

Review Article



Quality of life in cancer patients during the coronavirus 2019 pandemic: A systematic review study

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Abstract

Background and aims: Coronavirus disease 2019 (COVID-19) has caused various psychosocial problems in many people worldwide. Patients with cancer are at higher risk of dying from COVID-19 because of their physical conditions. For this purpose, this research focused on reviewing studies on the quality of life (QoL) in cancer patients during the outbreak of COVID-19.

Methods: In this study, several keywords, including cancer, quality of life, and COVID-19, in the abstract and title of articles published in 2020 (May) and 2022 (June) in reputable international scientific databases were searched in Google Scholar, ISI, Scopus, ScienceDirect, and PubMed databases. The PRISMA checklist was used to review the quality of the articles.

Results: Based on the reviewed studies, it was found that cancer patients had high levels of depression, anxiety, insomnia, stress, and death anxiety during the COVID-19 pandemic. Home quarantine, fear of COVID-19, and limited access to a doctor and medication also reduced the QoL of cancer patients. Female gender, low income, old age, inappropriate lifestyle, lack of social support, low level of education, physical activity, marital status, and duration of illness were among the factors aggravating mental disorders in cancer.

Conclusion: The findings indicated a decrease in the QoL in cancer patients. Given that it is unclear how long COVID-19 mutates as a pandemic, tele-mental health care is one of the solutions that can improve the QoL of cancer patients by providing timely services.

Keywords: COVID-19, Cancer patients, Quality of life, Systematic review

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Introduction

Coronaviruses are a large family of viruses that range from the common cold virus to the causes of more severe illnesses. So far, seven human-transmitted coronaviruses have been identified, the latest one is severe acute respiratory syndrome coronavirus 2 (1). Coronavirus disease 2019 (COVID-19) infection is initially associated with nonspecific symptoms such as nausea, fatigue, body aches, fever, and dry cough (2). Studies have shown that the elderly and people with chronic diseases are among the most vulnerable groups to COVID-19. In addition, they are more likely to die if they are infected with COVID-19 compared to the other groups (3). With the global COVID-19 pandemic, measures were taken to quarantine countries nationwide to control the spread of the virus. In this situation, people with chronic diseases such as cancer faced many problems due to the separation anxiety, lack of facilities, and delay in treatment (4).

Cancer patients are a highly vulnerable group in the current pandemic due to their immunodeficiency status

because of cancer and various anti-cancer therapies. Studies indicate that cancer patients are at higher risk for more severe infections and subsequent complications (5,6). Yang et al (7) examined the effects of COVID-19 on cancer patients and found that the simultaneous incidence of cancer and COVID-19 was 6%. Further, the incidence and mortality rate in cancer patients were significantly higher than in other people. Meanwhile, patients with lung cancer were also at higher risk. Desai et al (8) reported that 2% of COVID-19 patients have cancer as well. In addition, cancer patients who have undergone surgery or chemotherapy are at a higher risk (75% higher) than others for the severe complications of the disease. Zhang et al (9) investigated 28 patients with COVID-19 and cancer; fifteen people developed severe coronary heart disease and eight of them died, and the most common types of cancer were lung, esophageal, and breast cancers.

The COVID-19 pandemic delayed the early diagnosis and chemotherapy of cancer patients (10). These

interruptions have a negative effect on the outcome of treatment and cause psychological problems for patients (11). In general, cancer patients are at higher risk for psychological problems than the healthy population. In fact, diagnosing and treating cancer can reduce patients' mental health and quality of life (QoL) according to some studies (12,13). Getting the news of a cancer diagnosis is highly frightening for most people and often causes psychological distress. Anxiety and depression are common psychological distress in most cancer patients (14). Surgery and intensive long-term treatment and uncertainty over the progression of the disease can lead to symptoms such as anxiety, fear, and depression (15). According to various studies, depression and anxiety that occur during the diagnosis and treatment of cancer increase physical and psychological symptoms, have a negative impact on QoL, and reduce adaptation to treatment (16-18).

Based on the evidence, cancer patients have refused to go to hospitals and medical centers for fear of developing COVID-19 and have stopped their radiation therapy due to this concern (19,20). The increasing prevalence of COVID-19 in cancer patients receiving clinical services indicates that these patients are at risk (21). The COVID-19 pandemic has also caused problems such as a lack of proper treatment due to a lack of healthcare resources for patients in need of medical services in hospitals (22). In addition, the COVID-19 pandemic caused great psychological distress in cancer patients and reduced their mental health and QoL (23,24). Berger et al (25) examined the QoL of cancer patients during the outbreak of COVID-19 and demonstrated a decrease in mental health and QoL of patients with breast cancer during the COVID-19 pandemic. Likewise, Ciężyńska et al (26) evaluated the QoL of cancer patients during the outbreak of COVID-19. According to their results, the social, physical, cognitive, and emotional performances of cancer patients were low during the outbreak of COVID-19.

In general, it can be acknowledged that home quarantine, closure of sports clubs, distance from friends, and fear of illness could significantly reduce the QoL of many people in the world (27). However, cancer patients had to undergo intensive medical care because they had a weaker immune system and lower health-related QoL (28). For this reason, it is important to review the studies that have addressed this issue to reduce the psychological and social problems of cancer patients in other pandemic diseases. In this regard, the present review study was conducted to evaluate the QoL of cancer patients during the COVID-19 pandemic.

Materials and Methods

Search strategy

In the current review study, the Prisma checklist was used to review studies on the QoL in cancer patients during the COVID-19 pandemic (29). Indexed articles were used in research databases such as Google Scholar, Scopus,

PsycINFO PubMed, and Clarivate Analytics. Using the specified keywords, the researchers of this study searched and extracted valid English articles published in 2020 (May) and 2022 (June) from reliable internet sources and then reviewed their full texts. The data were reported in a categorized manner.

Keywords

The following combinations of keywords were used in the search method:

(Cancer) (abstract/title) AND (Quality of Life) (abstract/title) AND (Coronavirus 2019) OR (COVID-19) (abstract/title)

Inclusion criteria and exclusion

Research articles were purposefully selected according to the inclusion and exclusion criteria. Criteria for entering the research included being related to the purpose of this research, being published in a valid journal, and having a structured research framework. On the other hand, articles were excluded from the investigation if their full and understandable texts were unavailable and those which were letters to editors or had no abstracts.

Quality assessment

All articles were evaluated by the present authors after extraction from desired databases. The content of these 25 articles was individually analyzed by five researchers in this study. Each researcher separately analyzed the content of each article and entered the data in the content analysis form. Then, the quality of the articles was assessed using the PRISMA checklist, which included a match between the structure of the article and the type of the research, research purpose, research community, sample selection process, data collection tools, data analysis using objective-related statistical tests, specified existence of entry and exit criteria, observance of ethics in research, findings with the objectives of the research and discussion of the findings which were evaluated based on the results of related research. The quality and value of the articles in this study were evaluated based on the criteria developed by Gifford et al (30).

Data Extraction

The abstracts of the published articles were reviewed, and duplicates were removed from the study in several stages. Finally, 25 articles were selected for comprehensive review and data extraction (Figure 1).

Results

Overall, 25 qualified research articles were analyzed in this review study. Table 1 presents the results obtained from research articles on the QoL in cancer patients during the outbreak of COVID-19.

Characteristics of studies

Out of 584 articles related to QoL in cancer patients

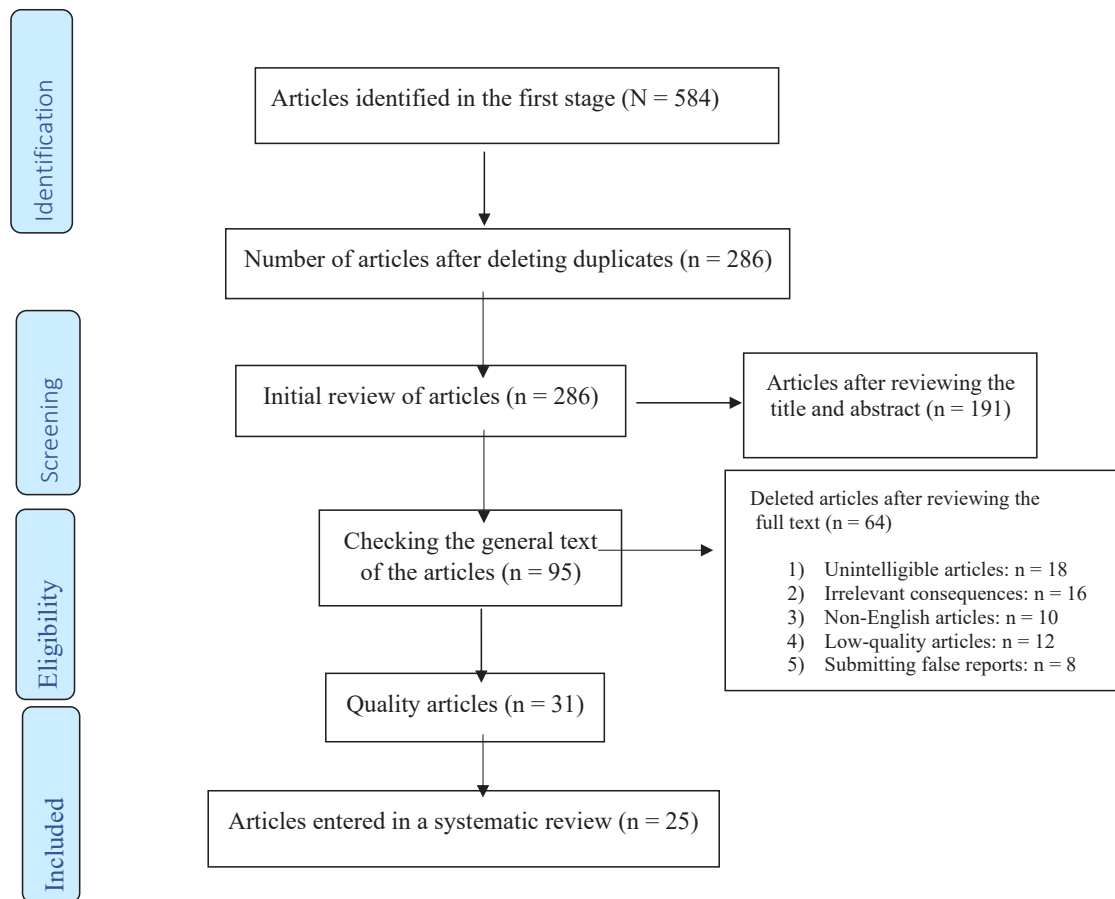


Figure 1. PRISMA flowchart outlining research results

during the outbreak of COVID-19, 25 articles were reviewed at the end, and a sample of 15313 people was reviewed according to the criteria of the Prisma checklist. In addition, 12 countries (i.e., Denmark, Canada, USA, Turkey, UK, Italy, Netherlands, France, Poland, Saudi Arabia, German, and Belgium) were included in this systematic review, highlighting the importance of assessing the QoL of cancer patients in the outbreak of COVID-19.

Main findings

According to the findings, cancer patients had high levels of anxiety, depression, stress, insomnia, fear, psychological distress, and death anxiety during the COVID-19 pandemic. Home quarantine, fear of COVID-19, and limited access to a doctor and medication also reduced the mental health and QoL of cancer patients. Female gender, low income, old age, inappropriate lifestyle, lack of social support, low level of education, physical activity, marital status, and duration of illness were among the factors reducing the QoL in cancer patients. On the other hand, cancer patients, due to their weak immune systems, were afraid of developing COVID-19 and exacerbating their disease, which requires psychological interventions.

Discussion

This study aimed to investigate the QoL in cancer patients

during the COVID-19 pandemic. The review results showed that during the COVID-19 pandemic, cancer patients had high levels of anxiety, stress, depression, fear, and anxiety, which reduced their QoL (11). On the other hand, many cancer patients had limited access to medication and physicians during the outbreak of COVID-19 or did not go to the hospital for fear of developing COVID-19, which exacerbated the disease (34).

It can be acknowledged that at the beginning of COVID-19, many media outlets and social networks reported news and messages about the greater vulnerability of patients with chronic diseases. They played against COVID-19, which caused a lot of fear and anxiety in these people (7). The spread of too much misinformation about an issue leads to increased fear and anxiety in all members of society. However, people with chronic diseases have a lower psychological status due to their many physical problems (25). Distance from community and friends, closure of health centers, high rumors about the virus, high transmission power, lack of definitive treatment, and stress caused by the disease caused patients with chronic diseases to have many mental and physical problems during these two years (19). Meanwhile, patients with cancer are at higher risk for COVID-19 because they have a weaker immune system (33).

Ambiguity, lack of control over life, and worries about

Table 1. A summary of published articles on the QoL in cancer patients during the outbreak of the COVID-19

Authors	Purpose	Design	QoL scale	Country	Participants	Results
Seven et al (6)	Evaluation of lived experiences of breast cancer patients during the COVID-19 epidemic	Qualitative descriptive	Structured interview	Turkey	18	Studies have shown extensive changes in the lifestyle of cancer patients during the COVID-19 pandemic. Decreased physical activity, insomnia, anorexia, impaired treatment, and increased anxiety were observed in these patients. In addition, patients' QoL was significantly reduced compared to the pre-COVID-19 period.
Hulbert-Williams et al (10)	The effects of the COVID-19 epidemic on psychological distress, QoL, and the need for care of cancer patients	Cross-sectional	Functional Assessment of Cancer Therapy-General	UK	103	Half of the cancer patients experienced many problems during the COVID-19 pandemic, including limited access to medicine, doctors, and chemotherapy. Further, a significant number of patients had high stress and anxiety due to fear of developing COVID-19, which reduced their QoL.
De Jaeghere et al (11)	The role of the COVID-19 epidemic on the QoL and mental health of cancer patients	Cross-sectional	WHOQOL-BREF	Belgium	335	During the COVID-19 pandemic, significantly 19% of cancer patients experienced depression, anxiety, stress, and fear, which affected their treatment process. Furthermore, the QoL of patients decreased due to the disconnection of social connections.
Falcone et al (12)	Evaluation of the effects of the COVID-19 outbreak on the QoL and levels of care of cancer patients	Cross-sectional	EORTC QLQ-C30	Italy	137	The results demonstrated that patients were worried and scared during the outbreak of COVID-19, which led to a decrease in their QoL. Female gender, people over 65, and the duration of the disease were significantly associated with mental health and QoL.
Gallo et al (13)	Effects of the COVID-19 epidemic on QoL in patients surviving head and neck cancer	Cross-sectional	EORTC QLQ-C30	Italy	121	Studies reported low QoL in patients with head and neck cancer during the outbreak of COVID-19. Patients had high levels of anxiety and depression due to problems and unemployment, which exacerbated the disease.
Motton et al (16)	The role of home quarantine induced by COVID-19 on the QoL and physical activity of cancer patients	Cross-sectional	EORTC QLQ-C30	France	225	In general, 20% of patients had high levels of anxiety, depression, fear, and stress, which led to a decrease in their QoL. Furthermore, during the prevalence of COVID-19, the amount of physical activity in cancer patients decreased significantly.
Zhao et al (17)	The role of the COVID-19 epidemic on the QoL and treatment process of breast cancer patients	Cross-sectional	WHOQOL-BREF	USA	1300	The results revealed that a significant number of cancer patients had high levels of stress and loneliness during the COVID-19 pandemic. Moreover, due to home quarantine, the treatment process of patients was interrupted, which led to a decrease in their QoL.
Jeppesen et al (18)	Assessing the QoL of cancer patients during the outbreak of COVID-19	Cross-sectional	EORTC QLQ-C30	Denmark	4571	Overall, 9% of patients discontinued their treatment during the COVID-19 pandemic. Generally, 80% of them feared developing COVID-19. Factors such as the severity of the disease, the type of cancer, female gender, and the fear of COVID-19 led to a decrease in patients' QoL.
Önal et al (19)	Assessing the QoL of children with cancer during the COVID-19 epidemic	Cross-sectional	Pediatric QoL inventory parent proxy-report	Turkey	60	During the COVID-19 pandemic, children's mental health, communication status, physical activity, cognitive status, and optimism decreased significantly. Many parents were also concerned about their child's health when the COVID-19 stopped their children's rehabilitation activities.
Helm et al (20)	The role of reducing the rehabilitation treatments of cancer patients on anxiety and QoL during the outbreak of COVID-19	Quasi-experimental	Functional Assessment of Cancer Therapy-General	USA	15	The results showed that patients with breast cancer during the outbreak of COVID-19 have poor mental health and QoL. Additionally, the level of physical activity and social communication of patients decreased significantly. Many patients followed their treatment process online for the fear of developing COVID-19.
Baffert et al (24)	The role of the COVID-19 epidemic on the QoL of cancer patients	Cross-sectional	12-Item Short-Form Health Survey	France	189	The results represented that cancer patients had low QoL and mental health during the outbreak of COVID-19. Age, income level, female gender, and inappropriate lifestyle were among the factors affecting patients' anxiety levels.
Berger et al (25)	Evaluation of the consequences of the COVID-19 epidemic on the QoL and mental health of breast cancer patients	Cross-sectional	EORTC QLQ-C30	U.S. A	622	Studies reported a decrease in the mental health and QoL of patients with breast cancer during the COVID-19 pandemic. In addition, 58% of patients had interrupted their treatment due to COVID-19.

Table 1. Continued

Authors	Purpose	Design	QoL scale	Country	Participants	Results
Ciążyńska et al (26)	Assessing the QoL of cancer patients during the COVID-19 epidemic	Cross-sectional	EORTC QLQ-C30	Poland	260	According to the results, the social, physical, cognitive, and emotional performances of cancer patients were low during the outbreak of COVID-19. Further, many patients did not have a good quality of sleep and lifestyle, leading to their disease exacerbation.
Natalucci et al (27)	The importance of physical activity for cancer patients during the COVID-19 epidemic	Cross-sectional	EORTC QLQ-C30	Italy	781	The results indicated that the rate of sitting and lying down in cancer patients increased during the outbreak of COVID-19. The decreased physical activity of patients also reduced the QoL of cancer patients.
Grajek et al (28)	Investigating the role of emotions and feelings of cancer patients during the COVID-19 epidemic	Cross-sectional	WHOQOL-BREF	Poland	450	Studies demonstrated a decrease in the QoL of cancer patients during the outbreak of COVID-19. Many patients also had feelings of fear and negativity toward COVID-19, which exacerbated the disease.
Greco et al (31)	COVID-19 on QoL -related to the health of cancer patients	Cross-sectional	Health-related quality-of-life outcomes	Italy	97	Studies reported increased anxiety, stress, fear, and depression in cancer patients. Due to home quarantine and fear of COVID-19, the QoL of many patients was significantly reduced, leading to the exacerbation of the disease.
Ellehuus et al (32)	Evaluation of QoL related to health and distance treatment of cancer patients during the outbreak of COVID-19	Cross-sectional	EORTC QLQ-C30	Denmark	4420	The findings indicated a decrease in the QoL-related dimensions of cancer patients during the outbreak of COVID-19. Patients were also admitted to remote counseling and treatment for the fear of developing COVID-19.
Tabaczynski et al (33)	Assessing the level of the physical activity and QoL of cancer patients during the COVID-19 epidemic	Cross-sectional	Functional Assessment of Cancer Therapy-General	Canada	488	The findings of this study showed a decline in the physical activity of cancer patients during the outbreak of COVID-19. Due to the fear of developing COVID-19, patients' social communication was significantly reduced, which led to a decrease in the QoL of cancer patients.
Bartels et al (34)	The effect of the COVID-19 epidemic on the QoL and emotional well-being of cancer patients	Cross-sectional	EORTC QLQ-C30	Netherlands	819	Based on the findings of the study, the QoL and emotional well-being of cancer patients during the prevalence of COVID-19 represented a significant reduction. Moreover, 67% of patients felt lonely during home quarantine.
Santin et al (35)	Evaluation of QoL improvement and support for cancer patients during the COVID-19 epidemic	Cross-sectional	WHOQOL-BREF	UK	196	The results showed that the QoL of cancer patients had a significant decrease. In addition to cancer patients, their caregivers experienced high levels of anxiety, stress, and fear during the COVID-19 pandemic.
Bartmann et al (36)	The role of the COVID-19 pandemic on the psychological stress and QoL of breast cancer patients	Cross-sectional	EORTC QLQ-C30	German	82	Studies demonstrated that breast cancer patients suffer from more anxiety, depression, and fear compared to before the COVID-19 pandemic. Their QoL decreased as well.
Aljuaid et al (37)	QoL among the Caregivers of Patients Diagnosed with Major Chronic Disease during COVID-19	Cross-sectional	WHOQOL-BREF	Saudi Arabia	1081	According to the obtained results, the QoL of the caregivers of cancer patients decreased significantly, which increased their psychological distress.
Alexander et al (38)	QoL in Patients with Pancreatic Cancer before and during the COVID-19	Cross-sectional	EORTC QLQ-C30	Germany	26	The social functioning of cancer patients became problematic during the outbreak of COVID-19. Due to the restrictions, many patients had to stop their treatment process and have online access to the doctor. Depression and anxiety caused by COVID-19 also reduced the QoL in patients.
Petrillo et al (39)	QoL and Depression in a Cross-section of Patients with Lung Cancer Before and During the COVID-19	Cross-sectional	Functional Assessment of Cancer Therapy-General	UK	856	Studies represented an increase in depression, anxiety, and stress in cancer patients during the COVID-19 pandemic. The QoL of cancer patients decreased compared to before the outbreak of COVID-19.
Javellana et al (40)	The Impact of COVID-19 on health-related QoL with Ovarian Cancer	Cross-sectional	Health-related QoL	USA	61	Cancer patients suffered a lot during the COVID-19 pandemic. Patients with low resilience had a worse QoL.

Note. COVID-19: Coronavirus disease 19; QoL: Quality of life.

death and pre-epidemic life were also present in the lives of many patients. Several patients mentioned that because of their previous experience with the disease and familiarity with managing ambiguous situations, they could better support their friends and family. People occasionally hide their illnesses because they are not judged and rejected by others (23). In addition, observing health issues, especially hand washing, has always been important for cancer patients because these people have a weakened immune system due to the disease and the treatments themselves, and they always had to observe good hygiene to prevent getting the disease. Hand-washing and hygiene protocols are now commonplace (15). Before the epidemic, patients had the experience of not being understood by their friends and family due to sensitivity to health and were labeled obsessive, but now they feel normal and are confirmed by others regarding the correctness of the observance of health standards. Patients who were recovering reported that the epidemic gave them a valuable perspective (19).

The lack of organized psychological services was one of the reasons for the decline in QoL and mental health of cancer patients during the COVID-19 pandemic in addition to patients' psychological turmoil (21). Psychologists and clinical therapists moved away from the treatment environment, and only oncologists had to provide psychological services in addition to medical care. It should be noted that psychological disorders in the COVID-19 era can be managed with cognitive-behavioral and non-cognitive techniques and can help calm people down. In addition, yoga, relaxation, psychotherapy interventions, and educational programs through cyberspace play an important role in managing fear, anxiety, and uncertainty (2). Cancer itself causes feelings such as internal turmoil, ambiguity and uncertainty, loss of confidence, and security, and after being diagnosed, a person experiences a kind of crisis in his life. Such feelings, which were a new experience for the general public during the COVID-19 pandemic, were an old experience for cancer patients. Therefore, for many patients, exposure to corona was not uncommon and was not considered a significant change in their lives since they had previously experienced such feelings (31). However, cancer patients were identified as high-risk groups due to their pre-existing problems, and their QoL was affected by COVID-19 (17).

On the other hand, different statistics in various health organizations all showed that the rate of diagnostic tests, screening, and referrals has decreased compared to before the start of COVID-19 (12). This decrease is due to the lack of referrals from people and the fear of coronary heart disease, as well as the cancellation of meetings due to the reduction of the presence of health professionals in diagnostic centers and their obligation to be on the front line of coronation, namely, hospitals and centers (18). Treatment considering that cancer is preventable and treatable in the early stages, and on the other hand,

reducing the number of people seeking screening, it is predicted that tens of thousands of deaths due to cancer progression will occur in the coming decades (5). It should be noted that not all screening delays are dangerous, and it is worthwhile for specialists in each field to provide the necessary information to the public so that people can assess the extent of cancer and coronary heart diseases and make realistic decisions during the pandemic (37,38).

For this purpose, the need to use e-health services was clearly observed after the COVID-19 pandemic. Before COVID-19, the use of technology for reasons such as high cost, labor training, imbalance in payment between virtual services and face-to-face visits to clinics, and the community's resistance to changing conditions had not developed telehealth. Now, telehealth is a safe place to provide quality care services to patients, especially outpatients. Many clinics have to decide between bankruptcy and technology-driven services. Oncology patients in remote areas with no access to a multidisciplinary team of specialists are now available. Thus, COVID-19 accelerated changes in future therapy, and specialists should make the most of this crisis and facilitate their services to patients (28). Some patients may not have access to the Internet or smartphones. The number of patients with quid has increased, and the desire to use teleology services has increased as well (20). This demonstrates that the needs and demands of the people have increased, and hospitals that provide these services are extremely limited. In addition, there is no match between supply and demand (22). Hospitals and medical centers must provide technological facilities as soon as possible. Artificial intelligence-based clinical support systems are among the digital solutions that help professionals provide cancer care services (12).

Implications and Limitations

Having cancer is extremely painful and unacceptable for any person. People who are diagnosed with cancer become highly depressed in the early stage of the disease and do not experience a good QoL. The outbreak of COVID-19 has also placed many social and therapeutic constraints on cancer patients and their families. To this end, improving the QoL and mental health of patients is of paramount importance. One of the limitations of the present review study was the unavailability of the full text of some articles, which led to the non-inclusion of these articles in the review process. Further, researchers could not access some scientific databases due to their filtering.

Conclusion

COVID-19 has led to delays in the treatment of people with chronic diseases, including cancer patients. During the pandemic, this deadly virus is constantly mutating, and no definitive cure has been found for it. Global isolation has prevailed, and many people are suffering from stress, anxiety, and depression. Meanwhile, people with cancer also experience an exhausting mental state,

and their QoL decreases because they have difficulty receiving the required treatment and medication. Because the lifestyles of many cancer patients changed during the COVID-19 pandemic, they can be expected to suffer from various psychological problems over the years that require assessment and social support.

Authors' Contribution

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Writing – review & editing: Farzin Bagheri Sheykhangafshe, Arina Kiani.

Conflict of Interests

The present study did not present any conflict of interests for the authors.

Ethical Approval

Not applicable.

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