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**EVALUATION OF PHYSIOTHERAPISTS DURING THE
CORONAVIRUS PANDEMIC IN THE FIELDS OF
KNOWLEDGE, AWARENESS AND ATTITUDE REGARDING
PANDEMIC**

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THESIS APPROVAL FORM



STATEMENT

Hereby I declare that this thesis study is my own work, I had no unethical behavior in any stage from planning of the thesis until writing it, I have obtained all the information in this thesis within the academic and ethical rules, I have cited all the information and comments that are not obtained with this thesis study, and these sources are also included in the list of references, I hereby declare that I have no infringement of patents and copyrights during the study and writing of this thesis.



Rafet Umut ERDOĞAN

Signature

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ABBREVIATIONS

COVID-19: Coronavirus Disease 2019

WHO: World Health Organization

SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus-2
RT-PCR: Reverse Transcription Polymerase Chain Reaction
CT: Computed Tomography
WCPT: World Confederation for Physical Therapy
ICU: Intensive Care Unit
BMS: The Burnout Measure Short Version
PWCPR: Physiotherapists Working in the Field of Cardiopulmonary Physiotherapy and Rehabilitation
PWOFF: Physiotherapists Working in the Other Fields
CPR: Cardiopulmonary Physiotherapy and Rehabilitation
SARS-CoV: Severe Acute respiratory syndrome coronavirus
MERS-CoV: Middle East respiratory syndrome-related coronavirus
ACE2: Angiotensin-converting Enzyme 2
ARDS: Acute Respiratory Distress Syndrome
COPD: Chronic Obstructive Pulmonary Disease
ILD: Interstitial Lung Disease
FiO₂: Fraction of inspired oxygen
PEEP: Positive end-expiratory pressure
6-MWT: 6-minute walk test
OECD: Organisation for Economic Co-operation and Development
ROM: Range of Motion
PTSD: Posttraumatic Stress Disorder

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Koronavirüs pandemisi sırasında görev yapan fizyoterapistlerin pandemiye ilişkin bilgi, farkındalık ve tutumlarının değerlendirilmesi

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1. ÖZET

Amaç: Çalışmamızda, COVID-19 pandemisi sırasında COVID-19 tanılı hastalar ile çalışan, kardiyopulmoner fizyoterapi ve rehabilitasyon alan fizyoterapistlerinin (KPRÇF) pandemiye ilişkin bilgi, tutum, ve farkındalıklarındaki değişimi belirlemek ve KPRÇF ve diğer alanlarda çalışan fizyoterapistlerin (DAÇF) tükenmişlik düzeyini araştırmak amaçlandı.

Gereç ve yöntem: Katılımcıların demografik ve mesleki bilgileri kaydedildi. Araştırmaya özgü tasarlanan Bilgi, Farkındalık ve Tutum Anketi yalnızca KPRÇF grubuna, Tükenmişlik Ölçeği-Kısa Formu'nun Türkçe Uyarlaması (TÖ-KF) ise tüm katılımcılara Google Formlar üzerinden çevrimiçi olarak uygulandı. Verilerin analizi SPSS 11.5 programı kullanılarak yapıldı. Anlamlılık düzeyi $p < 0.05$ olarak kabul edildi.

Bulgular: Çalışmaya, KPRÇF (n:33, yaş ortalaması: 33.09 ± 7.07 yıl, mesleki deneyim: 10.24 ± 7.69 yıl) ve DAÇF (n:33, yaş ortalaması: 26.39 ± 2.2 yıl, mesleki deneyim: 3.58 ± 2.07 yıl) grubundan toplam 66 gönüllü fizyoterapist katıldı. KPRÇF'nin COVID-19 pandemiye ilişkin bilgi ve farkındalıklarının arttığı ancak pandemiye ilişkin tutumlarının olumsuz yönde değiştiği belirlendi. Bu alanda çalışan fizyoterapistlerin tükenmişlik açısından (TÖ-KF'ye göre) tehlike sinyalleri verdiği, DAÇF'nin ise genç yaşlarda ve mesleki deneyimlerinin diğer çalışma alanındakilere göre azlığına bağlı tükenmişlik içerisinde oldukları saptandı. İki grup arasında tükenmişlik düzeyleri açısından DAÇF aleyhinde istatistiksel olarak anlamlı fark bulundu ($p:0.014$).

Sonuç: COVID-19 pandemisinin KPRÇF'in bilgi, farkındalık ve tutumlarında değişikliğe yol açtığı sonucuna ulaşıldı. Pandemiye ilişkin bilgi düzeyinin, çalışılan mesleki alanın, yaşın, ve mesleki tecrübe yılının fizyoterapistlerdeki tükenmişlik düzeyini etkilediği belirlendi.

Anahtar kelimeler: COVID-19, Kardiyopulmoner fizyoterapist, Tükenmişlik sendromu, Tükenmişlik Ölçeği-Kısa Formu.

Evaluation of physiotherapists during the coronavirus pandemic in the fields of knowledge, awareness and attitude regarding pandemic

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2. SUMMARY

Objective: It was aimed to determine the change in the knowledge, attitudes, and awareness of physiotherapists working in the field of cardiopulmonary physiotherapy and rehabilitation (PWCPR), and to investigate the burnout level of PWCPR and physiotherapists working in the other fields (PWOFF).

Material and methods: The demographic and occupational information of the participants were recorded. The Knowledge, Awareness and Attitude Questionnaire, which was designed specifically for research, was administered only to PWCPR group, and The Turkish Adaptation of The Burnout Measure-Short Version (TA-BMS) was administered to all participants online via Google Forms. Data analysis was performed using SPSS 11.5 program. Significance level was measured to $p < 0.05$.

Results: A total of 66 volunteer physiotherapist from the PWCPR (n:33, mean age:33.09±7.07 years, professional experience:10.24±7.69 years) and PWOFF (n:33, mean age:26.39±2.2 years, professional experience:3.58±2.07 years) groups were included in the study. It was determined that participants' from PWCPR group knowledge and awareness regarding COVID-19 pandemic increased, but their attitudes changed negatively. It was appointed that PWCPR gave danger signals in terms of burnout (according to TA-BMS), and PWOFF was in burnout due to lack of professional experience and being young age compared to PWCPR. A statistically significant difference was found between two groups in terms of burnout levels ($p:0.014$).

Conclusion: It was concluded that COVID-19 pandemic caused changes in terms of knowledge, awareness and attitudes of PWCPR. It was determined that level of knowledge about the pandemic, occupational field, age, and years of professional experience affected the burnout level of physiotherapists.

Keywords: COVID-19, Cardiopulmonary physiotherapist, Burnout syndrome, Burnout Scale-Short Form

3. INTRODUCTION and AIM

Coronavirus Disease 2019 (COVID-19) is the biggest health disaster that humanity has experienced in the last century, causing millions of people to become infected or die from being infected all over the world, and to affect almost all societies in the economic and psychosocial terms due to isolation and quarantine rules. According to the WHO (World Health Organization) office in China, the first statement associated with the pandemic was made on December 31, 2019, on the website of the Wuhan Municipality Health Commission in Wuhan, on the cases of "viral pneumonia". On January 1, 2020, WHO requested more information about the atypical pneumonia cases reported in Wuhan from the Chinese authorities, and on January 9, Chinese authorities determined that the new type of coronavirus caused the pandemic (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline> Accession: Mar. 23. 2021).

COVID-19 caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Common symptoms include dyspnea, cough, fever, breathing difficulties, weakness, myalgia, gastrointestinal disorders, and loss of taste / smell (Esakandari et al., 2020; Pascarella et al., 2020). COVID-19 may course asymptotically or with mild symptoms, it can cause various diseases and death in individuals with chronic diseases considered as a high-risk group (Esakandari et al., 2020; Pascarella et al., 2020). Computed tomography (CT) imaging of the thorax is as important as the reverse transcription polymerase chain reaction (RT-PCR) test and nasal swab sample in determining the diagnosis of COVID-19 and is used in clinical practice (Pascarella et al., 2020). Antiviral therapeutic agents such as Favipiravir and Remdesivir are used in the current treatment protocols of COVID-19, which does not have an effective treatment with a high level of evidence yet, and vaccination, which is the only method used to protect from the disease, continues globally (Pascarella et al., 2020; Ahn et al., 2020).

The effectiveness of chest physiotherapy, which has been proven to be effective in improving the respiratory and physical functions of patients hospitalized in the intensive care unit (ICU), has not yet been proven specifically in COVID-19. Although many physiotherapy techniques can be safely used to improve treatment outcomes and

reduce atelectasis in COVID-19 (Battaglini et al., 2020). These techniques vary according to circumstances such as intubation or monitoring in or outside the hospital to restore therapeutic mobility and function of the patient's respiratory system, considering the patient's comorbidities and the cardiac or neurological effects of SARS-CoV-2 (Sheehy, 2020). Various guidelines and clinical practice recommendations prepared at great speed in the current literature (Thomas et al., 2020; Lancashire Teaching Hospitals, https://www.acprc.org.uk/Data/Resource_Downloads/COVID19RespiratoryPhysiotherapyOnCallInformationandGuidanceV2.pdf Accession: Mar. 23. 2021; Righetti et al., 2020), the varying short-term outcomes of the disease, the yet unknown long-term effects, and the limited knowledge level of the disease in the literature as of today, make it difficult to have a definite protocol to be applied to patients. The World Confederation for Physical Therapy (WCPT) explicitly recommends that physiotherapists working in this field increase their knowledge level within the scope of combating pandemics in the guide published by the WCPT (Thomas et al., 2020).

During this challenging pandemic period, healthcare professionals, who are in a respectable position in the society, have gained more importance. In addition to personal precautions, it is possible to overcome the pandemic period in a healthy way with high level of knowledge and mentally strong healthcare professionals. The physiotherapists, who are part of the multidisciplinary team, have a great impact on the patient's return to his / her daily life at the same level and as soon as possible, especially during and after the infection. In the literature, there is no study evaluating the development of knowledge level and attitudes of physiotherapists working in the field of cardiopulmonary rehabilitation (PWCPR) and physiotherapists working in other fields (PWOFF) during the pandemic process. The research subject has been determined and constructed in line with this requirement.

4. GENERAL INFORMATION

4.1. COVID-19

4.1.1. Description

COVID-19 is a beta type of coronavirus and caused by a virus named SARS-CoV-2. There are differences between SARS-CoV-2 and other single-strand RNA viruses such as SARS-CoV and MERS-CoV, which have infected human population by animal to human transmission, in terms of genome sequencing (Wu et al., 2020; Taleghani et al., 2021). Severity of COVID-19 is high, it already causes serious health problems to people who does not have comorbidities and shows its symptoms in 3-6 days (Cevik et al., 2020). Pulmonary consolidation, ground glass opacity and bilateral pulmonary movement may occur in a person with COVID-19 disease, which can be found with CT scan. According to the research, bilateral pulmonary movement was seen on half of the participants (Wong et al., 2020).

First cases of COVID-19 were identified at Wuhan city, Hubei, China at the end of 2019. A research states that appearance of this virus is linked to Huanan seafood market (Chan et al., 2020). COVID-19 is declared as “pandemic” by WHO on 11th March 2020 (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline> Accession: May 03. 2021). Over 150 million confirmed cases and 3 million deaths have been reported by WHO since the pandemic started (<https://covid19.who.int/> Accession: May 03. 2021).

4.1.2. Symptoms

COVID-19 is grouped into four stages according to the course of the disease; mild, moderate, severe, and critical (Gao et al., 2021). Symptoms are the first identifiers and can be changed during the course of disease. The most frequent symptoms of COVID-19 are myalgia, fever, dyspnea, fatigue, and cough. Other symptoms that showed in different studies are gastrointestinal disorders, loss of taste/smell, weakness, venous thromboembolism, stroke, and neurological disorders such as headache and dizziness (Cevik et al., 2020; Esakandari et al., 2020; Pascarella et al., 2020).

Course of the disease may be asymptomatic. Asymptomatic infections are tested positive in RT-PCR tests same as symptomatic infections, can be transmitted to other people who have not COVID-19 disease but does not have same clinical responses. Disease findings may not show up in radiographic screenings (Gao et al., 2021).

4.1.3. Epidemiology

Pandemics affecting the airway are common situations that human beings have encountered throughout history. The last pandemic, Spanish Flu, which affected millions of people and had had more than one outbreaks happened a century ago. Recent pandemic, Hong Kong Flu, which causes more than one million deaths occurred in 1968. The last 20 years showed us other airway diseases with high mortality rates, which are caused by SARS-CoV and MERS-CoV viruses. In 2009, Swine Flu caused hundreds of thousands of deaths globally (Khan et al., 2020).

The WHO China Country Office have reported increasing number of infected people in December 2019. Studies have reported that COVID-19 spread from Huanan seafood market in Wuhan, China but the first case's infection path is remaining uncertain (Chan et al., 2020; Ahn et al., 2020). Travelers who traveled from China to other countries transmitted this virus outside of China, such as Japan, Malaysia, United States of America, Germany, Republic of Korea, etc. (Ahn et al., 2020) and WHO announced on March 11, 2020 that this disease can be described as a pandemic.

4.1.4. Physiopathology

When SARS-CoV-2 is taken into a body, it interacts with angiotensin-converting enzyme 2 (ACE2) receptors and starts to infect all neighboring cells by copying its RNA in epithelial cells and replicating itself in the cells it interacts with from the nasal cavity to the alveoli. SARS-CoV-2 causes blood vessel integrity defects, and it leads to impairment in the gas transfer in alveoli which is the reason of disseminated intravascular coagulation, hypoxemia, and progressive pulmonary destruction (Singh et al., 2021).

Aforementioned replication phase of this virus thickens alveolar wall by compromising the integrity of the endothelial barrier in advancing period of the disease. This leads to interstitial mononuclear inflammation and pulmonary edema, then causes to acute respiratory distress syndrome (ARDS). Capillary oxygen transmission and oxygen diffusion capacity are impaired in the disease setting, which gives the appearance of ground-glass opacity on CT. Development of viral sepsis, ARDS and intravascular coagulation are among the causes of mortality of COVID-19 (Wiersinga et al., 2020).

Apart from these, the inflammatory process caused by COVID-19 increases cardiac output and metabolic demand. COVID-19, which can also cause myocardial damage, increases the severity of chronic diseases such as hypertension, which play a decisive role in the course of the disease, apart from myocarditis (Azevedo et al., 2021).

4.1.5. Diagnosis

Diagnostic tests and sampling of COVID-19 can be done in many ways. Samples can be taken from the patient's upper and lower respiratory tract, blood, and stool, and laboratory tests are performed in the form of nucleic acid amplification, determination of the presence of antibodies and antigens (Lai and Lam, 2021). In cases where the clinical picture is not compatible with laboratory tests, chest X-ray is a method used in the clinic for diagnosis. If chest radiography is normal, CT is used to determine the diagnosis of COVID-19 (Ejazi et al., 2021).

The presence of lymphocytopenia and high C reactive protein and erythrocyte sedimentation rate are the most modest laboratory findings of COVID-19. The severity of lymphocytopenia is characterized by the severity of COVID-19 (Umakanthan et al., 2020). However, late diagnosis of the disease, which can last up to two weeks and is unresponsive to laboratory results in the early days of infection; it can cause COVID-19-induced pneumonia due to the sudden increase in viral load (Umakanthan et al., 2020; Tang et al., 2020).

4.1.6. Morbidity

Morbidity trends have been changing since March 2020, when COVID-19 was considered a pandemic. Infection rates, which were high in Asian countries in the early stages of the pandemic, increased in European countries over time. When looking at the number of people with COVID-19 disease today, the Americas (South and North America) ranks first with more than 60 million infected people. The USA ranks first with more than 32 million cases among the countries that have reported the most COVID-19 cases so far. Among the top 10 countries, all countries except India, Brazil and Russia are members of the Organisation for Economic Co-operation and Development (OECD) (USA, France, Turkey, Italy, Spain, UK, Germany) (<https://covid19.who.int/> Accession: May 10. 2021).

The spread of diagnostic tests, the initiation of vaccination and the measures taken by countries both socially and administratively can change the course of the epidemic on a country basis. In a study conducted in the early stages of the epidemic, while the vast majority of the existing cases were individuals over the age of 65, the course of the disease was more serious (cytokine storm or multiple organ failure) (Matta et al., 2020); today, with the vaccination policies implemented by countries, the rate of infection in the elderly has decreased.

Studies have determined that people with chronic diseases such as type 2 diabetes mellitus (Rajpal et al., 2020) and populations with different socioeconomic levels have increased morbidity rates. In a study conducted in the USA, it was stated that the inequality of access to health services experienced in groups that are currently disadvantaged in racial, ethnic, and socioeconomic terms increased, and more COVID-19 cases were observed in disadvantaged groups (Wang et al., 2020).

4.1.7. Mortality

After the first death from COVID-19 occurred in China (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline> Accession: May 10. 2021), the number of people caught in the pandemic and lost their lives increased rapidly with the spread of the pandemic to other countries. So

far, more than 3.2 million people have been reported to die from COVID-19 worldwide, with more than 2.6 million of this occurring in North America, South America, and Europe. The 10 countries where deaths from COVID-19 occur the most are the USA, Brazil, India, Mexico, United Kingdom, Italy, Russia, France, Germany, and Spain, respectively (<https://covid19.who.int/> Accession: May 10. 2021).

According to the researches, among the factors that increase the mortality of COVID-19 are acute and chronic cardiovascular diseases such as myocardial infarction, coronary syndrome, and venous thromboembolism (Long et al., 2020), and inflammatory cardiometabolic diseases such as hypertension, type 2 diabetes mellitus, and obesity (Rajpal et al., 2020).

4.1.8. Risk factors

Studies have shown that gender, age, comorbidities, and some exposures increase the risk of getting COVID-19 disease. Old age, obesity, arterial hypertension, type 2 diabetes, asthma, chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILD), chronic kidney and liver diseases, cancer, and pregnancy are among the risk factors for COVID-19 (Jordan et al., 2020; Gao et al., 2021).

In a study, it was stated that patients who were hospitalized due to COVID-19 and whose disease progressed during this period had at least one risk factor. It was emphasized that the majority of the patients mentioned were above the age of 50, male and with comorbidity (Long et al., 2020). In a cohort study conducted with nearly 4 thousand patients in Italy, it was determined that the independent risk factors associated with mortality included old age, male gender, unregulated pulmonary values, chronic pulmonary and cardiometabolic diseases (Grasselli et al., 2020). There is no definitive evidence in the literature that smoking is a risk factor for COVID-19. In a study conducted in China, despite the prevalence of smoking in adult males in the country, which is 60%, the smoking rate among people who participated in the study and who had COVID-19 disease was determined to be 7% (Jordan et al., 2020).

4.1.9. Treatment

In the treatment of COVID-19, different approaches are applied in-hospital and outside the hospital depending on the condition of the patient and the course of the disease, but there is no treatment with a high level of evidence yet. Globally applied medication treatments include anti parasite, adenosine and nucleoside analogues, protease inhibitor, antiviral pathway inducer, corticosteroid, immunoglobulin, hydroxychloroquine, and interleukin inhibitor. These agents have effects such as preventing viral proteins from entering the host cell nucleus, disrupting viral RNA transcription, binding to viral protease, and preventing cleavage of Gag-Pol polyprotein, inducing parallel antiviral pathways, and creating anti-inflammatory responses (Ahmed et al., 2021; Song et al., 2020; Bartoli et al., 2021; Young et al., 2021). "The Solidarity Trial", a phase III-IV multinational clinical trial for COVID-19 disease, organized by WHO, announced that the hydroxychloroquine study arm was stopped on June 17, 2020 (<https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-hydroxychloroquine> Accession: May 10. 2021).

Apart from the approaches described above for the treatment of the disease, protocols have been developed that include various agents and several interventions that contribute to the improvement of the course of the disease (Kory et al., 2021), and hyperbaric oxygen therapy has been used to improve the fraction of inspired oxygen (FiO₂), which occupies an important place among mortality risks (Paganini et al., 2020).

Vaccination studies have been started since the pandemic began to reduce the effectiveness of the pandemic and prevent more people from becoming infected. Some of the global vaccination studies have been successfully concluded, and the vaccination process has been initiated in many countries after the authorization of emergency use. Among the vaccine types developed are classical inactive and attenuated vaccines, protein subunit and virus-like particle vaccines, viral vector-based vaccines, and a new technology of DNA and RNA-based vaccines (Uddin et al., 2020). All vaccines are administered to vaccine candidates in two doses, with a period of 4-6 weeks between them. More than 1.2 billion doses of vaccine have been administered globally so far (<https://covid19.who.int/> Accession: May 11. 2021).

4.1.10. Inpatient & outpatient (home-based)

In the treatment of COVID-19, different approaches are applied as inpatient and outpatient. Medications and oxygen therapy are used as treatment methods, while the disease is severe or critical in 15% of the patients treated in the hospital. In patients treated outside of the hospital, the management of the disease includes a supportive approach and education of isolation as well as the use of medication. The level of evidence is higher in clinical practices within the hospital compared to those outside the hospital (Cheng et al., 2020).

The main purpose in the treatment process of patients treated outside the hospital, i.e., at their homes, is to reduce the risk of contagion with self-isolation. Depending on the presence of comorbidities and the course of the disease, frequent and regular follow-up of the patient and administration of drug therapy are the main methods. In addition, the use of telemedicine and telerehabilitation to monitorize the symptoms and taking fresh air frequently to reduce viral load are among the recommendations made in scientific publications (McCullough et al., 2021; Bokolo, 2021).

4.2. Cardiopulmonary Physiotherapy and Rehabilitation

From a holistic perspective, CPR is an effective method used for the treatment of a wide range of cardiopulmonary diseases through various treatment guidelines. In published reviews and meta-analyses, CPR has been reported to increase maximum oxygen intake and functional capacity, reduce mortality and cardiac risk factors, and provide psychological well-being. Despite this information, the number of patients referred to CPR and the rate of attendance at the rehabilitation program are low. Various regulations should be made to increase the use and efficiency of CPR programs (Dracup et al., 1991; McMahon et al., 2017).

CPR is tailored to the patient, depending on the type of surgical operation or current chronic cardiac-pulmonary disease, the course of the disease, and the patient's condition. Although the components of CPR are tailored to the patient, the main objectives are to increase the patient's exercise tolerance and functional and vital capacity, to increase the independence level of the patient by regulating daily life

activities, to contribute to the reduction of symptoms such as dyspnea, to increase the oxidative and metabolic muscle capacity by preventing skeletal muscle atrophy, and to increase the health-related quality of life. Components of the CPR program include training of aerobic and endurance exercises, breathing techniques, behavior management and patient education. The benefits of the program include reducing cardiovascular demand (stroke volume and blood pressure), extending exercise duration, decreasing ventilatory need, and reducing pulmonary and skeletal symptoms (Louvaris and Vogiatzis, 2015).

PWCPR are an important member of multidisciplinary teams in hospitals, and they also work in intensive care units. Evidence-based and low-cost CPR practices in acute care management have been used effectively since the beginning of the COVID-19 pandemic (Zhao et al., 2020). In a study, it was determined that CPR practices used in COVID-19 monitoring are safe, effective, and feasible (Hermann et al., 2020). In another study, telehealth applications, which have various advantages, are recommended to be used in CPR programs during the COVID-19 pandemic (Bryant et al., 2020).

4.2.1. Physiotherapy in ICU

It was evident (Goñi-Viguria et al., 2018) that CPR practices performed in the ICU are clinically beneficial, albeit at different levels of evidence. Techniques and practices such as lung expansion, cough, vibration, percussion, and postural drainage, are performed to increase segmental ventilation and exercise tolerance, regulate respiratory muscle functions, provide mucociliary clearance and reduce symptoms such as dyspnea. Incentive spirometer device and oscillatory and non-oscillatory devices are among the CPR applications applied in ICU. These devices are used to provide airway clearance, increase lung expansion, and improve post-operative lung functions. Among the CPR approaches in the ICU, it has been determined that the best and most effective results are non-invasive mechanical ventilation for non-intubated patients and manual hyperinflation for intubated patients.

A number of different studies (Hashem et al., 2016; Sommers et al., 2015; Stiller, 2013) suggested and showed that, some clinical pictures carry a "red flag" as they are

considered risky in terms of feasibility of CPR applications in the ICU. Clinical findings that exceed safe treatment limits include heart rate less than 40 beats per minute or more than 130, current myocardial ischemia, mean arterial pressure less than 60mmHg or greater than 110mmHg, oxygen saturation less than 90%, $FiO_2 \geq 0.6$, positive end-expiratory pressure (PEEP) greater than 10 cm H₂O, respiratory frequency greater than 40 per minute, and body temperature less than 36 or more than 38.5 degrees Celsius. In addition, there are scales and tests used to clarify the clinical picture of the patient and to determine the level of activity or function in the ICU. These include 6-Minute Walking Test (6-MWT), hand grip strength measurement with dynamometer, range of motion (ROM) measurements with goniometer, Medical Research Council Scale, Richmond Agitation Sedation Scale, Modified Ashworth Scale, Modified Nottingham Sensory Assessment, and Barthel Index. After the disease picture and the course of the disease are clarified, the importance of early mobilization and rehabilitation are emphasized in order to the patient to gain functional independence quickly with CPR practices applied in the ICU.

Early mobilization and rehabilitation are also important for CPR practices for COVID-19 in the ICU (Valenzuela et al., 2020). In a study conducted in Italy (Curci et al., 2020), it was reported that dyspnea symptoms were observed even in the simplest activities in patients in whom different rehabilitation programs were applied according to the level of their clinical findings. The content of the rehabilitation program consisted of posture training, ROM exercises in the bed and at the bedside, and cardiopulmonary rehabilitation practices. It was stated in the study that the clinical effect of the implementation of the rehabilitation program will be beneficial in determining the patients who will be admitted to the rehabilitation units during the subacute COVID-19 period.

In a study that made recommendations for patients receiving COVID-19 treatment in the ICU (Zhao et al., 2020), CPR practices that can be performed are positioned on some bases. Contraindicated or risky practices are similar to the conditions specified in other studies in the literature, and apart from these, a comprehensive rehabilitation protocol has been emphasized. The content of the scope consists of patient education, timing of practices according to the course of the disease, preparation of the

rehabilitation protocol specific to the patient, shaping the intensity and frequency of exercise, and psychological support.

4.3. The Psychological Impact of COVID-19

The COVID-19 pandemic has had psychological effects on all segments of society globally. With a series of measures taken through their institutions, governments have tried to reduce the rate of spread of the COVID-19 pandemic, to ensure that fewer citizens are affected by the epidemic, and that health systems can survive during periods when the course of the epidemic becomes serious. These precautions have changed the routines and habits of people all over the world. The use of face masks, restrictions in daily and social life, quarantine practices, lockdown or travel bans can be given as examples.

Studies have shown (Luo et al., 2020; Alkhamees et al., 2020; Saurabh and Ranjan, 2020) that the COVID-19 pandemic has negative effects on the whole population. In the COVID-19 pandemic, where children and adolescents suffer mentally, it was determined that they obey the general pandemic, home, and community protection rules at a very low level. It has also been scientifically proven that quarantined children and adolescents feel more psychological pressure than those who are not quarantined, and quarantined children and adolescents mostly used the words anxiety, despair and fear when expressing their feelings. The situation is similar for adults. In a nationwide study, researchers found that the psychological impact of the outbreak was moderate to severe in one quarter of the participants. In a systematic review and meta-analysis, it was stated that the prevalence of anxiety and depression was observed most frequently in patients with COVID-19 infection, and similar findings were found in healthcare professionals and the rest of the society. Social isolation, having a female gender, being a nurse, low economic level, and high infection risk were cited among the biggest risk factors. In addition, it was stated that in countries such as Turkey, Italy, Iran, and Spain where the medical effects of the pandemic are high, healthcare professionals and the rest of the society experience higher mental effects compared to the global average.

Materials that have necessarily become part of daily life also contribute to the psychological effects of COVID-19. In a published expert opinion (Scheid et al., 2020), although the use of face masks does not have clinically significant physiological effects, several negative psychological effects that affect the decision to use masks or that occur as a result of the use of masks are mentioned.

It is crystal clear to see that (De Kock et al., 2021; Tan et al., 2020) the COVID-19 pandemic affects all healthcare professionals and healthcare workers mentally. This exposure may be higher with patients receiving COVID-19 treatment in various subgroups (employees who must make more contact with patients, nurses, female workers, those with chronic diseases, etc.). In studies where various support programs were implemented to reduce the mental impact of healthcare professionals and increase their knowledge and awareness levels (Blake et al., 2020), it has been reported that much wider strategies should be implemented to support healthcare professionals.

4.3.1 Emotional Labor of Health Professionals

The concept of emotional labor of healthcare professionals is the management of emotional demands of a patient and individuals who are stakeholders of the disease. Stress, mental pressure, depression, and burnout syndrome are ailments seen in healthcare professionals when emotional labor is not managed properly during the healthcare service provided to the patient (Jeung et al., 2018).

The concept of emotional labor, which is a part of the professions of not only health professionals, but also all caregivers working in the field of health, can cause mental problems in women, health workers who have problems in their private life or have a lower education level (Pandey et al., 2018). Although it has been determined that emotional labor and emotional intelligence development are not scientifically related, it has been determined that the development of emotional intelligence reduces the tendency of health professionals to feel inadequate and not reach their goals (Năstasă and Fărcaș, 2015). Aggressive behaviors and attitudes towards healthcare professionals by patients and their relatives, which are among the negative elements that can increase the emotional labor burden, cause health workers to normalize the

situation and cause fear and disappointment by accepting the conditions that alleviate the situation (Funk et al., 2021).

4.3.2. Posttraumatic stress disorder

Posttraumatic stress disorder (PTSD), one of the definitions revealed by the results of World War I, indicates the area in which trauma covers mental, behavioral, and emotional dimensions. PTSD, which is related to the disorder in the function of the individual's relationship with his environment, contains specific and nonspecific symptoms such as comorbid symptoms, depression, and anger (Westermeyer, 2018; Campbell and Renshaw, 2018).

PTSD is one of the mental diseases that health professionals working in the ICU can experience in clinical routine (Salmon and Morehead, 2019). COVID-19, which is a disease that completely disrupts well-being, harms all stakeholders of the disease in terms of physiological as well as psychological. In the studies conducted (Xiao et al., 2020; Liang et al., 2020; Kaseda and Levine, 2020), it has been determined that individuals surviving COVID-19 disease and healthcare professionals providing healthcare services to patients with COVID-19 are at risk for PTSD. PTSD, which is a stress-related disease as a result of serious traumatic events, has an immunosuppressive effect on the body. PTSD can create an effect that worsens the disease prognosis in individuals who already have COVID-19, and its immunosuppressive effect can feed both the disease picture and PTSD.

4.3.3. Burnout syndrome

Burnout syndrome, according to the definition made by Freudemberger, is a state of mental fatigue that occurs as a result of the long-term effects of professional responsibilities and the work environment. This syndrome, to which devoted people are more prone, has stages of emotional exhaustion, depersonalization, and reduction in personal accomplishment (Bridgeman et al., 2018).

Burnout syndrome, which is more common in healthcare professionals than other occupational groups due to occupational conditions, is one of the biggest occupational

risk factors of healthcare professionals in the COVID-19 pandemic. Before the pandemic started, health professionals, who worked in an intense pace of work, took important roles in the COVID-19 pandemic, where health systems were caught unprepared, and became more mentally worn out. In the COVID-19 pandemic, where hospitals may have to work with overcapacity, healthcare professionals in various countries reported that they experienced work-related psychological pressure, emotional burnout, and somatic symptoms, which are symptoms that can also lead to PTSD. Higher workloads, prolonged working hours, constant exposure to COVID-19 and the danger of infection, and the need to be in contact with patients are some of the reasons that push healthcare workers to burnout (Restauri and Sheridan, 2020; Barello et al., 2020; Dimitriu et al., 2020).

Like other professions among health professionals, physiotherapists face the risk of burnout brought on by their workplace. In studies conducted for many years (González-Sánchez et al., 1992; Pustułka-Piwnik et al., 2014; Bejer et al., 2019), it has been determined that the increase in the number of patients or working hours that physiotherapists provide health care increases the level of burnout. In a study in which higher burnout findings were observed in male physiotherapists compared to women, the feeling of decreased sense of personal accomplishment was observed more frequently in physiotherapists with a lower education level. Similarly, in another study, higher levels of occupational burnout were found in male, were financially in bad shape, and more experienced physiotherapists.

4.3.4. Compassion fatigue

Compassion fatigue is a syndrome that develops in addition to burnout, which can be defined as secondary traumatic stress syndrome, and occurs because of interactions that require high levels of energy and empathy. Compassion fatigue, which causes physical, mental and work-related symptoms that affect patient care in healthcare professionals, manifests itself acutely. In the literature, researches have been conducted on the concept of compassion fatigue associated with burnout, burnout syndrome, secondary traumatic stress, traumatic stress disorder, and compassion stress, especially in the field of health (Perregrini, 2019; Sorenson et al., 2016; Pérez-Chacón et al., 2021).

Compassion fatigue, which is a "product" of long-term cumulative stress exposure, is a condition that can seriously affect both the work and daily life of healthcare professionals. Compassion fatigue, with work-related stress being the leading risk factor, is more common in less experienced and less educated health professionals. During the COVID-19 pandemic, although the increasing importance of healthcare professionals in society increased the compassion satisfaction and job satisfaction of some professions in the health sector, it was determined that compassion fatigue and burnout levels increased due to the pandemic (Ruiz-Fernández et al., 2020; Sinclair et al., 2017).

Physiotherapists, like other health professionals, are one of the professions at risk of compassion fatigue. The risks and limitations of the COVID-19 pandemic increase the perceived work-related stress levels of physiotherapists. In a study conducted with physiotherapists at the beginning of their careers (Palombaro et al., 2020), it was determined that studies for the public good and having a high level of civic mindedness were an effective method of protection against compassion fatigue for physiotherapists in the early years of the profession.

5. MATERIAL AND METHODS

5.1. Place and Time of the Study

This research was conducted via online survey between February – March 2021.

5.2. Type of the Study

The research is cross-sectional and descriptive. In the research, it is aimed only to reveal the situation in the period when it was done.

5.3. Target Population of the Study

All physiotherapists working in CPR area in Turkey was scheduled to be designated as research universe. Nevertheless, physiotherapists using online platforms and working in the field of CPR formed the research universe in terms of the effective execution of the study (due to COVID-19 restrictions). All physiotherapists (full enumeration) in the field of CPR who agreed to participate in the study constituted the sample of the study. Physiotherapists working in the field of orthopedic, neurological, pediatric, and geriatric physiotherapy and rehabilitation were included in the study as much as the number of physiotherapists working in the field of CPR to detect the change of interest and knowledge on subject during the pandemic period.

5.4. Hypotheses of the Study

H₁: The knowledge and awareness of physiotherapists working in the ICU or respiratory rehabilitation unit regarding the COVID-19 pandemic has not changed.

H₂: The attitudes of physiotherapists working in the ICU or respiratory rehabilitation unit towards the COVID-19 pandemic did not change.

H₃: The interest of physiotherapists who do not work in an ICU or respiratory rehabilitation unit did not change in the field of CPR during the COVID-19 pandemic.

H₄: Physiotherapists working with patients during the COVID-19 pandemic do not have mental effects caused by the COVID-19 pandemic.

5.5. Inclusion Criteria of the Study

- Physiotherapists working in state hospitals / university hospitals / private hospitals / clinics and universities in Turkey between the ages of 22-65,
- Physiotherapists working in ICU, respiratory rehabilitation unit and other working areas (neurology, orthopedics, pediatrics, geriatric physiotherapy, and rehabilitation) during the COVID-19 pandemic and agree to participate in the research were included.

5.6. Exclusion Criteria of the Study

- Physiotherapists who did not participate in the treatment process in the ICU, respiratory rehabilitation unit or other specialty areas during the COVID-19 pandemic or refused to participate in the study,
- Participants who left 3 or more items unanswered in the questionnaire were excluded from the research.

5.7. Data Collection Tools

"The Knowledge, Awareness and Attitude Questionnaire" (Enc. 1) prepared by the researcher physiotherapist and the "The Turkish Adaptation of The Burnout Measure-Short Version (BMS)" (Enc. 2) were applied to the participants through Google Forms. Participants read and approved the informed consent form before completing the questionnaires.

5.7.1. Knowledge, awareness, and attitude questionnaire

The questionnaire prepared consists of PWCPR and PWOF after the demographic information section. The sections of PWCPR and PWOF have been created for the participation of physiotherapists working in the specified field, and include questions that measure the changes in knowledge and attitude during the COVID-19 period and are answered in the form of Yes / No. The section of PWCPR is divided into two sub-headings: "Knowledge and awareness" and "Attitude". Participants answered the questions in these subtitles measuring the changes affecting

the concept in the related topic. All questions in the questionnaire were created to serve the purpose of the study, considering the examples in the literature.

Considering the literature among the scientific bases of the Knowledge, Awareness and Attitude Survey; studies conducted by the Ministry of Health (Akdağ et al., 2010) and researchers (Kanber et al., 2010; Uğurluoğlu et al., 2019) were found in Turkey within the scope of studies measuring satisfaction in healthcare professionals. In another study, the level of burnout was measured as well as satisfaction (Ceylan et al., 2020). Apart from these, there are studies in the literature that measure the level of knowledge of healthcare professionals (Erdem and Akgün, 2018; Durmaz et al., 2016; Topal et al., 2019) and physiotherapists (Yona et al., 2019; Abaraogu et al., 2019). During the COVID-19 pandemic, many studies have evaluated the impact of the pandemic on healthcare workers' attitudes (Chersich et al., 2020; Walton et al., 2020; Spoorthy et al., 2020; Pappa et al., 2020; Chew et al., 2020; Zhang et al., 2020), but there is no study that measures knowledge and attitudes towards physiotherapists. In our study, these studies in the literature were carefully examined and the questions / question roots covering the research areas to be researched were integrated into the questionnaire.

5.7.2. The Turkish Adaptation of The Burnout Measure-Short Version

BMS (Çapri, 2013), which is used to determine the level of burnout in many different occupational groups, is based on the principle of giving 10 items a score between 1 (never) and 7 (always) on a seven-point Likert-type scale in line with the current views of the participants. In the score calculation of the scale, the scores given to 10 items are added together and divided into 10. While analyzing the scores of the participants, the scoring system is evaluated in 5 different groups according to the grade of the score and the level of burnout is interpreted accordingly.

5.8. Statistical Analysis

The data obtained from the study were evaluated with the SPSS 11.5 statistical program at a 95% confidence interval, and the significance level was $p < 0.05$. The suitability of the variables to normal distribution was questioned using the

Kolmogorov Smirnov test and normal distribution graphics. Analyzes in accordance with parametric test conditions were used to examine the variables.

The central and prevalence criteria (descriptive statistics) of the frequency tables of the independent variables and dependent variables in the questionnaire form used in the study were presented, and the significance levels were calculated with the chi-square test by cross-tabulating the queries related to COVID-19 according to the independent variables. Statistical significance level was taken as $p < 0.05$.

In addition, the scores obtained from the burnout scale used in the study were categorized within the assessment method of the scale. Cross tables were created, and comparisons were made using the chi-square test in terms of independent variables and questions about COVID-19. The level of significance was calculated as $p < 0.05$.

The research is cross-sectional and descriptive, and it was only aimed to reveal the situation at the time of the research.

5.9. Ethics Committee Approval

Ethics committee approval was obtained from Marmara University Institute of Health Sciences Ethics Committee, dated 2020.12.14 within the Protocol Number 108 (Enc. 3). Our study was also obtained ethical approval from the Republic of Turkey Ministry of Health, General Directorate of Health Services (Enc. 4).

6. RESULTS

A total of 66 physiotherapists working in cardiopulmonary rehabilitation (33) and other fields of rehabilitation (33) were participated in our study. The average age and professional experience of the participants in both groups are shown in Table 1.

Table 1. Demographic Characteristics of All Participants

	Group	n	Minimum	Maximum	Mean	Std. Deviation
Age	PWCPR	33	25	50	33,09	7,37
	PWOF	33	24	35	26,39	2,2
Years of Professional Experience	PWCPR	33	2	30	10,24	7,69
	PWOF	33	1	9	3,58	2,07
Years of Experience at the Current Institution	PWCPR	33	1	30	6,63	7,07
	PWOF	33	1	7	2,58	1,67
Years of Experience in the field of Cardiopulmonary Rehabilitation	PWCPR	33	0	30	4,9	6,99
	PWOF	33	0	0	0	0
Total		66				
PWCPR: Physiotherapists working in the field of cardiopulmonary rehabilitation						
PWOF: Physiotherapists working in the other fields						

Table 2. Demographic, Educational and Working Information of the Participants

		PWCPR		PWOF	
		n	%	n	%
Gender	Male	12	36,4	11	33,3
	Female	21	63,6	22	66,7
Academic Degree	Undergraduate	11	33,3	18	54,5

MSc (c)	5	15,2	10	30,3
MSc	9	27,3	4	12,1
PhD (c)	6	18,2	1	3
PhD	2	6,1	0	0

Table 2. Demographic, Educational and Working Information of the Participants (continued)

Position	Clinician	31	93,3	31	93,3
	Academician	2	6,1	2	6,1
Institution Type	State University	6	18,2	0	0
	State Hospital	2	6,1	9	27,3
	Private Foundation University	0	0	2	6,1
	Private Hospital/Clinic	6	18,2	21	63,6
	Education and Research Hospital Affiliated to the Ministry of Health	13	39,4	1	3
	Education and Research Hospital Affiliated to the University	6	18,2	0	0
	Institutional Satisfaction	Very Bad	0	0	1
	Bad	2	6,1	5	15,2
	Average	13	39,4	15	45,5
	Good	16	48,5	12	36,4
	Very Good	2	6,1	0	0
Professional Satisfaction	Very Bad	0	0	3	9,1
	Bad	2	6,1	7	21,2
	Average	13	39,4	10	30,3

Good	14	42,4	11	33,3
Very Good	4	12,1	2	6,1

Table 2. Demographic, Educational and Working Information of the Participants (continued)

Total	33	100	33	100
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The number of female participants was higher in both groups (PW CPR: 21, PWOF: 22) (Table 2). It was determined that two out of every three participants (66,7%) in the group of PW CPR received postgraduate education, this rate was 45,5% in the PWOF group (Table 2). Most of the participants in both groups were clinicians (93,3% each) (Table 2). Participants who completed the survey were worked in many different working environments such as state hospitals, state universities, private universities, private hospitals, and clinics (Table 2). Occupational satisfaction and satisfaction from working environment were slightly higher in PW CPR group (Table 2).

Table 3. Multidisciplinary Team Experience in PW CPR

	n total	Yes		No	
		n	%	n	%
Do you have any experience about working in a multidisciplinary team?	33	28	84,8	5	15,2
Are you currently working in a multidisciplinary team?	33	27	81,8	6	18,2
If you are currently working in a multidisciplinary team, do you have a decision-making role?	27	23	85,2	4	14,8
Has your awareness about multidisciplinary team and its working style increased during the COVID-19 pandemic?	33	20	60,6	13	39,4
Have the protocols you use in the ICU or respiratory rehabilitation unit	33	19	57,6	14	42,4

changed since the beginning of the COVID-19 pandemic?

Table 3. Multidisciplinary Team Experience in PWCPR (continued)

Which protocols have changed in ICU or respiratory rehabilitation unit? (you can mark multiple responses)	Before the hospitalization	33	5	15,2
	During the hospitalization	33	14	42,4
	After the hospitalization	33	8	24,2
	Nothing has changed	33	14	42,4

Most of the participants from PWCPR group have a multidisciplinary team experience (84,8%) (Table 3) and currently working as a member of a team (81,8%) (Table 3). Almost all participants (23 of 27) who are working as a part of the multidisciplinary team, making decisions about patients' health conditions (Table 3). Some protocols have been changed since COVID-19 pandemic started in ICU or respiratory rehabilitation unit, and the protocols which have been using during hospitalization changed most (42,4%) (Table 3). Over 60% of participants reported that their awareness about "multidisciplinary team" concept has been increased (Table 3).

Table 4. Knowledge Resources in PWCPR

	n total	Yes		No	
		n	%	n	%
Have you been provided with theoretical information updates on the COVID-19 pandemic since the COVID-19 pandemic started?	33	15	45,5	18	54,5
Individually, have you been trained to update your theoretical knowledge	33	17	51,5	16	48,5

since the COVID-19 pandemic began?

Table 4. Knowledge Resources in PWCPR (continued)

Individually, if you have been trained to update your theoretical knowledge since the COVID-19 pandemic started, which database (s) have you used?	National	17	4	23,5		
	International	17	2	11,8		
	Both	17	11	64,7		
Have you watched webinars about COVID-19?		33	24	72,7	9	27,3
Which person / institutions were the organizers of the webinars you watched? (you can mark multiple responses)	National associations in the field of chest diseases	24	17	70,8		
	International associations in the field of chest diseases	24	5	20,8		
	Local experts working in the field of chest diseases	24	17	70,8		
	Foreigner experts working in the field of chest diseases	24	7	29,2		
From which sources did you access the literature on the COVID-19 pandemic? (you	Turkish literature	33	20	60,6		
	International literature	33	20	60,6		
		33	11	33,3		

can mark multiple responses)	Mediatic resources	33	3	9,1
	Hearsay	33	15	45,5
	From colleague	33	16	48,5
	From medical visit			

Table 4. Knowledge Resources in PWCPR (continued)

Have you contacted your colleagues in different countries where you work in the same area of expertise for professional opinion / information sharing since the COVID-19 pandemic started?		33	8	24,2	25	75,8
Since the COVID-19 pandemic started, have you been consulted when faced with a patient or personal issue related to the pandemic?		33	20	60,6	13	39,4
If you have received counseling since the COVID-19 pandemic started when you faced a patient or personal problem related to the pandemic, what are its sources? (you can mark multiple responses)	From a member of the multidisciplinary team	20	10	50		
	From another specialist at the same institution	20	11	55		
	Another specialist at different institution (same country)	20	8	40		
	Another specialist at different institution (different country)	20				

45% of participants from PWCPR group reported that theoretical update was given by their institution, and 51% have learned latest theoretical knowledge about COVID-19 by their individual efforts (Table 4). Participants have chosen both national and international resources while they are learning more about COVID-19 mostly (Table 4). Most of the participants (24 of 33) watched seminars about COVID-19 and they have preferred national associations and local experts as organizers usually (70,8% each) (Table 4). According to participants, they have had preferred Turkish and International literature more than mediatic resources to gain some information about COVID-19 (Table 4). Only 8 participants (24,2%) have contacted their colleagues from another country to exchange their clinical information about COVID-19 (Table 4).

Table 5. Changes in attitudes and their working routines of PWCPR

	n total	Yes		No	
		n	%	n	%
During the pandemic period, did your anxiety level increase about having or accessing the necessary information about the pandemic?	33	21	63,6	12	36,4
Has your work routine changed (flexible working hours, rotation etc.) since the COVID-19 pandemic began?	33	28	84,8	5	15,2
Have your weekly working hours increased since the COVID-19 pandemic started?	33	7	21,2	26	78,8
Have you ever been on call since the COVID-19 pandemic started?	33	10	30,3	23	69,7
During the pandemic process, did your mobile phone usage increase? (for communication purposes or due to your duty)	33	23	69,7	10	30,3
Do you think that your immediate circle or society's behavior towards	33	28	84,8	5	15,2

you has changed because you are on the COVID-19 team?

Table 5. Changes in attitudes and their working routines of PWCPR (continued)

Did your satisfaction level increase with the way your immediate environment or society treated you between the start of the pandemic and today?	33	14	42,4	19	57,6
Considering the feedback you receive from the society and your working conditions, are your current conditions sustainable?	33	20	60,6	13	39,4

Most participants from PWCPR group (63,6%) have been stated that they felt more anxious since COVID-19 pandemic started (Table 5). In PWCPR group, 84,8% of participants' work routine changed since pandemic began, 30% of the participants were on duty at least once, but only 21% reported increasing work hours (Table 5). Almost 70% of the participants from PWCPR group conveyed about their increased smartphone usage (Table 5). 28 of 33 participants from PWCPR group (84,8%) thought that people's behavior towards them has changed. According to 57,6% of the participants from PWCPR group this changing affect them negatively, but only 39,4% from that group finds their current situation unsustainable (Table 5).

Table 6. Interest from PWOFF to CPR

	n total	Yes		No	
		n	%	n	%
Have you been directed to CPR field during the COVID-19 pandemic? (At the request of the hospital management, due to need, with your personal request, etc.)	33	8	24,2	25	75,8

Have your interest in CPR field increased since the COVID-19 pandemic started?	33	12	36,4	21	63,6
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Table 6. Interest from PWOFF to CPR (continued)

Have you been interested in starting a master's program in CPR field since the COVID-19 pandemic started?	33	2	6,1	31	93,9
Have you made any intention to change your field with CPR since the COVID-19 pandemic started?	33	3	9,1	30	90,9
Since the COVID-19 pandemic started, have you watched a webinar in the field of CPR?	33	13	39,4	20	60,6
Since the COVID-19 pandemic started, have you watched webinars related to your field?	33	22	66,7	11	33,3

During the COVID-19 pandemic, 24% of participants of our research group of PWOFF have been directed to work at the field of cardiopulmonary rehabilitation (Table 6). Most of the participants from PWOFF group has no increased interest in cardiopulmonary rehabilitation field (63,6%) (Table 6). Also, most of the participants from that group has no intention neither to start a master's program in cardiopulmonary rehabilitation field (93,9%) nor to change their current field with cardiopulmonary rehabilitation field (90,9%) (Table 6). 39% of the participants from PWOFF group have watched a webinar in cardiopulmonary rehabilitation field and 66,7% watched webinars related into their current fields (Table 6).

Table 7. Group Statistics in The Turkish Adaptation of The Burnout Measure-Short Version

Groups	n	Mean	Std. Deviation
PWCPR	33	3,08	1,54

PWOF	33	3,93	1,15
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Table 7. Group Statistics in The Turkish Adaptation of The Burnout Measure-Short Version (continued)

Total	66		
PWCPR: Physiotherapists working in the field of cardiopulmonary rehabilitation			
PWOF: Physiotherapists working in the other fields			

When the participants' scores on the Burnout Scale were compared, it was determined that physiotherapists working in other fields got higher scores than physiotherapists working in the field of cardiopulmonary rehabilitation (Table 7). These data are interpreted as that there are danger signals for the burnout of physiotherapists working in the field of cardiopulmonary rehabilitation and that there is a state of burnout for physiotherapists working in other fields.

Table 8. Comparison between two groups in The Turkish Adaptation of The Burnout Measure-Short Version

Value	t	df	p
TA-BMS	-2,534	64	0,014

TA-BMS: The Turkish Adaptation of The Burnout Measure-Short Version, $p < 0,05$
Independent Samples T Test

The normal distribution of the groups was determined by the Kolmogorov Smirnov Test ($p < 0,05$). When the scores obtained from The Turkish Adaptation of The Burnout Measure-Short Version were compared according to the groups, a statistically significant difference was found ($p < 0,05$).

7. DISCUSSION and CONCLUSION

Since COVID-19 was declared a pandemic, it has been a disease that requires updating the theoretical and clinical knowledge available in healthcare professionals. The disease was declared a pandemic in March 2020, and in the early stages of the pandemic, individuals had a higher level of panic as the level of knowledge and awareness of the disease was lower. When the literature is reviewed for the studies conducted, in the studies attended by healthcare professionals and medical and health sciences faculty students who will graduate from various occupational groups during the periods when COVID-19 disease was declared as a pandemic, participants had a little information about the risk factors, etiology and transmission method of the disease. The vast majority of respondents stated that they used social media to get information about the COVID-19 pandemic. It was stated that having less information about transmission and symptom onset is associated with a positive perception, while factors such as age and area of expertise are associated with less knowledge and a negative perception about COVID-19 (Puspitasari et al., 2020; Bhagavathula et al., 2020).

Our study was conducted in March 2021, exactly one year after the COVID-19 disease was declared a pandemic by WHO. All our participants had one year of knowledge and experience regarding the COVID-19 pandemic. The average age of the PWCPR group (PWCPR: 33.09, PWOF: 26.39), and the average years of professional experience (PWCPR: 10.24, PWOF: 3.58) were higher than the PWOF group. In both groups, 93.9% of the participants were clinicians. The proportion of those working in the private sector was 18.2% in the PWCPR group and 63.6% in the PWOF group.

Among the participants, two-thirds (66.7%) of the PWCPR group and almost half (45.5%) of the PWOF group consisted of individuals who received postgraduate education. The ratio of the participants who continue or complete their doctorate education according to the groups was 24.24% in the PWCPR group and 3.03% in the PWOF group.

The rate of participants who stated that the level of institutional satisfaction of the institutions they work with was negative, was lower in the PWCPR group. The

negative corporate satisfaction rate was 6.06% in the PWCPR group, and it was 18.18% in the PWOFF group. In addition, none of the participants from the PWOFF group described the level of corporate satisfaction as "very good" at the institution where they work. The level of professional satisfaction that the participants felt in their institution was also higher in the PWCPR group. The percentage of participants in the PWCPR group who defined their professional satisfaction level as "average" and above was 93.9%, while this rate remained at 69.7% in the PWOFF group.

In line with the findings obtained in our study, it is thought that the lower level of institutional and professional satisfaction of the PWOFF group compared to the PWCPR group is associated with lower average age, less professional experience, and more irregular working conditions.

In studies investigating the role of physiotherapist from the perspective of different occupational groups within healthcare professionals, it was revealed that the physiotherapists' contributions and their importance for the multidisciplinary team were noticed, but there was no clear information about their duties and work areas (Dalley and Sim, 2001; Vincent-Onabajo et al., 2014). Apart from these, there are studies in the literature that emphasize the importance of multidisciplinary work in rehabilitation services (Hjelle et al., 2016).

In our study, most of the participants in the PWCPR group have experience of working with a multidisciplinary team (84.8%), and again a very large part of the group is currently working as a member of the multidisciplinary team (81.8%). 85.2% of the physiotherapists in the PWCPR group who are currently working as a member of the multidisciplinary team stated that they have a decision-making role in the team.

According to these findings, it was determined in our study that higher level of institutional and professional satisfaction of the participants in the PWCPR group compared to the participants in the PWOFF group was related to their working conditions.

When the literature on health professionals' knowledge, attitude, and sources of information regarding the COVID-19 pandemic was examined, it was determined that

various communication tools and scientific institutions were used as sources of information. In studies conducted with health professionals in different countries, social media is at the forefront of the tools used as a source of information, while workplace, colleagues, television, and other sources are among the other tools used as information sources (Chan et al., 2020; Maude et al., 2020).

In our study, our participants in the PWCPR group mostly pointed to domestic and foreign literature as sources of access to information. In addition, social media, other members of the multidisciplinary team, and other physiotherapists are among the sources where they get information about the COVID-19 pandemic. 72.7% of the participants in the PWCPR group stated that they watched a webinar to obtain information about the COVID-19 pandemic, and the majority of the webinar resources were composed of national associations and local experts (70.8%). Participants in the PWCPR group received a consultation rate of 60.6% regarding the pandemic, and the counseling contact of the participants who applied for a consultation was another expert in their own institutions at a rate of 60%. When the data obtained in our study were examined, it was seen that physiotherapists obtained theoretical and practical information about the COVID-19 pandemic from various sources and used similar tools to the literature in terms of information sources.

During the COVID-19 pandemic, it was seen in the questionnaires investigating the mental involvement of healthcare professionals and the meta-analyzes examining these studies, that healthcare workers experienced high psychological stress during the pandemic process. Their work routines and behaviors have changed, their workload has increased, their sleep routines have changed, they have experienced financial difficulties, have worried about their environment and their families, and have had difficulty while doing their jobs due to all these increasing burdens (Sethi et al., 2020; da Silva and Barbosa, 2021).

Within the scope of our study, it was determined that the behavior and work routines of PWCPR have changed. 63.6% of the PWCPR who participated in the study stated that they could not reach sufficient information about the pandemic and experienced anxiety disorder, 84.8% of the group stated that their work routine had changed. Of the PWCPR, 21.2% stated that their weekly working hours increased, and 30.3% were

called on shifts and 69.7% of them increased their mobile phone usage time. The rate of those who think that the behavior of the society towards them has changed is 84.8% and the rate of those who are not satisfied with this change is determined to be higher than the satisfied participants (57.6%). Despite all this, 60.6% of PWCPR think that their current conditions are sustainable. The obtained data are compatible with the literature. In the COVID-19 pandemic, as in other countries and other professions in the healthcare field, the attitudes, and behaviors of PWCPR in Turkey both towards the COVID-19 pandemic and in their daily routines have changed. In addition, their anxiety levels increased, and they felt that they could not get enough support from the society. However, it is predicted that most physiotherapists working in the field of cardiopulmonary physiotherapy and rehabilitation who participated in the study think that their status is sustainable, because their professional satisfaction levels are high, their field-related knowledge of the COVID-19 pandemic is higher than that of PWOFF, and their working conditions are at a certain standard.

In the COVID-19 pandemic, physiotherapists working as part of a multidisciplinary team in the treatment of infected patients have gained great importance. In a study conducted in Brazil (Pinto & Carvalho, 2020), it was stated that the number of PWCPR in the country is above the world average, and their authority and responsibilities are higher than their colleagues in the world. Another study (Falvey et al., 2020) has highlighted home and community-based physiotherapists, who are among the primary healthcare providers during the pandemic process, stated that participation in physiotherapy and rehabilitation practices reduces the rate of hospitalization, and this is an effective method to prevent hospitals from working with excessive capacity during the pandemic period.

Globally increasing attention to respiratory system diseases and CPR due to the COVID-19 pandemic is one of the topics investigated in our study. Only 24.2% of the participants in the PWOFF group were directed to the CPR area for work. 36.4% of the participants in the PWOFF group stated that their interest in the field of CPR increased, the vast majority of them were neither willing to change their field of study (90.9%) nor to apply for a master's program in the field of CPR (93.3%). Since the COVID-19 pandemic started, the rate of participants in the PWOFF group stating that they watched webinars related to the field of CPR remained at 39.4%, and the rate of participants

who stated that they watched webinars related to their field of study was much higher (66.7%). When these data in our research results are examined, it has been determined that physiotherapists working outside the CPR area in Turkey have not increased their interest in the CPR field since the COVID-19 pandemic started.

There are many studies in the literature about the mental effects of COVID-19 on healthcare workers (Restauri and Sheridan, 2020; Barello et al., 2020; Dimitriu et al., 2020; Xiao et al., 2020; Liang et al., 2020; Kaseda and Levine, 2020). In addition, there are studies in the literature investigating both the mental health of physiotherapy and rehabilitation students (Soundy et al., 2021) and the occupational burnout levels of physiotherapists (Pniak et al., 2021) during the COVID-19 pandemic. As a result of the research, it was determined that physiotherapy and rehabilitation students were worried about their future and lost their productivity. It was determined that clinical physiotherapists experienced high levels of burnout in the areas of emotional exhaustion, insensitivity to the environment, and inability to achieve personal success.

In our study, a statistically significant difference was found between the participants in the PWOFF group and the participants in the PWCPR group in terms of burnout level ($p=0.014$). It was determined that the burnout levels of the participants in the PWOFF group were higher than the burnout levels of the participants in the PWCPR group. In addition, according to the scores obtained from TA-BMS, it was determined that the participants in the PWCPR group were experiencing danger signals in terms of burnout, and the participants in the PWOFF group were already experiencing burnout. Our research results are in line with the literature. The COVID-19 pandemic, which mentally affects all healthcare professionals globally including physiotherapists, has also adversely affected the physiotherapists in our country. The difference between the burnout levels of physiotherapists in different fields of study is explained by the differences in the mean age, years of professional experience, educational level, and workplace environment between the groups.

In conclusion, this study is considerable in terms of determining the change in the knowledge, awareness, and attitudes of PWCPR who are directly fighting the COVID-19 pandemic as a member of the multidisciplinary team. Up-to-date follow-up of the literature on the COVID-19 pandemic and regular updating of theoretical information

are of critical importance in the effective fight against the pandemic. In our study, it is seen that PWCPR should continue to develop the knowledge and awareness they have developed since the beginning of the COVID-19 pandemic in order to diversify the resources they have access and to increase the number of resources they can access.

It was seen in our study that PWCPR, who stated that the way society behaves towards them in the COVID-19 pandemic has changed and they are not satisfied with this situation, should be supported socially. Although they state that their current conditions are sustainable, considering that they give signals of mental exhaustion, it is an important issue concerning public health that both legislators and other segments of the society fulfill their responsibilities to alleviate the devastating effects of the pandemic. The most effective method of combating the COVID-19 pandemic is possible with the support to be given to healthcare professionals directly faced with the disease.

The low interest from PWOFF in the field of CPR must be increased. In addition to the acute and mental negative effects of the COVID-19 pandemic, the long-term symptoms of the disease are still not well known. In order to combat these symptoms, PWOFF should follow and apply the practices that entered in clinical practice with the COVID-19 pandemic.

In our study, it was observed that the mental status of physiotherapists, which were also at risk of burnout in their normal work routine, were at critical levels due to the effects of the COVID-19 pandemic. Physiotherapists working in all fields need to improve their working conditions, optimize their working environment, reduce their workload and work hours, and be supported socioeconomically. With the regulations to be made socially and professionally, the level of burnout of physiotherapists will fall to acceptable limits and this will add power to all segments of the society in order to protect the public health in the fight against pandemic.

Limitations of our Study

- There are very few PWCPR in Turkey and therefore a small number of participants can be reached.

- There are very few studies in the literature globally examining the effects of pandemic to physiotherapists in various fields due to the COVID-19 pandemic, but none in Turkey.

Suggestions for Future Studies

- The sample size can be increased by reaching more physiotherapists working in the field of cardiopulmonary physiotherapy and rehabilitation.
- With broad participation across the country, the occupational and mental burden experienced by physiotherapists associated with the COVID-19 pandemic can be determined.



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9. ENCLOSURES

9.1. Enc. 1: The Knowledge, Awareness and Attitude Questionnaire

COVID-19 Bilgi Farkındalık Ve Tutum Anketi

- Yaş / Cinsiyet:
- Eğitim düzeyiniz: Lisans / Yüksek Lisans (öğrenci) (mezun) / Doktora (öğrenci) / Doktora (mezun)
- Mesleki tecrübe (yıl):
- Mesleki pozisyonunuz: akademisyen / klinisyen / diğer
- Çalışılan kurumun türü: Devlet Üniversitesi / Vakıf Üniversitesi / Devlet Hastanesi / Sağlık Bakanlığına bağlı EAH / Üniversiteye bağlı EAH / Özel Hastane
- Çalıştığınız kurumdaki tecrübe süreniz (yıl):
- Kardiyopulmoner rehabilitasyon alanındaki tecrübe süreniz (yıl):
- Çalıştığınız kurumdaki kurumsal memnuniyet düzeyiniz: Çok kötü/Kötü/Orta/İyi/Çok iyi
- Çalıştığınız kurumdaki mesleki memnuniyet düzeyiniz: Çok kötü/Kötü/Orta/İyi/Çok iyi

Kpr Alanında Çalışan Fizyoterapistler

Aşağıdaki sorular yalnızca KPR alanında çalışan fizyoterapistlere yöneltilen olacaktır.

Bilgi ve Farkındalık Değişimleri

Aşağıdaki sorular KPR alanında çalışan fizyoterapistlerin COVID-19 pandemisi sürecinde, mesleki ve pandemiye ilişkin bilgi ve farkındalık değişimlerini değerlendirmektedir.

- Önceden sürdürdüğünüz ya da halen sürdürmekte olduğunuz bir KPR lisansüstü öğretim mevcut mu? Evet/hayır
- Multidisipliner bir ekip ile çalışma deneyiminiz var mı? Evet/hayır
- Halen multidisipliner bir ekip ile çalışıyor musunuz? Evet/hayır
- Eğer multidisipliner ekip içinde çalışıyorsanız, ekipte karar verici rolünüz mevcut mu? Evet/hayır

• Multidisipliner ekibe ve çalışma stiline dair farkındalığınız COVID-19 pandemisi sürecinde arttı mı? Evet/hayır

• YBÜ ya da solunum rehabilitasyonu kliniğinde kullandığınız protokoller, COVID-19 pandemisinin başından bu yana değişti mi? Evet/hayır

Evet ise değişim içeriği nelerdir? (birden çok seçeneği işaretleyebilirsiniz): Hastayı YBÜ'ye ya da solunum rehabilitasyonu ünitesine interne etmeden önceki protokoller değişti / Hastanın YBÜ'de ya da solunum rehabilitasyonu ünitesinde interne edildiğindeki protokoller değişti / Hasta YBÜ'den ya da solunum rehabilitasyonu ünitesinden eksterne edildikten sonraki protokoller değişti

• Kurumunuz tarafından, COVID-19 pandemisi başladığından bu yana tarafınıza COVID-19 pandemisi hakkında teorik güncelleme eğitimi sağlandı mı? Evet/hayır

Evet ise eğitimin süresi (saat):

• Bireysel olarak, COVID-19 pandemisi başladığından bu yana teorik güncelleme eğitimi aldınız mı? Evet/hayır

Evet ise kullanılan veritabanı: Yerli / Yabancı

• COVID-19 hakkında webinar izlemleri yaptınız mı? Evet/hayır

Evet ise izlediğiniz webinar düzenleyicisi (birden çok işaretleyebilirsiniz): Göğüs hastalıkları alanındaki ulusal dernekler / Göğüs hastalıkları alanındaki uluslararası dernekler / Göğüs hastalıkları alanında çalışan yerli uzmanlar / Göğüs hastalıkları alanında çalışan yabancı uzmanlar

• Pandemiye ilişkin literatüre hangi kaynaklardan eriştiniz?

Birden çok seçeneği işaretleyebilirsiniz: yerli literatür, yabancı literatür, medyatik kaynaklar, kulaktan duyma, meslektaştan duyma, vızit vb hastane ortamında duyma

• Aynı alanda çalıştığınız farklı ülkelerdeki meslektaşlarınızla COVID-19 pandemisi başladığından bu yana mesleki görüş/bilgi paylaşımı için iletişime geçtiniz mi? Evet/hayır

• COVID-19 pandemisi başladığından bu yana, pandemiye ilişkin hasta veya kişisel bir sorunla karşılaştığınızda danışma aldınız mı? Evet/hayır

Evet ise danışma kaynağı: Multidisipliner ekip üyesi / Aynı kurumdaki bir başka uzman / Farklı kurumdaki (ulusal) bir başka uzman / Farklı kurumdaki (uluslararası) bir başka uzman

Tutum Değişimleri

Aşağıdaki sorular KPR alanında çalışan fizyoterapistlerin COVID-19 pandemisi sürecinde, Bireysel, mesleki ve pandemiye ilişkin tutum değişimlerini değerlendirmektedir.

- Pandemi sürecinde pandemiye dair gerekli bilgiye sahip olma ya da erişme konusunda kaygı düzeyiniz arttı mı? Evet/hayır
- COVID-19 pandemisi başladığından bu yana çalışma rutininiz (esnek çalışma, dönüşümlü mesai) değişti mi? Evet/hayır
- COVID-19 pandemisi başladığından bu yana haftalık çalışma saatiniz arttı mı? Evet/hayır
Evet ise artan haftalık çalışma saati miktarı (saat):
- COVID-19 pandemisi başladığından bu yana nöbet tuttunuz mu? Evet/hayır
Evet ise haftalık çalışma saati miktarı (saat):
- Pandemi sürecinde iletişim veya göreviniz gereği cep telefonu kullanımınız arttı mı? Evet/hayır
- Çevrenizin ya da toplumun size COVID-19 ekibinde yer almanız nedeni ile davranış biçimi değiştiğini düşünüyor musunuz? Evet/hayır
- Pandeminin başladığı tarih ile bugün arasında çevrenizin ya da toplumun size davranış biçimine dair memnuniyetiniz arttı mı? Evet/hayır
- Toplumdan aldığımız geri bildirim ve çalışma koşullarınızı düşündüğünüzde, mevcut şartlarınızın sürdürülebilirliği hakkındaki fikriniz nedir? Evet sürdürülebilir/ Hayır sürdürülemez.

Kpr Alanında Çalışmayan Fizyoterapistler

Aşağıdaki sorular yalnızca KPR alanında çalışmayan fizyoterapistlere yöneltilen olacaktır.

- COVID-19 pandemisi sürecinde kardiyopulmoner fizyoterapi ve rehabilitasyon alanına yönlendirildiniz mi? (Hastane yönetiminin talebiyle, ihtiyaç nedeniyle, kişisel talebiniz ile vb.) Evet/hayır
- COVID-19 pandemisi başladığından bu yana kardiyopulmoner fizyoterapi ve rehabilitasyon alanına ilginiz arttı mı? Evet/hayır
- COVID-19 pandemisi başladığından bu yana KPR yüksek lisans programına ilgi duydunuz mu? Evet/hayır

- COVID-19 pandemisi başladığından bu yana çalışma alanınızı KPR ile deęiřtirme niyetiniz oldu mu? Evet/hayır
- COVID-19 pandemisi başladığından bu yana, KPR alanına iliřkin webinar izlemleri yaptınız mı? Evet/hayır
- COVID-19 pandemisi başladığından bu yana, çalıştığınız alana iliřkin webinar izlemleri yaptınız mı? Evet/hayır



9.2. Enc. 2: The Turkish Adaptation of The Burnout Measure-Short Version (BMS)

Bu bir kendini deęerlendirme ölçeğidir. İş ortamınız ve mesleğinizle ilgili aşağıdaki durumları ne sıklıkla yaşadığınızı belirtmeniz istenmektedir. Lütfen aşağıdaki her ifadeyi okuduktan sonra 7 dereceli ölçeği kullanarak her bir maddenin yanındaki boşluğa size en uygun olan rakamı yazın.

ÖRNEK: 5 1- Yorgun

1	2	3	4	5	6	7
Hiçbir Zaman	Sadece Bir Defa	Nadiren	Bazen	Sık sık	Çoğunlukla	Her Zaman

- ___ 1- Yorgun
___ 2- İnsanlar İle İlgili Hayal Kırıklığına Uğramış
___ 3- Umutsuz
___ 4- Kapana Kısılmış
___ 5- Çaresiz
___ 6- Çökmüş
___ 7- Zayıf
___ 8- Güvensiz
___ 9- Uyuma Güçlüğü
___ 10- Yeter Artık Dayanamıyorum