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## ARTIGO ORIGINAL

**Impact of COVID-19 on the emotional health and work routine of oncology physiotherapists in Brazil**

***Impacto da COVID-19 na saúde emocional e na rotina de trabalho de fisioterapeutas oncológicos no Brasil***

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### Abstract

**Background:** The COVID-19 epidemic has affected the emotional health and work routine of healthcare professionals. **Objective:** Assess the effect of COVID-19 on the emotional health and work routine of oncology physiotherapists in Brazil. **Methods:** Anonymous cross-sectional online study, in which 102 oncology physiotherapists were recruited from different regions of the country, using snowball sampling on social media. Sociodemographic data on participants' training and their work in oncology were assessed, as well as symptoms of depression, anxiety and stress (21 - item Depression, Anxiety and Stress Scale - DASS-21). **Results:** Most of the physical therapists were women (n = 89, 87.3%), with an average age of  $33.8 \pm 7.1$  years and specializing in oncology physiotherapy (n = 84, 82.5%). The younger the professionals, the greater their stress levels (p = 0.022). Most continued to provide in-person care (n = 89, 87.3%) and stress was the symptom that scored highest ( $6.9 \pm 4.4$ ). Longer working hours and

transfers to other units resulted in more symptoms of anxiety ( $p = 0.016$ ) and stress ( $p = 0.011$ ). *Conclusion:* The COVID-19 pandemic has adversely affected the work routine and emotional health of oncology physiotherapists in Brazil.

**Keywords:** COVID-19; SARS-COV-2; mental health; rehabilitation.

## Resumo

*Introdução:* A pandemia da COVID-19 vem impactando na saúde emocional e na rotina de trabalho dos profissionais de saúde. *Objetivo:* O objetivo deste estudo foi avaliar o efeito da pandemia da COVID-19 na saúde emocional e na rotina do trabalho dos fisioterapeutas oncológicos brasileiros. *Métodos:* Estudo transversal online anônimo, no qual 102 fisioterapeutas oncológicos foram recrutados de diferentes regiões do país, usando amostras de conveniência de bolas de neve nas mídias sociais. Dados sociodemográficos, referentes à formação e atuação profissional foram avaliados, além dos sintomas de Depressão, Ansiedade e Estresse. *Resultados:* A maioria dos fisioterapeutas era do sexo feminino ( $n = 89,87,3\%$ ), com média de idade de  $33,8 \pm 7,1$  anos e especialista em fisioterapia oncológica ( $n = 84,82,5\%$ ). Quanto mais jovens mais estressados eram os profissionais ( $p = 0,022$ ). A maioria manteve os atendimentos presenciais ( $n = 89,87,3\%$ ) e o sintoma de estresse apresentou maior pontuação ( $6,9 \pm 4,4$ ). O aumento na jornada de trabalho e a transferência para outras unidades de trabalho resultaram em maiores sintomas de ansiedade ( $p = 0,016$ ) e de estresse ( $p = 0,011$ ). *Conclusão:* Concluímos que a pandemia afetou negativamente a rotina de trabalho e a saúde emocional de fisioterapeutas oncológicos no Brasil.

**Palavras-chave:** COVID-19; SARS-COV-2; saúde mental; reabilitação.

## Introduction

The COVID-19 pandemic has posed a significant challenge for health services worldwide. As an unknown disease in terms of effective prevention and treatment, most countries adopted social isolation as a viable means of reducing the spread of the infection [1]. Another change put in place was the reorganization of health services by reducing or suspending elective procedures, except in the case of pathologies that may lead to greater complications, such as cancer. Although services were not suspended in these cases, the literature recorded an important decline in access by cancer patients [2].

From the start of the pandemic until July 30, 2020, more than 668,000 people have died from COVID-19 worldwide. In Brazil, this figure reached more than 91,000 ("Coronavirus Disease (COVID-19) Pandemic" 2020). Moreover, both cancer patients

and healthcare professionals have faced significant adversity in recent months. In addition to attempting to understand the effects of the virus on patients with cancer and preventing contact during hospital visits, the study area was also contained in order to prevent the spread of COVID-19, despite its importance in contributing to clinical decision under different conditions [3].

Clinical management of cancer within the healthcare system during the pandemic was based, worldwide, on the current status of the disease. While some countries advocated reducing or suspending immunosuppressant drugs, others adopted telemedicine as a means of limiting exposure and continuing treatment remotely [2,4]. In fact, in some cases, the resulting changes in health services led to discontinued treatment and an urgent need for public policies to address these types of situations and reorganize the management of chronic pathologies [2,4,5].

These changes, adjustments and uncertainties regarding how best to manage cancer patients during this time have affected both patients and multiprofessional teams alike. Thus, the pandemic has challenged the mental health of healthcare professionals in general, promoting greater tendencies to depression, anxiety, insomnia and anguish, and potentially interfering in follow-up care for patients [6-8].

This drastic change in services for cancer patients can also cause significant stress for the physiotherapists responsible for monitoring the patients on a day-to-day basis at clinics, hospitals or in home-care settings. As such, this study aimed to assess the effect of COVID-19 on the emotional health and work routine of oncology physiotherapists in Brazil.

## Methods

### *Study design and participants*

An anonymous cross-sectional online study was conducted with oncology physiotherapists in Brazil. It was approved by the Research Ethics Committee of the Federal University of Ceará (4.084.326) and followed the STROBE recommendations for the reporting of cross-sectional studies [9]. Inclusion criteria were  $\geq 18$  years, both sexes, being a physiotherapist resident in Brazil and registered with the relevant Regional Board of Physiotherapy and Occupational Therapy, working in the field of oncology physiotherapy at public, private or philanthropic hospitals, clinics or home-based care, and not having been on professional leave in the last 60 days.

### *Data collection*

Individuals were recruited over a three-week period (June 12 to July 3, 2020) using snowball sampling on social media. Research items included demographic data on the training of the physiotherapists and their work in oncology during the COVID-19 pandemic, as well as the Depression, Anxiety and Stress Scale (DASS-21).

The DASS was originally developed in English, with 42 items that yield three factors (depression, anxiety and stress). However, considering situations in which a shorter instrument is desirable, the authors opted to use the 21-item version denominated DASS-21. This version has been applied in different countries and translated and validated for Portuguese [10]. DASS-21 is a set of three self-reported 4-point Likert subscales, each consisting of 7 items that evaluate the emotional states of depression, anxiety, and stress.

### *Statistical analysis*

The data were analyzed using SPSS software version 23.0. Participants' characteristics and answers were summarized using descriptive statistics, standard deviation and absolute and relative frequencies. Associations between the working conditions of physiotherapists and anxiety, depression and stress were examined with the independent t-test. Correlations were analyzed using Spearman's test for the numerical variables and the chi-squared test for their categorical counterparts. Multivariate linear regression was subsequently performed, using the stepwise backward method and selecting variables with a correlation of up to 20% ( $p < 0.020$ ) in the bivariate analysis

## **Results**

A total of 106 physiotherapists answered the questionnaire, but 4 were excluded as duplicates, leaving a final sample of 102. Most were women ( $n = 89$ , 87.3%), with an average age of 34 (29 - 38) years and married ( $n = 51$ , 50%). Additionally, 44 (43.1%) worked in the Southeast, 66 (64.7%) held a specialty as their highest academic degree, 84 (82.4%) were oncology physiotherapists, and 48 (47.1%) had worked in the field for more than 5 years ( $n = 48$ , 47.1%) (Table I).

With respect to where the participants worked, 61 (59.8%) reported they worked at hospitals, 54 (52.9%) in outpatient facilities/clinics and 30 (29.4%) provided home care.

When questioned about the impact that COVID-19 had on their work routine, 52 (51%) reported shorter working hours and 13 (12.7%) were transferred to another facility to meet demand (Table II).

In regard to patient care, most respondents continued in-person appointments at both outpatient/clinic and hospital level. When asked about remote monitoring for cancer patients during the pandemic, most (46.8%) participants who worked at outpatient facilities/clinics or provided home care stated that their workplace provided the necessary means for them to monitor their patients (Table II).

In relation to the type of remote monitoring used, 38 (48.1%) contacted their patients only once and provided general guidance, and 27 (34.2%) compiled educational material and emailed it to patients after initial telephone contact.

Assessment of the symptoms of depression, anxiety and stress by DASS-21 indicated that stress obtained the highest score, with an average value of 6.9 (4 - 10). Average scores for depression and anxiety were 4.2 (1 - 6) and 3.9 (1 - 7), respectively.

Analysis of the association between working conditions and depression, anxiety and stress scores indicated that physiotherapists who worked at outpatient facilities/clinics obtained lower depression scores ( $p = 0.038$ ). Additionally, longer working hours were associated with higher levels of anxiety ( $p = 0.016$ ) and stress ( $p = 0.011$ ), and being transferred to another oncology unit resulted in greater stress ( $p = 0.021$ ) (Table III).

Analysis of the correlations between age, anxiety, depression and stress demonstrated a positive moderate correlation between depression and anxiety ( $r = 0.546$   $p = 0.000$ ) and depression and stress ( $r = 0.678$   $p = 0.000$ ), as well as a strong correlation between stress and anxiety ( $r = 0.835$   $p = 0.000$ ). Age exhibited a weak inverse correlation with stress ( $r = -0.227$   $p = 0.022$ ), that is, the younger the individual, the higher their stress score.

No associations were observed between length of service or sex and anxiety, depression and stress ( $p \geq 0.05$ ).

In multivariate analysis using stress as the outcome variable, only anxiety and depression influenced the stress of physiotherapists (Table IV).

**Table I** - Sociodemographic characteristics of oncology physiotherapists in Brazil during the COVID-19 pandemic

Demographic characteristics	N (102)	%
<b>Sex</b>		
Women	89	87.3
Men	13	12.7
<b>Marital status</b>		
Single	47	46.1
Married	51	50
Divorced	4	3.9
<b>Region of employment</b>		
Midwest	6	5.9
Northeast	36	35.3
North	5	4.9
Southeast	44	43.1
South	11	10.8
<b>Highest Academic Degree</b>		
Undergraduate	10	9.8
Specialist	66	64.7
Master's	22	21.6
Doctorate	4	3.9
<b>Oncology specialization</b>		
Yes	84	82.4
No	18	17.6
<b>Length of service in oncology</b>		
Less than 1 year	9	8.8
1 - 3 years	22	21.6
3 - 5 years	23	22.5
Over 5 years	48	47.1

**Table II** - Working conditions of oncology physiotherapists during the COVID-19 pandemic

<b>Impact of the pandemic on the work routine</b>	<b>(N = 102)</b>	<b>%</b>
Shorter working hours	52	51
Same working hours	30	29.4
Longer working hours	20	19.6
<b>In-person care during the pandemic</b>	<b>(N = 102)</b>	<b>%</b>
No in-person care	13	12.7
At outpatient facilities/clinics and hospitals	38	37.3
Only at outpatient facilities/clinics	19	18.6
Only at hospitals	32	31.4
<b>Remote monitoring for patients during the pandemic</b>	<b>(N = 79)</b>	<b>%</b>
My workplace provided the necessary tools for remote monitoring	37	46.8
I was advised to keep in contact with patients, but not given the necessary tools and so monitored them myself	23	29.1
Management gave no instructions about remote monitoring	19	24.1
<b>Type of care provided via remote monitoring</b>	<b>(N = 79)</b>	
Educational material compiled and emailed to patients after telephone contact	27	34.2
Only one telephone call/contact with general guidance	38	48.1
No calls/contact with patients	14	17.7

**Table III** - Association between the working conditions of physiotherapists and anxiety, depression and stress

Variable	Mean ± SD	p
<b>Works at an outpatient facility/clinic</b>		
DASS Depression		
Yes (n=54)	3.40 ± 3.56	0.038*
No (n=48)	5.10 ± 4.38	
DASS Anxiety		
Yes (n=54)	3.96 ± 4.04	0.862
No (n=48)	3.83 ± 3.40	
DASS Stress		
Yes (n=54)	6.44 ± 3.79	0.235
No (n=48)	7.48 ± 4.93	
<b>Works at a hospital</b>		
DASS Depression		
Yes (n=61)	4.55 ± 3.56	0.273
No (n=41)	3.66 ± 4.38	
DASS Anxiety		
Yes (n=61)	4.00 ± 3.54	0.748
No (n=41)	3.76 ± 4.05	
DASS Stress		
Yes (n=61)	7.08 ± 4.58	0.674
No (n=41)	6.70 ± 4.09	
<b>Longer working hours</b>		
DASS Depression		
Yes (n=20)	4.65 ± 4.89	0.578
No (n=82)	4.09 ± 3.83	
DASS Anxiety		
Yes (n=20)	5.70 ± 3.36	0.016*
No (n=82)	3.46 ± 3.71	
DASS Stress		
Yes (n=20)	9.15 ± 4.79	0.011*
No (n=82)	6.39 ± 4.12	
<b>Transferred to another unit</b>		
DASS Depression		
Yes (n=20)	6.00 ± 5.18	0.085
No (n=82)	3.93 ± 3.81	
DASS Anxiety		
Yes (n=20)	5.84 ± 4.87	0.135
No (n=82)	3.61 ± 3.48	
DASS Stress		
Yes (n=13)	9.54 ± 5.20	0.021*
No (n=89)	6.55 ± 4.14	

DASS = Depression, Anxiety and Stress Scale; \*p < 0.05

**Table IV** - Multivariate analysis between stress and the variables work routine, age, anxiety and depression

Variable	r <sup>2</sup>	β	95%CI	p-value
Stress (outcome)	0.736			0.000
Age		-0.46	-0.112-0.020	0.170
Longer working hours (yes)		-1.142	-2.339-0.056	0.061
Transfer to another unit (yes)		-0.678	-2.093-0.738	0.344
Anxiety		0.576	0.413-0.738	0.000*
Depression		0.433	0.288-0.578	0.000*

95% CI = 95% Confidence Interval; r<sup>2</sup> = adjusted Pearson's correlation; \*p < 0.05, variables of the final model by multivariate linear regression

## Discussion

The present study demonstrated that the COVID-19 pandemic altered the work routine of physiotherapists in the form of shorter working hours and transfers to other units in order to meet demand. This has led to emotional disturbances correlated with greater stress in professionals who were transferred to another facility as well as those with longer working hours. Telerehabilitation was used by a large part of the physiotherapists studied here as a means of circumventing the reduced therapist-patient contact in place during the pandemic.

Several studies have been conducted to scientifically prove the impact of COVID-19 on all aspects of cancer treatment [3,11,12]. Changes in access to health care during this global emergency have resulted in less patient contact in the treatment of different chronic diseases [12]. However, the possibility of metastasis, progression or other complications means cancer treatment cannot be put on hold [13]. Although 51% of the physiotherapists interviewed reported a decline in working hours, in-person care continued in the outpatient sector, hospitals and via remote monitoring. A study on multidisciplinary care provided to survivors of head and neck cancer during the pandemic at a medical center affiliated with the University of Pittsburgh (UPMC) also found that physiotherapists had to adjust their assessment and treatment services via telemedicine [14].

Telemedicine emerged about 25 years ago, but the pandemic has been a major milestone for its use in a number of countries. However, its application in oncology to monitor patients before or after surgery or during other treatments is not well described in the literature [12]. In the present study, approximately 48% of the sample monitored their patients remotely and sent them educational material. Additionally, their workplaces were willing to supply the necessary resources for telemedicine, indicating that this technology can be used for cancer patients during the pandemic to help healthcare professionals monitor these individuals.

This emergency measure has been adopted by several institutions to meet needs resulting from the pandemic and is guaranteed nationwide by the Federal Board of Physiotherapy and Occupational Therapy (COFFITO) via Ordinance 155 of March 20, 2020 [15] which governs the creation of a National Teleconsulting Committee for the COFFITO/CREFITOS System in Physiotherapy and Occupational Therapy to address the crisis caused by the COVID-19 pandemic. However, it is important to note that telemedicine is a challenging strategy for physiotherapy, given the hands-on nature of



the profession and the lack of results proving its effectiveness in oncology or well-structured guidelines for professionals.

A study with healthcare professionals in the United States and United Kingdom found no significant increase in absenteeism during the first 100 days of the COVID-19 pandemic in these countries. The results indicate that about 30% of healthcare personnel were unable to do their jobs effectively, with fear of infection and the lack of personal protective equipment (PPE) as decisive factors [16].

From another perspective, scientific evidence shows a correlation between outbreaks or pandemics and psychological problems in healthcare professionals. Some studies indicate that, among public health workers aged 30 to 50 years, living with older adults or children below 6 years old, having a previously diagnosed health condition and inexperience in public health emergencies are risk factors for high scores on scales that assess depression, anxiety, insomnia and obsessive-compulsive symptoms in COVID-19 frontline health workers [17-19].

Another study also demonstrated a possible correlation between psychological problems and frontline healthcare workers during the pandemic [7]. Moreover, a recent study found a high prevalence of anxiety and depression among oncologists in the United States despite not being on the frontline of COVID-19, caused by their inability to adequately treat their patients [8].

The SARS (Sudden Acute Respiratory Syndrome) and Ebola outbreaks caused psychosomatic symptoms in healthcare professionals, with sequelae including pain, fatigue, weakness, anxiety, lethargy and chronic symptoms of the infections they came into contact with during their work day. It is important to investigate associations between these symptoms because they may result in prolonged periods of absenteeism and health workers care for highly vulnerable patients [20-23].

A multinational and multicenter study applied the DASS-21 questionnaire to multiprofessional teams involved in caring for patients with COVID-19 and found that anxiety was the most common symptom, particularly among less experienced professionals. This anxiety was caused by the fear of contamination or contaminating colleagues or family members, since asymptomatic individuals can transmit the infection [20].

Similarly, in our sample, the age of healthcare workers was inversely related to stress, with younger professionals reporting higher stress levels, possibly due to less experience. As such, it is important for managers of healthcare facilities to provide personnel with psychological support in order to safeguard their mental health. Some authors have demonstrated the benefits of implementing different mental health care

platforms, whereby the less access medical staff had to these platforms, the higher their levels of anxiety, depression and insomnia [24,25].

Thus, it can be inferred that the COVID-19 pandemic has adversely affected the work routine and emotional health of oncology physiotherapists in Brazil. The pandemic has resulted in the reorganization of health services, involving adjustments to the work routine of physiotherapists in outpatient and intensive care sectors in the form of a reduced workload or longer working hours as part of a new health team on the frontline.

## Conclusion

The COVID-19 pandemic has prompted the need to reorganize health services, including treatment for cancer patients. As a result, oncology physiotherapists have experienced changes in their work routine that may be associated with emotional difficulties such as stress. Stress was also related to anxiety and depression, demonstrating that emotional aspects during the pandemic directly affect the daily lives of these professionals.

### Conflict of interest

The authors report no conflicts of interest.

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### Author's contribution

*Conception and design of the research:* Mont'Alverne DGB, Rodrigues LRS, Bedê JMS, da Silva AKA, Abreu BO, Fernandes TG, Silva RLCA, Moura AF ; *Data collection :* Bedê JMS, da Silva AKA, Silva RLCA; *Data analysis and interpretation:* Rodrigues LRS, Abreu BO, Fernandes TG; *Statistical analysis :* Mont'Alverne DGB, Moura AF ; *Manuscript writing :* Bedê JMS, da Silva AKA, Silva RLCA, Rodrigues LRS, Abreu BO, Fernandes TG; *Critical review of the manuscript for important intellectual content :* Mont'Alverne DGB, Moura AF

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