zabol	Pre-test & post-test research for two groups of 35 people in the control and experimental groups Distance education model in 8 sessions in the form of distance group training and one session per week for the intervention group. Sessions were in groups of 7 for 60-90 min. Provision of an educational booklet to patients.	Virtual training	8-12 h during eight weeks	The virtual education model can effectively empower and, most importantly, reduce death anxiety in diabetic patients with COVID-19.
<b>Yazdinejad</b> [33]/2021	Developmental	Designing an AI-based system to respond to questions about COVID-19 and obtain information	A collection of 1690 questions and responses about COVID-19 from 13 different sources	1. Document retrieval system to limit the number of articles related to the question asked by the user. 2. Using the Brett-SQuAD artificial intelligence model for the final diagnosis of answers. Latest scientific findings in the COVID-19 research databases on reputable scientific and medical sites with daily updates. Using the Brett-Squad artificial intelligence model to find the answers, ranking the results, and issuing the final answer to the user in a summary form	Brett-SQuAD AI model	-	The artificial intelligence algorithm (Brett-SQuAD) is more than 92% accurate in answering questions about COVID-19 and has good performance.

Continue of Table 2 from the last page.

Nopour <sup>[34]</sup> /2021	A retrospective and descriptive-applied study	Study of the efficiency of selected data mining algorithms in the diagnosis of COVID-19 disease	Application of recorded data of hospitalized patients with a definitive diagnosis of COVID-19 in the database of Ayatollah Taleghani Hospital in Abadan	<ol style="list-style-type: none"> <li>1. Determining the diagnostic criteria of COVID-19</li> <li>2. Data mining using Weka-3/9 software</li> <li>3. Selection of data mining algorithms, including: <ul style="list-style-type: none"> <li>- Multilayer Perceptron (MLP)</li> <li>- Bayesian Net</li> <li>- Logistic regression (LR)</li> <li>- Decision Tree J-48</li> </ul> </li> <li>4. Evaluation of the efficiency of data mining algorithms using turbulence matrix based on various assessment criteria, including: <ul style="list-style-type: none"> <li>- Sensitivity</li> <li>- Precision</li> <li>- Matthews-Correlation-Coefficient (MCC)</li> </ul> </li> </ol>	Use of data mining models included: <ul style="list-style-type: none"> <li>- Multilayer Perceptron (MLP)</li> <li>- Bayesian Net</li> <li>- Logistic regression (LR)</li> <li>- Decision Tree J-48</li> </ul>	The application of selected data mining methods, and in particular the j-48 decision tree algorithm, has a high capability in the timely and effective diagnosis of COVID-19 disease in the form of clinical decision support systems.
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## Discussion

The present systematic review aimed to study the impact of the E-health application in the management of COVID-19 in Iran. The results indicated that the E-health tool application has a significant impact on the management of COVID-19 disease, so that the application of the E-health tool has an effective role in reducing fear and anxiety caused by COVID-19, increasing adherence to treatment, suppressing the spread and control of disease, and helping to diagnose and preventing behaviors. The application of interactive tools of cyberspace and the web, artificial intelligence, and data mining have been the most significant technologies applied in E-health.

In general, telemedicine services, mobile health, e-learning, social media, health data analysis, big data, and electronic health records are among the important areas of E-health <sup>[20, 35]</sup>.

According to the results of the present study, in half of the studies, cyberspace and web-based technologies were used to manage the COVID-19 crisis. Since cyberspace and social networks have many opportunities and threats, it is necessary to understand cyberspace properly and use it correctly <sup>[36]</sup>. Therefore, experts' continuous evaluation of cyberspace and social networks, particularly during the COVID-19 pandemic, seems necessary due to their ubiquity and strong presence in human life. On the other hand, it is also recommended to pay attention to the national internet network, strengthen the intra-infrastructure of cyberspace, and support internal messengers.

According to the results of a review study by Kalhori *et al.* <sup>[37]</sup> in 2021 on digital health strategies to control the COVID-19 pandemic in countries with a high prevalence of the disease, although Italy is one of the countries with the highest prevalence of COVID-19, E-health technologies are not significant to prevent and manage the COVID-19 pandemic in the country. Their study also reported that half of Italy's population has a very low level of digital literacy. Since E-health literacy is required to make better use of E-health technologies <sup>[38]</sup>, it is important to address E-health literacy to use these technologies appropriately.

Several states and healthcare institutions apply social media tools to promote patient care, patient education, professional networking, and organizational promotion <sup>[39]</sup>. The WHO has used WhatsApp and Facebook to send COVID-19 data to billions of people in many languages, including English, Arabic, and Spanish <sup>[20]</sup>. The application of cyberspace, such as social networks, has been welcomed by the people due to its widespread use in today's societies, as well as its interactive and instant messaging features <sup>[40]</sup>. Therefore, in the current situation where social networks play a pivotal role in managing COVID-19, their content, function, and role in the management of COVID-19 should be further studied and evaluated <sup>[41]</sup>.

According to the results of a study by Greenhalgh *et al.* <sup>[42]</sup> on video consultations for COVID-19, E-health technologies such as video counseling may be useful for patients with COVID-19 in cases where people need to speak or are anxious and have mild symptoms, which is in line with the results of the present study; i.e., E-health has been effective in reducing fear and anxiety caused by COVID-19 disease in 40% of cases in the present study.

Video counseling allows many people, particularly suspicious patients and susceptible individuals, to stay safe at home and consult with their physicians through virtual platforms <sup>[20]</sup>.

Huang *et al.* confirmed the effectiveness of online monitoring in managing COVID-19. Video conferencing and telecommunications also play a key role in preventing the spread of COVID-19 by providing social distance <sup>[43, 44]</sup>.

Al-Ruzzieh *et al.* <sup>[20]</sup>, in a study on the role of E-health in improving control and management of COVID-19 pandemic, found that E-health plays a pivotal role in strengthening efforts to control and manage COVID-19.

Moreover, the results of a study conducted by Amiri <sup>[45]</sup> on the role of E-health at the beginning of the COVID-19 crisis revealed that the application of different E-health technologies is effective during the COVID-19 pandemic, and machine learning algorithms and artificial intelligence methods can be

used to diagnose COVID-19 disease, which is consistent with the results of the present study.

Decision Support Systems (DSS) can efficiently contribute to the early diagnosis, prevention of disease progression, and reduction of costs [46]. These systems can purposefully provide an intelligent approach for users (Healthcare professionals, patients, and caregivers) to monitor, manage, and improve patients' health with critical information. In addition, decision support systems have the potential to empower patients with a deeper awareness of their condition [47].

Deep learning algorithms are among the most successful artificial intelligence techniques and are effective tools to assist radiologists in analyzing large volumes of X-ray images that can be significant for the efficient detection and screening of COVID-19 [48]. China's experience in managing COVID-19 can be helpful as it has successfully controlled the Coronavirus.

In China, a variety of approaches are being used to manage the COVID-19 pandemic, ranging from web-based and mobile-based systems to cloud-based systems, decision support systems, and intelligent systems. Some of the most important digital tools used in this country are drones, robots, mobile apps, educational websites and media, video conferencing, intelligent infection detectors, intelligent patient trackers, and distance medical systems. The E-health program called Health Code is extensively employed to show the health status of individuals in this country as well [49, 50].

The results of the present study found the researchers' consideration to the application of health information technologies, mainly during the COVID-19 pandemic, and awareness of the widespread use of these technologies. Therefore, it is suggested that health policymakers consider a variety of practical strategies, including financing, implementation, and legal requirements for applying these technologies to use E-health capabilities in disease management more effectively.

## Conclusion

Practical management of the COVID-19 pandemic requires new technologies that can support management at different stages of the disease. E-health technologies effectively support organizations and communities during the COVID-19 pandemic. These technologies play a key role in managing the COVID-19 pandemic with the capability of quickly and extensively distributing information, tracking patients, and creating virtual locations for consultation and daily visits. The E-health technologies will also be useful tools to rapidly share information, prevent the disease spread, promote healthy behaviors, feel social belonging, and help to reduce the psychological burden of COVID-19 disease.

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