

# COVID-19 and the Mental Health Impacts on Oncology Healthcare Professionals: Literature Systematic Review

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*Covid-19 e os Impactos na Saúde Mental dos Profissionais de Saúde que Atuam na Área da Oncologia: Revisão Sistemática da Literatura*

*Covid-19 y los Impactos en la Salud Mental de los Profesionales de la Salud que Trabajan en el Campo de la Oncología: Revisión Sistemática de la Literatura*

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## ABSTRACT

**Introduction:** The oncological environment, by itself, is a place that often exposes professionals who work there to cope with experiences and suffering in their daily work due to the characteristics of the pathology. **Objective:** To verify and analyze the evidence of the impact of the coronavirus disease 2019 (COVID-19) pandemic on the mental health of oncology professionals. **Method:** Search at the databases Web of Science, PubMed, MEDLINE via Ovid, CINAHL via EBSCO and Embase, and evaluation according to the methodology STROBE. **Results:** A total of 9 articles were included, which highlighted the fragility of the health system worldwide in face of the pandemic, affecting the health of both patients and professionals, especially those who were in the “front line”. These factors provoked high burden of tension, fear, insecurity and professional dissatisfaction. **Conclusion:** Strategies for the prevention of emotional illnesses related to the specific work of oncology health professionals must be implemented to ensure their mental health.

**Key words:** mental health; health personnel/psychology; neoplasms; COVID-19.

## RESUMO

**Introdução:** O ambiente oncológico, por si só, já é um local que frequentemente expõe os profissionais que ali trabalham a enfrentar vivências e experiências de sofrimento no dia a dia pelas características da própria patologia. **Objetivo:** Verificar e analisar as evidências do impacto da doença pelo coronavírus 2019 (covid-19) sobre a saúde mental de profissionais de saúde que atuam na área da oncologia. **Método:** Pesquisa realizada nas bases *Web of Science*, PubMed, MEDLINE via Ovid, CINAHL via EBSCO e Embase, e avaliação segundo a metodologia STROBE. **Resultados:** Foram incluídos nove artigos, evidenciando a fragilidade do sistema de saúde do mundo inteiro diante de uma pandemia e afetando a saúde tanto dos pacientes quanto dos profissionais de saúde, em especial os que estavam na chamada “linha de frente”. Esses fatores provocaram altas cargas de tensão, medo, insegurança e insatisfação profissional. **Conclusão:** Estratégias de prevenção de doenças emocionais relacionadas ao trabalho específico dos profissionais de saúde que atuam na área da oncologia devem ser implementadas para preservar a saúde mental dos profissionais.

**Palavras-chave:** saúde mental; pessoal de saúde/psicologia; neoplasias; COVID-19.

## RESUMEN

**Introducción:** El entorno oncológico, por sí mismo, ya es un lugar que muchas veces expone a los profesionales que allí actúan a enfrentarse a vivencias y sufrimientos en su quehacer diario debido a las características de la propia patología. **Objetivo:** Verificar y analizar la evidencia sobre el impacto de la enfermedad por coronavirus 2019 (covid-19) en la salud mental de los profesionales de la salud que trabajan en el sector oncológico. **Método:** Búsqueda en las bases de datos *Web of Science*, PubMed, MEDLINE vía Ovid, CINAHL vía EBSCO y Embase, evaluada metodológicamente por STROBE. **Resultados:** Se incluyeron un total de nueve artículos que ponían de manifiesto la fragilidad del sistema sanitario en todo el mundo ante una pandemia y que afectaba a la salud tanto de los pacientes como de los profesionales que trabajaban en los sectores sanitarios, especialmente los que estaban en la llamada “primera línea”. Estos factores provocaron altas cargas de tensión, miedo, inseguridad e insatisfacción profesional. **Conclusión:** Estrategias para la prevención de enfermedades emocionales relacionadas con el trabajo específico de los profesionales de la salud que actúan en la área de la oncología deben desarrollarse en entornos de salud, con el fin de garantizar la salud mental de los profesionales.

**Palabras clave:** salud mental; personal de salud/psicología; neoplasias; COVID-19.

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## INTRODUCTION

The current COVID-19 pandemic resulting from the severe acute respiratory syndrome coronavirus 2 – Sars-CoV-2 exposed health professionals to overwhelming conditions<sup>1-3</sup>. It is known that infectious outbreaks affect not only the physical health, but also the mental health of those infected and non-infected as well<sup>3,4</sup>. In December 2019, the province of Wuhan, China became the center of the outbreak of COVID-19 and declared as a pandemic by the World Health Organization (WHO) on March 11, 2020 with estimated mortality rate of 4% to 11%<sup>2,5</sup>.

Although the spread of COVID-19 has declined in many world regions<sup>3</sup>, the psychological crisis can persist for months or years<sup>6,7</sup>. Recently, Dhoopar et al.<sup>8</sup> showed that COVID-19 is strongly associated with mental health problems in the general population and in health professionals<sup>8</sup>, who are at the front line to control the pandemic because they are in contact with a great number of infected patients or suspected of being infected<sup>9</sup>.

These professionals suffer mental and physical fatigue because of work overload and extra night shifts with less sleeping hours, rest and recovery<sup>10</sup>. They experience a variety of symptoms related to mental health that can persist after the pandemic while caring for sick patients<sup>11</sup>.

They are essential in this period and eventually are at high risk of infections and other diseases<sup>12</sup>. According to the editorial of *Lancet*<sup>13</sup>, 3,300 professionals were diagnosed with COVID-19 in China in the first months of the pandemic (March 2020); in Italy, 20% of all the professionals were infected<sup>13,14</sup>. The high level of infection results from exposure, eventually leading to mental health impact and high unhealthy potential.

Since the beginning of the pandemic, health professionals, especially in emergency rooms and assigned to COVID-19 patients care have been exposed to high work overload, further to emotional demands, extreme effort and poor rewards<sup>11,12,15-19</sup>. In addition, few sleeping hours, constant fatigue, less time for physical activities, meditation and relaxation, uncertainties about the efficacy of therapies and prevention procedures, safety, ethical dilemmas, distance from family and social isolation during the quarantine; these are but some factors that have favored the burnout<sup>16,18,20,21</sup>.

The permanent exposure to suffering and death and empathy for patients and their families have caused additional mental problems<sup>11,19,22,23</sup>, similar to what happens with chronic diseases as cancer.

Although cancer treatment is quite effective most of the times, there is still a strong association with death, unbearable pains and mutilations when the tumor is excised due to potential metastasis, recurrence and

pain, a tough reality to be shared, diagnosed, treated and cured<sup>24-28</sup>. The hospital oncology team – doctors, nurses, licensed nurses practitioners, physiotherapists – is frequently exposed to suffering experiences in their daily routine, which is classified as psychic, a work-related fight the professional has to face that could eventually cause mental issues<sup>25,29,30</sup>.

As the cure of cancer is quite often not an actual possibility, the care these professionals provide to the patients most of all during the terminal phase needs to be adjusted. Health caregivers are confronted with their own limitations, inability and powerlessness, possibly causing feelings of guilt and anger, denial and rupture from reality because the ultimate goal is to promote health, prolong life and attempt to reach the cure<sup>30,31</sup>.

Emotional control, continuous updating, availability, flexibility, empathy, awareness of limitations and ethical postures are but some aspects that help the patient and even the professional itself to be resilient while challenging the physical and psychological effects of cancer and its treatment<sup>29,31,32</sup>. Additional pressures mainly for those in oncological palliation were added during the pandemic, with visible psychic impacts and potentialized emotions for witnessing suffering, uncertainties, fear and loneliness of patients, family and caretakers, further to their own problems resulting from this scenario<sup>33</sup>.

The objective of the present study is to investigate and analyze the evidences about the impact of COVID-19 pandemic on the mental health of oncological health professionals and related aspects.

## METHOD

The present systematic review followed the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)<sup>34</sup> and registered at the International Prospective Register of Systematic Reviews (PROSPERO) as CRD42021279540.

Observational studies and the articles included evaluated or described the COVID-19 impacts on mental health and aspects related to health professionals who care for patients with cancer. Studies whose objective was to evaluate only the quality-of-life of professionals through evaluation instrument were excluded. Systematic reviews, meta-analyses, brief reviews, experts opinions, letters to the editor, editorials, books, comments and theses were excluded as well. No time period or language of publication were determined as inclusion criteria.

The electronic search was done at the databases Web of Science, PubMed, MEDLINE via Ovid, CINAHL via EBSCO and Embase, until September 2021 without initial date. The same descriptors were adopted for all

the databases with the required adaptations as shown in Chart 1.

Chart 1. Search strategy – PubMed\*

Block 1	"Healthcare workers" OR "HCWs" OR "health worker" OR "health care provider" OR "professionals" OR "front line workers" OR "nurses" OR "doctor" OR "paramedic" OR "medical workers"
Block 2	"Mental health outcome" OR "mental health impact" OR "mental illness" OR "mental disorder" OR "psychiatric illness" OR "mental health status" OR "Depression" OR "Anxiety" OR "Stress"
Block 3	"COVID-19" OR "sars-cov-2" OR "coronavirus disease 2019" OR "con-19" OR "coronavirus disease" OR "2019 n-cov"
Block 4	(((((oncology) OR (cancer)) OR (neoplasm)) OR (oncologic)) OR (oncologist)) OR (neoplasm))
TOTAL	((("Mental health outcome" OR "mental health impact" OR "mental illness" OR "mental disorder" OR "psychiatric illness" OR "mental health status" OR "Depression" OR "Anxiety" OR "Stress") AND ("COVID-19" OR "sars-cov-2" OR "coronavirus disease 2019" OR "con-19" OR "coronavirus disease" OR "2019 n-cov")) AND ("Healthcare workers" OR "HCWs" OR "health worker" OR "health care provider" OR "professionals" OR "front line workers" OR "nurses" OR "doctor" OR "paramedic" OR "medical workers")) AND (((((oncology) OR (cancer)) OR (neoplasm)) OR (oncologic)) OR (oncologist)) OR (neoplasm))

(\*) Strategy modified to the specifications of each database.

Two independent reviewers selected the studies and after the search, they read the titles, excluding those which failed to meet the inclusion criteria. The abstracts were evaluated to verify whether they met the inclusion criteria. Full texts of articles potentially relevant were reviewed and when no consensus among the reviewers was reached, a third reviewer stepped in to determine the eligibility (Figure 1). The references of all the articles included were reviewed thoroughly.

The 8-items scale of Loney et al.<sup>35</sup> was utilized to evaluate the methodological quality: 1) census or probabilistic sampling; 2) sampling framing; 3) sample sizing earlier calculated; 4) adequate measurement; 5) unbiased reviewers; 6) adequate response rates (>70.0%) and refusers; 7) presentation of confidence intervals and subgroups of interest; 8) study subjects well described and matched to the research question.

For each criteria met, the study was assigned 1 point. High quality studies received scores 7 and 8, of moderate quality, 4 to 6 and low quality, 0 to 3.

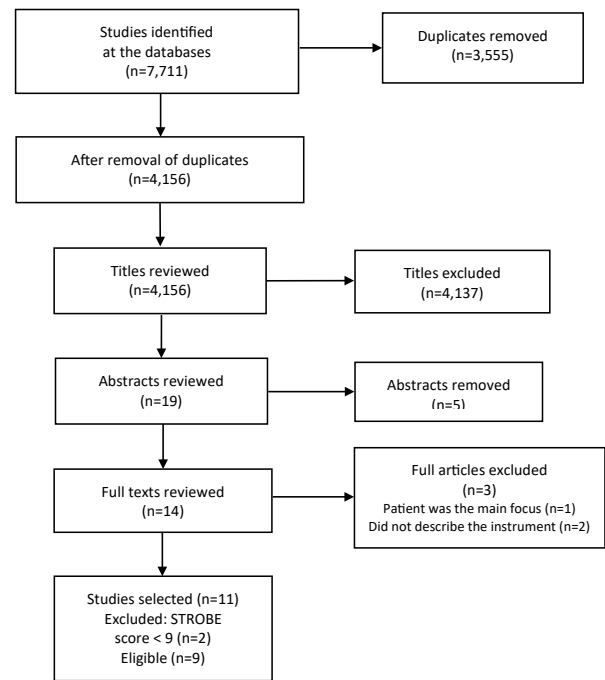


Figure 1. Flowchart of search and selection of articles at the databases

In addition, the studies were evaluated according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies<sup>36</sup>. All the studies with score above the median pursuant to STROBE for cohort, case-control and cross-sectional (combined) revealing good quality were included.

STROBE is a 22-checklist developed to guide the elaboration of observational studies (from title through discussion) that should be verified based in the three main analytical epidemiology designs: cohort, case-control and cross-sectional<sup>36</sup>.

## RESULTS

In all, 7,711 articles were found, 11 which met the inclusion criteria were included<sup>1,28,37-45</sup>; of these, two<sup>41,45</sup> were excluded due to STROBE's score < nine, below the lower threshold for analysis. The main characteristics are presented in Chart 2.

Of the nine articles selected, one was developed in China<sup>28</sup>, two in Italy<sup>37,40</sup>, one in Spain<sup>39</sup>, one in Brazil<sup>44</sup>, one in USA<sup>43</sup>, one in Bosnia-Herzegovina<sup>38</sup>, one in Bangladesh, India, Indonesia and Nepal<sup>1</sup>, and one in Singapore<sup>42</sup>.

The evaluation instrument Maslach Burnout Inventory (MBI) was adopted in four studies<sup>28,37,39,42</sup>, the General Health Questionnaire-12 (GHQ-12) in one<sup>37</sup>, the Quality-of-Life Scale-30 (ProQOL-30) in one<sup>39</sup>, the Generalized Anxiety Disorder-7 (GAD-7) in three<sup>1,39,42</sup>, the Impact of

Event Scale-Revised (IES-R) in one<sup>1</sup>, Perceived Support Scale (PSS) in two<sup>40,43</sup>, and the Depression, Anxiety and Stress Scale (DASS-21) in two<sup>38,40</sup>.

Seven articles were classified as high<sup>1,37-40,42,44</sup> by the Loney Scale and two, moderate<sup>28,43</sup>. Most of the studies scored higher than 15<sup>1,37-40,42,44</sup> according to STROBE, only two scored lower than 15<sup>28,43</sup>.

## DISCUSSION

It is a literature systematic review about the effects of the COVID-19 pandemic on the mental health of oncology health professionals.

In despite of methodological differences, samples and instruments utilized of the nine articles reviewed<sup>1,28,37-40,42-44</sup>,

it is clear that the pandemic has a relevant influence on the mental health of these professionals and impacts over the organization and dynamics of the oncology clinics evaluated, promoting a significant increase of psychological, physical, emotional stress and burnout syndrome.

During the COVID-19 pandemic, the professionals faced many difficulties as risk of infections, work overload, restrictions of relationships, poor medical guidance and lack of protocols<sup>46-49</sup>. Moral dilemmas due to personal (fear, inability to face suffering, lack of knowledge) or external pressures (hierarchy pressures, poor communication, organizational problems, underserved structure and support from other services) increased significantly and caused important psychological stress on

**Table 2.** Main characteristics of the studies included

Author/year	Country	Population (n, sex and mean age, standard-deviation)	Objective	Instruments	Main Results	STROBE	Loney Score
Jiménez-Labaig et al., 2021	Spain	243 93M 147M 26-35 (10 SD)	Evaluate the impact of COVID-19 on the young oncologist population in Spain in terms of occupational, educational, and psychological effects, and propose a set of interventions that might help minimize the impact of future COVID-19 waves or similar health emergencies.	Maslach Burnout Inventory Human Services Survey for Medical Personnel (MBI-HSS-MP)  Semistructured questionnaire  Professional Quality of Life Scale-30  Generalized Anxiety Disorder-7 (GAD-7)	25.1% reported significant levels of burnout  Burnout was more common among oncology residents (28.2%), mainly in their second year. It was significantly associated with poor work-life balance, inadequate vacation time, and burnout score  Nearly three-quarters of respondents (72%) were reassigned to COVID-19 care and 84.3% of residents missed part of their training rotations. Overall, 17.2% of this population reported that they had contracted COVID-19, 37.3% had scores indicating anxiety, and 30.4% moderate to severe depression. Almost a quarter of young oncologists (23.3%) had doubts about their medical vocation	18	7
Marijanović et al., 2021	Bosnia-Herzegovina	175 137W 38M 35-54 (6 SD)	Evaluate the levels of depression, anxiety, and stress in healthcare and administrative staff in 5 oncology institutions in Bosnia and Herzegovina (BiH) in 2020 during the coronavirus disease 2019 (COVID-19) pandemic	Depression, Anxiety and Stress Scale (DASS-21) questionnaire.	Statistical analysis revealed a statistically significant difference in the levels of depression, anxiety, and stress ( $p=0.003$ , $p=0.011$ , and $p=0.022$ , respectively) among participants with comorbidities connected with increased risk of severe illness caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) compared with participants without comorbidities  Supplement intake and educational level were significantly related ( $p=0.012$ ). High levels of stress and anxiety were accompanied by high levels of depression among participants ( $p<0.01$ )	15	7

to be continued

Chart 2. continuation

Author/year	Country	Population (n, sex and mean age, standard-deviation)	Objective	Instruments	Main Results	STROBE	Loney Score
Moerdler et al., 2021	USA	252 223W 29M 31-60 (8 SD)	Investigate how the pandemic has affected the burnout, stress, and emotional well-being of pediatric hematology oncology (PHO) providers and staff in the New York and New Jersey epicenter.	Perceptive Supportive Scale (PSS)	Overall, half of the participants reported high levels of burnout, average stress scores were in the mild-moderate range, and the majority scored in the none-to-mild symptomatology range for their well-being.  Self-reported burnout levels before the pandemic and geographic work location were statistically significant risk factors for all outcomes. Additional predictors for some outcomes included hospital role, lack of trust in leadership, and deployment.  The majority of participants (87.0%) reported that their hospitals had made mental health resources related to COVID-19 available to them but only 8.4% reported having used them.	13	6
Ng et al., 2020	Singapore	421 311W 97M 25-45 (10.6 SD)	This study aimed to evaluate the psychological effect of COVID-19 on patients with cancer, their caretakers and health professionals. In addition, attempted to evaluate the prevalence of burnout among oncological health professionals during the pandemic	GAD-7  MBI	41.6% of the health professionals reported high level of fear from COVID-19  Prevalence of anxiety was 14% for health professionals  Prevalence of burnout for health professionals was 43.5% with more anxious and fearful health professionals reporting higher burnout rates	18	8
Siqueira et al., 2021	Brazil	20 17W 3M 33-54 (4 SD)	Identify the main stressors of the nursing team in assisting patients in oncology palliative care with suspected and confirmed COVID-19	Semistructured interview	12 (60%) of the interviewees believe the main stressors are associated with working organizations, 6 (30%) believe the stressors are associated with work relationships and 2 (10%), the stressors are associated with working conditions	19	8
Vanni et al., 2020	Italy	46 30W 16M 40-54 (47 SD)	Evaluate anxiety, depression and anguish among Italian Breast Cancer Centers, health care workers (HCW) of hospitals providing specific care for COVID-19 and those which didn't and district (high versus low prevalence)	DASS-21  PSS	Statistically significant data were found between DASS-21 – stress score and COVID/no COVID (p=0.043)  No difference was found between DASS-21 and PSS scores	15	7

to be continued

Chart 2. continuation

Author/year	Country	Population (n, sex and mean age, standard-deviation)	Objective	Instruments	Main Results	STROBE	Loney Score
Varani et al., 2021	Italy	145 47M 98W 30-50 (12 SD)	Investigate the impact of COVID-19 pandemic on burnout and psychological morbidity among home PCPs (professionals of palliative care) in Italy.	MBI  General Health Questionnaire-12	During the COVID-19 pandemic, home PCP's presented lower burnout frequency ( $p < 0.001$ ) and higher level of personal accomplishment than in 2016 ( $p = 0.047$ )  Conversely, the risk of psychological morbidity was significantly higher during the pandemic ( $p < 0.001$ )	19	8
Wadasadawala et al., 2021	Bangladesh, India, Indonesia and Nepal	758 364M 394W 27-38 (5 SD)	Assess the burnout and stress levels among health care workers of radiation oncology community in Asian countries	GAD-7  Item Impact of Events Scale-Revised	The incidence of moderate to severe levels of anxiety, depression, and stress was 34.8%, 31.2%, and 18.2%, respectively. Severe personal concerns were noticed by 60.9% of the staff  On multivariate analysis, the presence of commonly reported symptoms of COVID-19 during the previous 2 weeks, contact history and compliance with precautionary measures for COVID-19 significantly predicted for increasing anxiety and stress (HR, 2.89; CI, 1.88 to 4.43) ( $p < .001$ ). A significant regional variation was also noticed for anxiety, stress, and personal concerns.	16	8
Wu et al., 2020	China	190 157W 33M 29-37 (7 SD)	Compare the burnout frequency among physicians and nurses working on the front line and usual wards	MBI	The group working on the front line had lower frequency of burnout (13% versus 39%; $p < 0.0001$ )	12	4

**Captions:** M = men; W = women; SD = standard deviation.

the team members<sup>50</sup>. Associations with home activities or presence of children can be an important variable of the health professionals mental health<sup>51-56</sup>.

The specific role of the professional and its responsibilities at the hospital as, for instance, medical teams and administrative staff not working at the COVID-19 front line have reported more stress and lower scores of well-being<sup>57-59</sup>. This fact reinforces the importance of training the clinical team which prepares the professionals to make decisions in moments of high demands and deal with pandemic-related stressors<sup>59,60</sup>. Other studies have hypothesized that those working at the front line had better access to precise data and better control<sup>7,61</sup>.

Several cross-sectional studies investigated the mental health of health professionals during the COVID-19 pandemic, the majority of the interviewees worked at the front line of different medical areas<sup>28,62-65</sup>.

The close association between stress and anxiety is directly connected to depression. Anxiety is defined

by psychology as the acute cause of persistent stress and becomes a psychiatric disease if provokes suffering to the individuals or other persons, turns into an obstacle to meet the objectives and interferes in the daily activities. When stressing circumstances prolong for a long time or occur repeatedly, the result is anxiety. The stress reflects on the body, causing vulnerability to physical and mental diseases as anxiety<sup>66</sup>. Depression appears in a variety of psychological scenarios since indifference and deep estrangement from daily life, known as one of the causes of persistent anxiety. Without primary attention, early diagnosis and immediate intervention, anxiety may reach more complex levels<sup>67</sup>. Anxious and fearful health professionals are at higher risks of burnout with prevalence rates of anxiety similar to those reported prepandemic<sup>42</sup>.

The shifting support from friends and the population and the perception of potential criticism may contribute to the mental burnout because health care workers see themselves as unable and depreciated<sup>28,62-65</sup>.

The rate of mental burnout in Western Europe, specially oncology work-related, is high, mostly in young oncologists who are more vulnerable<sup>68</sup>. Marijanović et al.<sup>38</sup> affirm that providing oncology services during the pandemic contributed even more to increase the challenges the health care professionals had to deal with. Preventive measures should be taken to cope with these issues that negatively affected the offer of correct treatment and threaten the oncologists<sup>38</sup> health and well-being.

Lai et al.<sup>47</sup> concluded in their study that 12.3% of the health professionals treating patients with COVID-19 in China were moderately anxious, Rossi et al.<sup>69</sup> found that nearly 20% of the Italian professionals reported high levels of anxiety (GAD-7 $\geq$ 15) and the study by Thomaier et al.<sup>70</sup> revealed that 62.0% of the American oncology health professionals were anxious, more than the double of the results of the other studies<sup>47,69,70</sup>. The actual impact of the pandemic on the mental and physical health of oncology professionals is yet unknown but these individuals who are going through intensive training are particularly vulnerable<sup>39</sup>.

Another recent study reported that 37.3% of oncology professionals present scores suggestive of anxiety and 30.4%, moderate to severe depression<sup>71</sup>.

The present article portrays the current scenario of the mental health of oncology health professionals. A major limitation is the elevated number of publications launched worldwide daily as the theme is the goal of many investigations with different focuses, which hampers the complete analysis of the articles. Another limitation is the diversity of methodologies utilized which makes comparison among them difficult.

Notwithstanding these differences, it is clear the association of COVID-19 pandemic with high level of stress, anxiety, depression and compromise of physical, mental, emotional and work-related activities of oncology health professionals.

## CONCLUSION

The COVID-19 pandemic exposed the fragility and lack of structure of the health system worldwide, nearly causing an “actual second world pandemic” with high levels of stress, anxiety, depression, work-related burnout and temporary leave of health professionals from hospital environments. This is particularly true for oncological hospitals strongly impacted due to the suffering of the infected patients provoking high tension, fear, insecurity and professional dissatisfaction. The administrative body should be aware of this scenario and provide additional support to the mental and emotional health of the staff who is in direct contact with the patients.

## CONTRIBUTIONS

Ana Paula Silveira Ramos and Suellen Cristina Rousseno contributed to the study design, acquisition, analysis and interpretation of the data, wording and critical review. Mirella Dias and Magnus Benetti contributed substantially to the wording and critical review. All the authors approved the final version to be published.

## DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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