



# Impact of the COVID-19 pandemic on care and psychological impact on cancer patients

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## Purpose of review

To summarize the current literature on the psychological impact of COVID-19 on patients with cancer, both in terms of the impact of the virus itself and of changes in the healthcare system; and to describe current recommendations for supporting patients with cancer during the pandemic.

## Recent findings

Multiple studies have shown that patients with cancer experience high levels of psychological distress during COVID-19. Factors of greater vulnerability have been described as: being young, being female, low socioeconomic status, lower educational level, having low levels of hope or optimism, lower social support, and having cancer with curative intent. The severe acute respiratory syndrome-coronavirus-2 pandemic has accelerated the healthcare digitization process. All departments involved in the diagnosis and treatment of cancer have made contingency plans to minimize the impact on patients.

## Summary

Psychological distress is one of the most frequently occurring symptoms in patients with cancer during the pandemic. The COVID-19 pandemic has led to a restructuring of the healthcare system. The paradigm shift may pose a challenge for both healthcare professionals and patients.

## Keywords

cancer, COVID-19, multidisciplinary, psychological distress, social support, telehealth

## INTRODUCTION

Since the eruption of severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) [1], more than 531 million cases, and more than 6.5 million deaths have been reported worldwide [2]. The risk of COVID-19 infection and subsequent death is increased by preexisting medical conditions such as diabetes, cardiovascular or respiratory diseases, and immunosuppression, like transplant or oncology patients [3–5].

The main concerns of patients with cancer during the COVID-19 pandemic have been the following: COVID-19 infection, access to cancer care in those newly diagnosed, and cancer recurrence and progression due to delayed treatment [6–8]. The psychological effects of COVID-19 infection in patients with cancer requires greater attention from caregivers and organizations, as these patients are often more vulnerable to mental disorders than the general population [9,10<sup>11</sup>]. The nature of psychological distress related to COVID-19 is often anticipatory in nature, related to worries about future impact on cancer treatment, fear of disease

progression, disruption of oncology services, cancer stage, and immunosuppressed status [12,13]. It is estimated that psychological distress among patients with cancer during the COVID-19 pandemic exceeded 60% [10<sup>11</sup>], and the slower the course of treatment, the higher the psychological distress [12,14]. Patients with cancer experienced higher levels of anxiety and depression compared to healthy controls during the pandemic [15], highlighting the clinical importance and healthcare resources they need.

The purpose of this review is twofold: to summarize the current literature on the psychological impact of COVID-19 on patients with cancer, both

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## KEY POINTS

- COVID-19 has had a strong psychological impact on patients with cancer.
- The literature to date indicates that patients who are younger, female, and have cancer with curative intent are at risk of greater psychological distress.
- The pandemic provided the opportunity to imagine new scenarios with increased use of technology, especially for patients in remote areas, reduced costs and travel time.

in terms of the impact of the virus itself and of changes in the healthcare system; and to describe current recommendations for supporting patients with cancer during the pandemic. The results of this review will provide information to patients, caregivers and oncology professionals on the latest research in this area [16].

## COVID-19 AND ITS IMPACT ON PSYCHOLOGICAL DISTRESS

Common psychological symptoms that patients with cancer frequently reported due to COVID-19 included anxiety, adjustment disorder, depression, insomnia, isolation, and demoralization, alone or in combination [10<sup>11</sup>,12,13] (see Table 1). During COVID-19, patients with cancer reported high rates of depression (51.2% to 74.5%), anxiety (62.8–78.0%), insomnia (51.2–78.0%), fatigue (55.9%), cognitive weakness (91.5%), and posttraumatic stress disorder (9.3–35.5%) [12,13,17–21]. However, Arrato *et al.* found no difference in psychological distress in patients with advanced nonsmall cell lung cancer vs. healthy controls [22].

The usual pattern of psychological distress response observed in cancer was also observed during the pandemic, consisting of significant increases in anxiety and/or depression at the time of

diagnosis, with levels gradually decreasing during the treatment phase and the time following completion of treatment [10<sup>11</sup>,22]. During the pandemic, psychological distress has also been found to remain elevated in some subgroups of patients long after the end of treatment [10<sup>11</sup>]. Psychological distress prevalence studies during COVID-19 have largely utilized psychometric measures validated in cancer and other medical populations more generally. [10<sup>11</sup>]. Recently, the COVID-EMV emotional vulnerability scale was developed to explore the specific impact of the COVID-19 outbreak and its restrictive measures on women with a diagnosis of breast cancer, with good psychometric properties [20,24].

## RISK AND PROTECTIVE FACTORS FOR PSYCHOLOGICAL DISTRESS DURING COVID-19

The presence of psychological distress in patients with cancer during the pandemic has been associated with different factors, such as being young, female, having low socioeconomic status, lower educational level, and having cancer with curative intent [10<sup>11</sup>,12,13,25].

Other types of personal characteristics, such as a passive or emotion-focused coping style, low self-efficacy, low levels of hope or optimism, and loneliness or lack of support have also been associated with psychological distress [13]. Oncological patients with higher levels of psychological distress and poorer coping may have had an increase in specific phobias, extreme fear of illness, alcohol abuse risk-taking behaviors, and suicidal ideation during the pandemic [26,27].

There is variability in psychological distress levels reported by patients during COVID-19 across different cancer types [23,28]. For example, greater distress is present in patients with breast cancer [17,20,25,29], head and neck cancer [30], prostate or hematological malignancies [19], than in colon

**Table 1.** Psychological distress in cancer patients during the pandemic.

Emotions/feelings	Motives
Unpredictability of future	Because of the novelty of the disease, the uncertainty associated with treatment
Anxiety about physical suffering	Fear of infection and severe, life-threatening COVID-19 symptoms
Anxiety about metastasis	Because of restrictions in getting medical care or going to the hospital, fear of delay in diagnostic tests and delay in treatment
Adjustment disorder	Due to social isolation from friends, family and fear of contagion
Negative emotion	Preoccupation, anxiety, fear, numbness, frustration, anger, sadness, depression
Insomnia	Difficulty sleeping, presence of negative thoughts and nightmares

**Table 2.** Risk and protective factor for the psychological distress in cancer patients.

Risk factors	Protective factors
Being Young (<45 years)	Psychological resilience
Gender: Females	Trust in clinicians
Lack of formal education or lower educational level	High educational level
Feeling of loneliness	Social support
Passive coping strategies, low levels of hope or optimism	Positive aspects of caregiving
Patients with previous psychological problems or presence of chronic diseases	Active coping strategies
Type of cancer (e.g., breast cancer patients tend to have more anxiety and depression than patients with colon or lung cancer)	Treatment compliance
Stage of disease: cancer with curative intent	

or lung cancers [13,29] The presence of anxiety and depression ranges between 16% and 53% in patients with cancer with curative intent [25], and between 18% and 35% in patients with metastatic cancer [23,31,32,33<sup>22</sup>]. In addition, the type of treatment that patients received influenced the development of psychological distress. For example, patients undergoing surgery had higher anxiety levels than those who received radiotherapy [34,35] (see Table 2).

Consistent with pre-pandemic associations, psychological distress during the pandemic was associated with increased fatigue, pain, insomnia, reduced sleep quality, alterations in sexuality, poorer body image perception and more negative perspectives toward the future and poorer quality of life [36–38]. Psychological distress was key in influencing the individual response of patients during the disease process, affecting the choice of treatment, their compliance with medical care [37,38], and return to work after having faced cancer [39].

Despite high levels of moderate to severe psychological distress [39–41] more than 60% did not use any mental health services, nor psychotropic medication [39]. In the study of Wang *et al.* only 1.6% of patients sought psychological counseling during COVID-19 [13].

### COVID-19 VACCINATION AND CANCER

Vaccination against COVID-19 is an important protective factor in patients with cancer, given the increased risks of negative outcomes with COVID-19 infection. Giannakoulis *et al.* analyzed 32 studies involving 46,499 patients from Asia, Europe, and the United States, 4% of whom were cancer patients [42<sup>22</sup>]. They found that cancer was associated with worse clinical outcomes with COVID-19, more intensive care unit admissions (hazard ratio 1.56

in patients with cancer vs. without cancer), and higher mortality (hazard ratio 1.66 for patients with cancer vs. without cancer) [42<sup>22</sup>].

Patients with cancer are at higher risk of developing serious COVID-19 infections [47], especially patients with leukemia (ORa 12.2), non-Hodgkin’s lymphoma (ORa 8.5) and lung cancer (ORa 7.7), associated with a higher risk of mortality (14.9%) [43–45]. Acceptance of vaccination has been uneven among patients, ranging from 90% (in China) [46], 66% (in Holland) [47] to less than 47% (in India) [48].

At the time of this publication, it was assumed that most patients with cancer could safely have a vaccine; however, data is missing on the psychological effect it has on patients with cancer. In a study of 736 patients with cancer who received the COVID-19 vaccine, anxiety and depression occurred in 11% and 8%, respectively [49]. Although the few post-vaccination studies are still scarce, it seems that the incidence of psychological distress has been decreasing [22,49]. Follow-up studies on the impact of COVID-19 vaccination in patients with cancer are expected to emerge in the coming years, which will help to establish a more comprehensive individualized care model to prevent or reduce psychological distress and improve the emotional state, health, and quality of life of cancer survivors.

### COVID-19 AND ITS IMPACT ON CANCER CARE DELIVERY

In addition to the risks of COVID-19 infection itself, a major psychological stressor for patients with cancer has been pandemic-related gaps and disparities in cancer care [13,50].

The impact of the pandemic has been most intense in low-resource settings that already face additional challenges such as health inequalities,

higher rates of infectious diseases, and lower digital infrastructure [51<sup>11</sup>,52,53].

COVID-19 has altered the way cancer care is delivered in a variety of ways: patients' perceptions of cancer care, the integration of telemedicine, the disruption and redesign of clinical trials, and the influence on oncology decision-making, as well as in the drift of the oncology workforce to cover noncancer services [40,54,55].

Cancer therapeutics have been affected worldwide by reduced services, lack of personal protective equipment, staff shortages, and restricted access to services [52]. Fear of COVID-19 has affected all: 60% of patients, 73% of family members and 42% of healthcare workers [16,56]. Despite this fear, 68% of patients with cancer wanted to continue cancer treatment vs. 13% who wanted to defer, indicating that patients are more concerned about disease progression than SARS-CoV-2 infection [52,53].

The American Association for Cancer Research report on the impact of COVID-19 indicated that nearly 10 million patients were not screened for cancer in the first six months of the year, delaying diagnosis and worsening outcomes [40,50,55].

A survey of 343 oncologists from 28 countries on the impact of COVID-19 on decision-making showed that the majority stated that they would use less chemotherapy, immune checkpoint inhibitors and/or steroids, and would be more hesitant to use second- or third-line therapies for patients with advanced cancer [52,57]. Cancellations of cancer-related surgeries were around 40.1%, especially in breast, lung, and urological cancer [58]. Treatment modification has been observed in all lines of therapy: 41.4% in perioperative care, 62.9% in palliative, and 76% in endocrine treatments [59]. In terms of clinical trials, a 50% reduction was reported [52].

Despite these data and the clear impact of COVID-19 on patients with cancer, the postpandemic situation has also provided the opportunity to imagine new scenarios with increased use of technology, especially for patients in remote areas, faster approvals, reduced costs and travel time [29,60].

## RECOMMENDATIONS TO MITIGATE THE IMPACT OF COVID-19

Medical societies have developed both general recommendations and specific guidelines for tumor types, to restructure cancer care [61]. Most of the published recommendations were related to the first wave of the pandemic, although there have been modifications as the pandemic has continued [61]. Diagnostics and screening were largely delayed and/or stopped during the first wave of the pandemic [21,61–63].

In terms of supportive and integrative care, although the Society for Integrative Oncology Online Task Force published recommendations to provide effective and safe online consultations and treatment for quality-of-life concerns and psychological management [64], many treatments considered nonessential were reduced despite high levels of psychological distress in patients [61,65]. Online treatments recommended during the pandemic in patients with cancer were manual, acupuncture, movement, mind-body, herbal, and expressive art therapies [61,66,67].

The World Health Organisation recommendations have emphasized the complementary role of online treatment [68]. The European Society for Medical Oncology (ESMO) recommendations for patients with lung cancer suggests that all nonpriority outpatient appointments be converted to a telemedicine platform, acknowledging this option as a valuable tool while at the same time emphasizing that it should not completely replace standard practice [69].

Recently, the American Society of Clinical Oncology (ASCO) conducted a series of seminars to guide practising oncologists and help organizations reduce the impact of COVID-19 [70<sup>11</sup>]. Their recommendations have been grouped into different categories: risk minimization and prioritization of patient care, health team management, virtual care, management of patients with cancer undergoing surgical, radiotherapy and systemic therapy, clinical research and recovery planning.

Not all has been negative during the COVID-19 pandemic. During this period new standards and recommendations have been created for telemedicine in oncology. Guidelines have been established to know which patients can be consulted through remote care and the doctor-patient relationship has been redefined. Telemedicine has allowed us to cross borders, develop the role of other health professionals and interdisciplinary work as well as the establishment of remote multidisciplinary conferences on cancer. The implementation of telemedicine in oncology also implies the availability of external technological support staff to solve technological problems and facilitate workflow, among others. The challenge now is to know what other scenarios can be proposed, without the need to have the patient in front of the physician in the clinic, and how researchers can incorporate telehealth technologies into the normal conduct of clinical trials more efficiently.

## CONCLUSION

The COVID-19 pandemic has strongly affected oncological patients [71,72], leading to a restructuring of

the healthcare system and the suspension or delay of tests for cancer screening and/or treatment to avoid the influx of patients with COVID-19 [40,72,73]. Patients with cancer are at higher risk of serious complications from the virus compared to healthy people in the general population [82,84]. In this context, COVID-19 has been a major challenge for patients, families, and healthcare professionals alike [40].

Overall estimates of psychological distress among patients with cancer are high. It is important to prevent, treat and identify the most important risk and protective factors for psychological distress among patients with cancer due to the COVID-19 pandemic. It has also prepared us to more effectively manage current and future outbreaks.

In summary, psychological distress is one of the most frequently occurring symptoms in patients with cancer during the pandemic. Its relevance is significant, as psychological distress has been related to key aspects of survival, such as poorer quality of life, poorer adherence to treatment and increased suicidal thoughts.

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### Conflicts of interest

The authors state that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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