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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

BURNOUT LEVELS OF HEALTHCARE PROFESSIONALS DURING THE COVID-19 PANDEMIC PERIOD: A MIXED MODEL RESEARCH*

COVID-19 PANDEMİSİ DÖNEMİNDE SAĞLIK ÇALIŞANLARININ TÜKENMİŞLİK DÜZEYLERİ: KARMA MODEL BİR ARAŞTIRMA

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ABSTRACT

The COVID-19 pandemic has increased the likelihood of burnout among healthcare workers, as well as the likelihood of burnout-related hazards. The study aims to explore burnout in healthcare professionals and the specific changes and challenges brought on by the epidemic. Participants complete the Maslach Burnout Scale Short Form and answer four open-ended questions through Google Forms. The impact of occupation on burnout is minimal, with only slight differences observed between physicians, nurses, and other healthcare workers. Change in working hours is associated with higher levels of burnout compared to unchanged working hours. Participants with low and very low levels of burnout report more occupational changes, while those with high and very high burnout levels experience more psychological difficulties. High burnout levels are associated with challenges in working conditions, mask-equipment use, and psychological well-being. These findings are consistent with previous research linking increased workload, alterations in work environment, and psychological difficulties to burnout during the COVID-19 pandemic. In general, the findings align with previous studies that highlight the impact of changes in the work environment, increased workload, and psychological factors on burnout.

Keywords: Burnout, Covid-19, Health Care Professionals, Personal Protective Equipment, Working Conditions.

JEL Classification Codes: I10, I19.

ÖZ

COVID-19 pandemisi, sağlık çalışanları arasında tükenmişlik olasılığını ve tükenmişlikle ilgili riskleri de artırdı. Bu çalışmada sağlık profesyonellerinde tükenmişliği ve salgının getirdiği özel değişiklikler ile zorlukları araştırmak amaçlandı. Tükenmişlik düzeyini ölçmek amacıyla Maslach Tükenmişlik Ölçeği Kısa Formu ve nitel analiz amacıyla dört açık uçlu soru katılımcılara Google Forms üzerinden iletildi. Mesleğin tükenmişlik üzerindeki etkisi minimal olup, doktorlar, hemşireler ve diğer sağlık çalışanları arasında yalnızca küçük farklılıklar gözlemlendi. Çalışma saatlerindeki değişiklik, değişmeyen çalışma saatlerine kıyasla daha yüksek tükenmişlik seviyeleri ile ilişkili bulundu. Düşük ve çok düşük tükenmişlik seviyelerine sahip katılımcılar daha fazla mesleki değişiklik bildirirken, yüksek ve çok yüksek tükenmişlik seviyelerine sahip olanlar daha fazla psikolojik zorluk bildirdi. Yüksek tükenmişlik seviyeleri, çalışma koşullarındaki zorluklar, maske-ekipman kullanımı ve psikolojik iyi olma hali ile ilişkiliydi. Bu bulgular, COVID-19 pandemisi sırasında artan iş yükü, iş ortamındaki değişiklikler ve psikolojik zorlukların tükenmişlikle ilişkilendirildiği önceki araştırmalarla tutarlıdır. Genel olarak, bulgular iş ortamındaki değişiklikler, artan iş yükü ve psikolojik faktörlerin tükenmişlik üzerindeki etkisini vurgulayan önceki çalışmalarla uyum gösterdi.

Anahtar Kelimeler: Tükenmişlik, Covid-19, Sağlık Profesyonelleri, Kişisel Koruyucu Ekipman, Çalışma Koşulları.

JEL Sınıflandırma Kodları: I10, I19.

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GENİŞLETİLMİŞ ÖZET

Amaç ve Kapsam:

Maslach ve Goldberg (1998)'e göre tükenmişlik, kişinin işine olan ilgisinin azalması, duyarsızlaşma ve düşük performans gibi semptomların eşlik ettiği fiziksel, duygusal ve zihinsel tükenme olgusu olarak tanımlanmaktadır. Sağlık çalışanlarının COVID-19 salgını sırasında ilk kez böyle bir salgınla karşı karşıya kalması ve bu salgına yönelik herhangi bir eğitim almamış olması, hastaya nasıl yaklaşılacağı ve bu salgından nasıl korunacağı konusunda belirsizliklere neden olmuştur. Bu durum sağlık çalışanlarını yoğun stres altında çalışmaya zorlayarak duygusal ve fiziksel tükenmişlik yaşatmıştır (Chen vd., 2020; Shih vd., 2007). Ayrıca idari ve denetleyici deneyimlerle ilgili sorunlar, kişisel koruyucu ekipmanlarla çalışma ve aşırı iş yüküyle karşı karşıya kalmanın da tükenmişliğe yol açtığı bulunmuştur (Zhao, 2020). COVID-19 salgını, sağlık çalışanlarının yaşadığı iş yükünü ve iş stresini önemli ölçüde artırdı. Bu nedenle tükenmişlik konusuna odaklanan çalışmalar, sağlık çalışanlarının psikolojik durumlarının doğru anlaşılması ve gerekli önlemlerin alınması açısından büyük önem taşımaktaydı. Bu konuda yapılan araştırmalar çalışma koşulları, meslek, cinsiyet, geçmiş psikolojik problemler gibi çok sayıda değişkenle tükenmişliğin ilişkisini incelemiştir (Lluch, vd., 2022; Stodolska, vd., 2023). Derleme çalışmalarda iş yükü, rollerin değişimi, COVID-19 hastalarıyla temas, damgalanma gibi faktörlerin genellikle tükenmişlikle pozitif ilişkili olduğu görülmüştür. Buna karşın cinsiyet, medeni durum, yaş gibi demografik değişkenlerle ilgili sonuçlar ise tutarlı değildir. Araştırmamız, sağlık çalışanlarının COVID-19 salgını sırasında karşılaştığı zorlukları ele almış ve tükenmişliğe katkıda bulunan faktörleri incelemiştir. Bu çalışmamızda COVID-19 döneminde sağlık çalışanlarında tükenmişlik düzeyini ölçmek için bir ölçek ve karşılaştıkları belirli sorunları araştırmak için yarı yapılandırılmış bir görüşme formu kullanarak karma yöntem yaklaşımı kullandık.

Yöntem:

Bu çalışma, sağlık çalışanlarında COVID-19 döneminde tükenmişliğin araştırılması amacıyla bir ölçek ve 4 açık uçlu sorudan oluşan formun bir arada kullanıldığı karma yöntemli bir çalışmadır. Creswell ve Plano Clark (2007, s. 5) karma yöntem araştırmasını "nitel ve nicel verilerin bir veya daha fazla çalışmada toplanması, analiz edilmesi ve bütünleştirilmesi" olarak tanımlamıştır. Karma yöntem, nicel anket formlarını ve nitel yarı yapılandırılmış görüşme formlarını içeren, ortamı derinlemesine keşfetme fırsatı sunan bir araştırma yöntemidir (Tariq ve Woodman, 2013). Araştırmaya 198 Türk sağlık çalışanı katıldı. Yaşları 22 ila 66 arasındaydı (M = 37,10, SD = 9,40) ve %81,8'i kadındı. Meslek açısından yüzde 55,5'i hemşire, yüzde 32,3'ü doktor ve yüzde 12,1'i ebe, psikolog veya hasta bakıcı olarak çalışıyordu. Bireylerin dörtte biri (%24,1) en az bir kronik rahatsızlığa sahip olduğunu bildirdi. Bunların %70'i Kovid-19 eğitimi aldı. Katılımcıların yaklaşık yarısı çalışma saatlerinin değiştiğini, %36'sı ise üzerinde çalıştıkları hizmetin değiştiğini söyledi. COVID-19 döneminde bireylerin %15'i bir akrabasını, %23'ü ise bir iş arkadaşını kaybettiğini bildirdi. Nicel veriler JAMOVI yazılımı (The Jamovi Project, 2020) kullanılarak analiz edilmiştir. Her ölçüm değişkeni için ortalama, standart sapma ve frekans gibi tanımlayıcı istatistikler hesaplandı. Katılımcılar daha sonra tükenmişlik puanlarına göre, çeyrek dilimler (yani üst %25: yüksek tükenmişlik, alt %25: düşük tükenmişlik) kullanılarak dört gruba ayrıldı. Önemli farklılıkları değerlendirmek için çeyrekler arasındaki kategoriler arasındaki farklılıklar incelendi. Nitel veri analizinde transkriptleri kodlamak, veriler içindeki temaları ve alt temaları belirlemek için MAXQDA yazılımı kullanılmıştır.

Bulgular:

Analiz, "çalışma saatlerindeki değişikliklerin" tükenmişlik üzerinde küçük bir etkisi olduğunu ortaya çıkardı (*d* =-.31, %95 *GA* [-.6,-.03]). COVID-19 salgını nedeniyle çalışma saatlerinde değişiklik yaşayan katılımcılar (*M* = 4,91, *SS* = 1,36, %95 *GA* [4,61, 5,21]), çalışma saatleri değişmeyenlere (*Ort.* = 4,45) kıyasla daha yüksek düzeyde tükenmişlik bildirdiler (*SS* = 1,53, %95 *GA* [4,17, 4,74]; *F* (1, 191) = 4,77, *p* = ,03). "Konut statüsündeki değişimin" tükenmişlik üzerinde anlamlı ve orta düzeyde bir etkisi olduğu bulundu, (*d* =-.56, %95 *GA* [-1.05,-.07]). COVID-19 salgını nedeniyle konut durumlarında değişiklikler yaşayan katılımcılar (*Ort.* = 5,41, *SS* = 1,20, %95 *GA* [4,73, 6,08]), bu tür değişiklikleri deneyimlemeyenlere kıyasla daha yüksek düzeyde tükenmişlik bildirdiler (*Ort.* = 4,60, *SS* = 1,47, %95 *GA* [4,38, 4,81]; *F* (1, 191) = 5,10, *p* = ,025).

Sonuç ve Tartışma:

Araştırmanın niceliksel analizi, çalışma saatlerinde veya barınma koşullarında değişiklik yaşayan katılımcıların, bu tür değişiklikleri yaşamayanlara kıyasla daha yüksek düzeyde tükenmişlik bildirdiklerini ortaya çıkardı. Bu bulgular Kamali vd. (2020) tarafından yürütülen araştırmayla uyumludur. COVID-19 hizmetlerinde artan fazla mesai ve çalışma saatlerinin tükenmişlik ile ilişkili olduğunu bulmuştur. Benzer şekilde Giusti ve meslektaşları (2020) artan iş yükü, COVID-19 hastalarıyla temas ve hasta bakımıyla ilgili psikolojik faktörlerin tükenmişliğe katkıda bulunan faktörler olduğunu belirlemiştir. Barello ve arkadaşları (2020) da iş risklerinin, iş-aile dengesindeki bozulmanın ve belirsizliğin tükenmişlik ile ilişkili olduğunu bildirmiştir. Toplu olarak bu sonuçlar, konaklama yerlerini değiştirmek zorunda kalan veya daha yüksek iş yükü veya çalışma saatleri nedeniyle artan enfeksiyon riski yaşayan katılımcıların tükenmişliğe daha duyarlı olduğunu göstermektedir.

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1. INTRODUCTION

Since its first appearance, the COVID-19 pandemic has affected many individuals worldwide, turning it into a global problem. Even though the world's nations have taken numerous steps to stop the COVID-19 pandemic from spreading, it has had a significant impact on individuals living in numerous nations. Numerous limitations, including the implementation of a travel ban and the closure of schools and colleges, have had an impact on people's physical and psychological well-being (Twenge and Joiner, 2020).

People experienced anxiety and fear because they were dealing with a virus they had never encountered before and because they were unsure of how to combat it. Individuals may have some psychological impact because of this (Daly et al., 2022). Burnout is one such psychological consequence. According to Maslach and Goldberg (1998), burnout is characterized as a phenomenon of physical, emotional, and mental exhaustion that is accompanied by symptoms, including poor performance, depersonalization, and diminished interest in one's job.

Burnout, characterized by loss of interest and emotional exhaustion among employees, can lead to a decline in the quality of service or attention provided (Weiskopf, 1980; Mazur and Lynch, 1989). This phenomenon is commonly observed in professions that involve serving others, including doctors, nurses, teachers, and lawyers (Maslach & Leiter, 1997). Health workers are one of the susceptible groups to burnout (Goldberg et al., 1996). Given the unprecedented challenges posed by the COVID-19 pandemic, healthcare professionals have been particularly vulnerable to psychological stress, leading to an increased incidence of burnout. The consequences of burnout in healthcare settings are numerous and significant, encompassing decreased quality of care, an increased likelihood of medical errors, and reduced employee and patient satisfaction (West et al., 2009; Williams et al., 1997). Therefore, understanding and addressing burnout among healthcare professionals is crucial for ensuring the overall well-being of both employees and patients.

The fact that healthcare professionals are faced with such an epidemic for the first time during the COVID-19 pandemic and that they have not received any training for this epidemic causes uncertainty about how to approach patients and protect themselves from it. This situation forces health workers to work under intense stress, causing them to experience emotional and physical burnout (Chen et al., 2020; Shih et al., 2007). In addition, problems related to administrative and supervisory experience, working with personal protective equipment, and excessive workloads can lead to burnout (Zhao, 2020).

Based on previous studies (Sunjaya et. al., 2021) conducted during the COVID-19 pandemic, healthcare professionals who had direct contact with infected patients displayed higher levels of depressive symptoms, anxiety, and burnout. Specifically, the likelihood of experiencing moderate to severe depressive symptoms was found to be 5.28 times greater, the probability of experiencing anxiety was 1.36 times greater, and the likelihood of experiencing burnout was 3.92 times greater among these professionals than among those who did not have direct contact with patients.

A qualitative study carried out by Kocabas and Senyurt (2022) during the COVID-19 pandemic revealed that the most challenging aspect for participants was altered working conditions. Moreover, the participants experienced psychological issues and excessive workload during this period.

Lluch et al.'s (2022) extensive review of 79 studies on burnout during the first year of the COVID-19 pandemic revealed elevated levels of burnout among healthcare professionals, particularly in the areas of emotional exhaustion and depersonalization. Although some studies have noted enhanced personal accomplishment scores due to the pandemic, others have reported lower scores. This comprehensive review assessed factors such as gender, profession, and workplace, revealing that women had higher burnout scores. The impact of profession and workplace was inconsistent, with some studies indicating higher burnout among nurses, others reporting higher burnout among physicians, and some studies suggesting lower burnout rates among frontline workers. Overall, healthcare workers experienced higher burnout rates than the general population, with increased exhaustion correlated with the number of COVID-19 patients treated.

Stodolska et al. (2023) conducted a comprehensive review of 64 studies to investigate the causes of burnout during the COVID-19 pandemic. The authors reported that several factors, including pre-existing psychological issues, stress, stigmatization, limited access to personal protective equipment, conflicts between work and family life, increased workload, role and duty changes, and fear of traumatic stress, demonstrated a positive relationship with

burnout in the majority of studies. However, the study's results were inconsistent concerning demographic variables such as gender, marital status, having children, age, and occupation.

The COVID-19 pandemic has significantly increased the workload and work stress of healthcare professionals. Therefore, studies focusing on burnout are crucial for accurately understanding the psychological state of health workers and implementing the necessary precautions. Our study addressed the challenges encountered by healthcare professionals during the COVID-19 pandemic and examined the factors contributing to burnout. After reviewing the significant impact of COVID-19 on healthcare professionals' mental health, this study aimed to investigate burnout levels using a mixed-methods approach empirically. By integrating quantitative and qualitative data, we sought to provide a comprehensive understanding of the factors contributing to burnout during the pandemic.

To achieve this, we employed a mixed-methods approach using a questionnaire to measure the level of burnout among health workers during the COVID-19 period and a semi-structured interview form to explore the specific problems they faced. It is worth noting that there are few studies in the literature that have employed mixed methods to investigate burnout among healthcare workers during the COVID-19 period. Most burnout studies use either qualitative or quantitative approaches. We used a mixed method to gain a deeper understanding of burnout during the COVID-19 pandemic.

2. METHODS

This was a mixed-method, cross-sectional study in which a questionnaire and a form including four open-ended questions were used to investigate burnout in healthcare workers during the COVID-19 period. Creswell and Plano-Clark (2007, p. 5) defined mixed methods research as “collecting, analyzing, and integrating qualitative and quantitative data in one or more studies”. The mixed method is a research method that includes quantitative survey forms and qualitative semi-structured interview forms, offering the opportunity to explore the environment in depth (Tariq and Woodman, 2013). Mixed research methods are widely used in healthcare and social care research (Bastian et al., 2016). This mixed research method allows for an in-depth examination of the findings obtained by investigating the burnout levels of healthcare professionals using a questionnaire, a quantitative research method, during the COVID-19 pandemic.

2.1. Participants

Participants were chosen by the convenience sampling method through an internet survey because of the COVID-19 pandemic difficulties. In the first part of the questionnaire prepared using Google Forms, questions about the sociodemographic characteristics of health workers, questions measuring the level of burnout in the second part, and open-ended questions in the third part were included. The data were collected between November 2020 and February 2021. All participants were employed in public hospitals and family health centers.

This study included 198 Turkish healthcare professionals. Their ages ranged from 22 to 66 years (M = 37.10, SD = 9.40), and 81.8% were female. Regarding occupation, 55.5% were nurses, 32.3% were doctors, and 12.1% were midwives, psychologists, or professional caregivers. Most of the participants (90%) were from six cities (Antalya, Isparta, Balikesir, İstanbul, Ankara, and İzmir).

One-quarter of participants (24.1%) reported having at least one chronic illness. Approximately 70% of the participants had received COVID-19 training. Half of the participants stated that their working hours had changed and 36% reported that the services they provided had changed. During the COVID-19 pandemic, 15% of individuals lost a relative and 23% lost a coworker.

2.2. Measurements

2.2.1. The Maslach Burnout Scale Short Form

In this study, the burnout level of healthcare workers was measured using the Maslach Burnout Scale Short Form, a shortened version of the Burnout Measure developed by Malach-Pines (2005). The burnout measure originally consisted of 21 items, whereas the Burnout Scale Short Form included 10 items. The Burnout Scale Short Form has been found to have an acceptable correlation (r = .77) with the Burnout Measure. It demonstrates good internal consistency, with Cronbach's alpha ranging from .85 to .92 across different ethnic and occupational backgrounds. The Burnout Scale Short Form was adapted for Turkish by Çapri (2006). In the translation study, factor analysis

supported a one-factor structure for the Burnout Scale Short Form, explaining 53.96% of the variance. In terms of reliability, the Turkish version of the BMS demonstrated high internal consistency with a Cronbach's alpha coefficient of .93. Based on a sample of 80 participants, the test-retest reliability over 4 weeks was .85.

In the current study, the Cronbach's alpha coefficient for the Burnout Scale Short Form was .94, indicating excellent internal consistency. The one-factor structure model of the Burnout Scale Short Form showed acceptable model fit indices, including a Comparative Fit Index of .93, a Tucker-Lewis Index of .90, and a Standardized Root Mean Square Residual of .04. The short-form burnout scale accounted for 66.57% of the variance in burnout levels among the participants.

Overall, the Burnout Scale Short Form has demonstrated good psychometric properties, including reliability and validity, in both its original version and the adapted Turkish version used in this study.

2.2.2. Open-Ended Questions

Four open-ended questions were developed. The questions were revised based on the opinions of four referees (two psychologists, one nurse, and one health manager). The purpose of the questions was to examine the changes experienced by healthcare professionals during the pandemic and the factors that negatively affected them. Two of the questions (What were the most important changes during the pandemic period?) and What were the pressing factors for you during the Pandemic period?) formed two main themes for the quantitative analysis. The other two questions concerned the responsibilities and adequacy of the intervention program (Who do you think is responsible for your problems? What are your views on the training programs related to COVID-19?).

2.2.3. Demographic Questions

Participants were asked questions containing sociodemographic information, such as gender, age, marital status, profession, and specialty. In addition to demographic questions there were questions such as, "Do you have any chronic illnesses?" and "Have you received any training for the COVID-19 pandemic?"

2.2.4. Analysis

Quantitative data analysis was carried out using the JAMOVI software (The Jamovi Project, 2020). Descriptive statistics, including mean, standard deviation, and frequency, were calculated for each variable. The participants were subsequently divided into four groups based on their burnout scores, specifically quartiles (i.e., upper 25%: high burnout; lower 25%: low burnout). Differences among categories across quartiles were examined to assess any significant variations. After determining the percentiles of participants, this information was transferred to the MAXQDA program for each participant.

ANOVA was conducted to evaluate the effects of occupation. To evaluate the effects of changes in housing status and work conditions, two separate t-tests were conducted. D-scores were presented to illustrate the effect size of the difference between the conditions, while p-values were presented to clarify whether the effect of the independent variable was significant. A D-score of .20 represents a small effect, .5 represents a medium effect, and .8 represents a high effect.

MAXQDA software was employed for qualitative data analysis. This process involves multiple steps. First, the answers for each question were grouped, and these grouped answers were repeatedly reviewed and analyzed by the authors. MAXQDA was used to code the transcripts and identify themes and subthemes within the data.

Thematic analysis was used to analyze the qualitative data. Initial codes were generated from the participants' responses, from which themes were developed. During an online meeting, the authors discussed the codes and sample sentences with the referees using a 10% code sample. They exchanged views on the formation of subcategories and categories based on codes. Following this stage, the codes were grouped into subcategories and categories by the authors to form thematic groups. During this stage, coding of the last two questions (responsibility and intervention programs) was removed from the coding process. Another online meeting was held, where the author and two referees reviewed the subcategories, categories, and thematic groups. The results were presented to two referees specializing in psychology and health science for their input. After considering the referees' opinions, the results were finalized.

This mixed-method approach allowed for a comprehensive analysis of both quantitative and qualitative data, thus enhancing the understanding of burnout experiences among healthcare workers during the COVID-19 period.

2.2.5 Ethical permission

The study was approved by the Balikesir University Scientific Research and Publication Ethics Committee (B2020-075). Approval was obtained from the Ministry of Health of the Republic of Turkey (no. 2020-07-01T15_31_58). The study adhered to the ethical principles of the Declaration of Helsinki. Before data collection, informed consent was obtained from each participant, and it was stated that they could quit the study without any reason.

3. RESULTS

3.1. Quantitative Results

The results indicated a low effect of occupation on burnout, as evidenced by the small differences observed ($\bar{X}_{\text{Doctor}}$ = 4.72, *SD* = 1.52, %95 *CI* [4.35, 5.09]; $\bar{X}_{\text{Nurse}}$ = 4.66, *SD* =1.45, %95 *CI* [4.38, 4.94]; $\bar{X}_{\text{Other}}$ = 4.57, *SD* = 1.48, %95 CI [3.97, 5.18]; *p*> .05): Physician-Other difference (*d* = .10, 95% *CI* [-.39, .59]), Nurse-Physician difference (*d* =-.04, 95% *CI* [-.35, .27]), and Nurse-Other difference (*d* = .06, 95% *CI* [-.39, .52]). These findings indicate that variations in burnout levels among different occupations are negligible.

The analysis revealed a small effect of "changes in working hours" on burnout (*d* =-.31, 95% *CI* [-.6,-.03]). Participants who experienced changes in working hours due to the COVID-19 pandemic ($\bar{X}$ = 4.91, *SD* = 1.36, 95% *CI* [4.61, 5.21]) reported higher levels of burnout than those whose working hours remained unchanged ($\bar{X}$ = 4.45, *SD* = 1.53, 95% *CI* [4.17, 4.74], *F* (1, 191) = 4.77, *p* = .03).

The analysis indicated a significant and moderate effect of the "change in housing status" on burnout, *d* =-.56, 95% *CI* [-1.05,-.07]. Participants who experienced alterations in their housing status due to the COVID-19 pandemic ($\bar{X}$ = 5.41, *SD* = 1.20, 95% *CI* [4.73, 6.08]) reported higher levels of burnout than those who did not experience such changes ($\bar{X}$ = 4.60, *SD* = 1.47, 95% *CI* [4.38, 4.81]; *F* (1, 191) = 5.10, *p* = .025).

3.2. Qualitative Results

According to the final evaluation, responses were grouped into two primary themes: challenging factors and changes. The challenging factors theme comprised two sub-themes: psychological challenges and occupational challenges. Similarly, the changes theme encompassed two sub-themes: psychological changes and occupational changes.

3.2.1. Challenging Factors

This study examined participants' responses regarding the most challenging elements of the COVID-19 period, which were grouped into nine codes (Table 1). These codes were divided into two main groups: occupational and psychological difficulties.

Table 1. Frequency of Codes and Sample Statements For "Challenging Factors During Pandemic" Question

	f_{Total}	f_D	Sample Statements
Communication with patients and patients' relatives	60	42	p.106: Sometimes negative attitudes of patients towards us in our radiation tasks. p.115: Trying to convince patients that they are Covid-19.
Administrative problems and lack of coordination	44	36	p.76: Incorrect attitudes of the administration. p.15: Not knowing how and where to send the first case.
Social isolation	37	32	p.48: Not being able to meet with our families because we work at the Covid-19 service. p.117: Not being able to enjoy social life due to social distance.
Working conditions	64	53	p.174: Working conditions in the Covid service. p.48: Continuous shift and service changes in the hospital during the month.
Use of masks and equipment	59	49	p.49: Always wearing an N95 mask. P.126: When I put a big bath towel in my overalls to absorb the sweat and squeeze it at midnight, a glass of sweat comes out, and the feeling of being raped in the morning when I have the seizure trembling all night long.

	f_{Total}	f_D	Sample Statements
Psychological Difficulty	56	47	p.39: In this disease, patients cannot meet with their relatives, even observing the occurrence of death alone. p.29: we had to work under extreme stress. p.41: I am very tired and have no strength anymore.
Uncertainty	12	12	p.122: uncertainty about when the pandemic will end.
Risk of contamination	37	33	p.10: To fear that I will also get this disease. I am afraid of infecting my children and spouse. p.114: Fear of being Covid-19.
Other	22	16	p.23: I did not find it difficult. p.135: There was no permanent improvement in our salaries.

f_{Total}: Total number of codes, f_D: The number of documents with the code.

3.2.1.1. Group 1: Occupational Difficulties

Several subcategories were identified in the occupational difficulties group. Working conditions (f = 53) encompassed challenges related to COVID-19 protocols, inadequate physical conditions, and continuous shifts and service changes. The use of mask equipment (f = 49) highlighted the difficulties that healthcare professionals faced due to wearing masks and protective equipment for extended periods. Administrative problems-incoordination (f = 36) focused on issues with hospital management, coordination problems during the pandemic, and administrative and legal decisions. Communication with patients and their relatives (f = 42) highlighted the challenges that participants encountered in their interactions, including patients' aggressive attitudes and increased intolerance.

3.2.1.2. Group 2: Psychological Difficulties

The psychological difficulties group consisted of emotional and behavioral difficulties (f=47), viral infection anxiety (f=32), uncertainty (f=12), and social isolation (f=32). Emotional and behavioral difficulties encompassed feelings of loneliness, psychological exhaustion, anxiety, helplessness, and fear of death. Viral infection anxiety reflects concerns about contracting and transmitting the virus to loved ones. Uncertainty refers to the ambiguity surrounding the course of the disease and the working conditions. Social isolation highlighted participants' experiences of limited social interactions and their inability to share moments with loved ones.

3.2.2. Changes

The study analyzed participant responses to the "**The 3 most important changes during the COVID-19 pandemic"** question and identified two main themes: changes in working conditions and psychological changes (Table 2). Seven categories were identified under the theme of change in working conditions. The first category, changes in routine (f=90), highlights healthcare professionals' experiences of being assigned to different departments and performing tasks different from their routine work. The frequency of using protective equipment (f=51) was another category, with participants expressing challenges, such as discomfort and allergy issues. Communication with patients and their relatives (f=16) was another category, with healthcare professionals mentioning patient demands and insensitivity towards healthcare personnel. Changes in working hours (f=28) and employee rights (f=22) were also mentioned as challenging factors.

Table 2. Frequency of Codes and Sample Statements For "Changes During the Pandemic" Question

	f_{Total}	f_D	Sample Statements
Changes in routine	90	66	p.188: I work in clinics I do not know. p.140: Jobs and processes related to Covid 19 prevent me from doing my routine work
Protective equipment	51	36	p.30: It is difficult to work with protective equipment. p.88: Personal protectors are boring now. p.117: Not being able to enjoy social life due to social distance.

	f_{Total}	f_D	Sample Statements
Change in working hours	28	27	p.106: Working without the concept of time and space. p.103: My work got busy. p.69: irregular working hours.
Employee Personal rights	22	20	p.38: I cannot ask for annual leave, I worry that if I get leave, I will be held responsible.
Communication with patients and patient's relatives	18	16	p.38: Disease report requests of my patients in quarantine and unnecessary report requests of the personnel of the Ministry of National Education
Psychological	171	96	p.194: Working under a lot of stress. p.170: Uncertainty.
Social Isolation	34	31	p.148: I did not contact anyone outside of work, life between home and work. p.180: Social life has been ended.
No change	8	8	p. 129: Work Intensity decreased, with no other changes.
Other	22	16	p.93: my health. p.94: rush to vaccines.

f_{Total}: Total number of codes, f_D: The number of documents with the code.

Two categories emerged under the theme of psychological change. Emotional and cognitive changes (f = 171) were frequently mentioned, including increased stress, anxiety, fatigue, and difficulty in making decisions. Social isolation (f = 34) was another category in which participants discussed the impact of limited social interaction and the use of online communication.

3.2.3. Responsibilities and Intervention

When participants' responses were evaluated regarding responsibilities and intervention programs, healthcare professionals identified several entities responsible for taking measures to reduce their workload. Administrators, citizens, and the state are key stakeholders.

Expectations from administrators included the need for more equitable regulation of the watch and shift system, increased measures for material supply (especially protective equipment), and improved coordination to address problems effectively.

Participants' expectations from citizens revolved around compliance with mask-wearing and social isolation rules, acknowledging the role of the general public in preventing the spread of the virus, and supporting healthcare professionals.

Regarding the state's responsibilities, participants emphasized the importance of regulating the working conditions of healthcare workers with children and implementing necessary arrangements for personal rights, such as annual leave, resignation, and salary. Preserving annual leave rights for healthcare workers is specifically mentioned.

Only two participants acknowledged the existence of such programs in terms of intervention programs for healthcare workers. However, five participants believed that intervention programs should exist but currently do not. Participants emphasized the importance of intervention programs that provide practical solutions to working-condition-related issues while also offering psychological support. They stressed the need for competent practitioners who could actively contribute to finding solutions.

These findings highlight the expectations of healthcare professionals regarding responsibilities and intervention programs, emphasizing the importance of support from administrators, citizens, and the state as well as the need for comprehensive intervention programs to address both working conditions and psychological well-being.

3.3. Mixed Analysis

As mentioned earlier, one of the aims of this study was to analyze the results in a mixed pattern that reveals the relationship between burnout levels and the changes and difficulties experienced by healthcare professionals. For

this purpose, the participants' burnout scores were divided into four slices according to percentiles. The lowest (<25%), low (25%–50%), high (50%–75%), and very high (75%–100%) groups were formed, and qualitative data were analyzed within these groups.

When the category distributions were examined in terms of the changes experienced during the COVID-19 period, it was more common to report that there were no changes in the participants in the lowest group (f = 5), as expected (Table 3).

Table 3. Frequency of "Changes In COVID-19 Pandemic" Codes Depend on Burnout Percentile

	Burnout Percentile				
Occupational Changes	**0-25%**	**25%-%50**	**50%-75%**	**75%-100%**	**Total**
Change in working conditions	22	16	16	9	63
Use of protective equipment	8	12	8	8	36
Change in working hours	4	12	9	1	26
Employee Personal rights	0	8	5	7	20
Communication with patients and patient's relatives	6	3	3	4	16
Total	40	51	41	29	161
Psychological Change	**0-25%**	**25%-%50**	**50%-75%**	**75%-100%**	**Total**
Psychological Change	16	20	32	25	93
Social Isolation	11	3	13	4	31
Total	27	23	45	29	124
Other	3	6	6	4	19
No change	5	2	0	1	8

However, participants with low and very low levels of burnout reported more changes in the occupational environment, whereas participants with high and very high burnout levels reported more psychological changes.

When burnout levels were examined in terms of challenging factors, it was observed that participants whose burnout level was high and coded as very high reported more difficulties in the subcategories of working conditions, mask-equipment use, and psychological difficulties (Table 4).

Table 4. Frequency of "Challenging Factors in COVID-19 Pandemic" Codes Depend on Burnout Percentile

Challenging factors	**Burnout Percentile**				
Occupational difficulties	**0-25%**	**25%-%50**	**50%-75%**	**75%-100%**	**Total**
Communication with patients and patients' relatives	9	13	7	11	40
Administrative problems and lack of coordination	5	12	10	8	35
Working conditions	9	12	16	14	51
Use of masks and equipment	10	9	14	14	47
Total	33	46	47	47	173
Psychological Difficulties	**0-25%**	**25%-%50**	**50%-75%**	**75%-100%**	**Total**
Psychological Difficulty	11	9	17	10	47
Uncertainty	4	2	3	3	12
Risk of contamination	6	7	12	6	31
Social isolation	10	8	8	5	31
Total	31	26	40	24	121
Others	10	4	4	4	22

4. DISCUSSION

The results of the quantitative analysis indicated that participants who experienced alterations in their working hours or living conditions reported higher levels of burnout compared to those who did not encounter such changes. These findings align with those of Kamali et al. (2020), who observed that increased overtime and hours worked in COVID-19 services are associated with burnout. Similarly, Giusti et al. (2020) identified psychological factors such as increased workload, contact with COVID-19 patients, and patient care as contributors to burnout. Barello et al. (2020) also reported that job risks, deterioration in work-family balance, and uncertainty were associated with burnout. Collectively, these findings suggest that participants who experienced changes in their accommodation or faced an increased risk of infection due to higher workloads and extended working hours were more susceptible to burnout.

Furthermore, no substantial differences in burnout levels were observed among physicians, nurses, or other healthcare workers. This finding aligns with those of several studies conducted during the COVID-19 pandemic (Buselli et al., 2020; El Haj et al., 2020; Khasne et al., 2020; Ramaci et al., 2020). This suggests that healthcare professionals share common experiences related to the burden of working in the healthcare field rather than encountering job-specific discrepancies. As previously discussed, the prominent influence of common factors, such as increased risk and working hours, may supersede variations in job descriptions across healthcare professionals.

This study found no connection between burnout and gender or age. While previous research has produced conflicting results, some studies have suggested that women experience higher levels of burnout (Chen et al., 2020; Lange et al., 2020; Matsuo et al., 2020), whereas others have reported no gender differences (Buselli et al., 2020; Di Monte et al., 2020). The absence of gender differences in this study may be due to the limited number of male participants. Furthermore, the majority of participants were younger than 37 years, and only 8% were older than 50 years, which restricts the evaluation of the results in terms of age. In literature, some studies reported that younger individuals are more susceptible to burnout during the COVID-19 pandemic (Matsuo et al., 2020; Khasne et al., 2020). However, due to the age-related limitations of our study, it is not appropriate to compare our results with other studies. As a result, our findings regarding age and gender have limited generalizability.

Most challenging factors identified by the participants that primarily revolve around the work environment. Individuals in the high and very high burnout groups are expected to express concerns about the use of masks and alterations in the work environment because past research has linked changes in the work environment to burnout (Barello et al., 2020; Khasne et al., 2020; Ng et al., 2020). As expected our findings indicated a correlation between the acquisition and utilization of protective equipment and burnout. Given that the current literature predominantly consists of quantitative investigations and does not view the use of protective equipment as a significant concern before the COVID-19 period, literature on this specific subject matter is limited. Nevertheless, interviews conducted with healthcare professionals during the COVID-19 pandemic period shed light on the impact of factors such as the daily use of masks, leading to the perception that the deployment of protective equipment poses a risk for burnout. In addition, we can say that financial constraints and the risk of infection added to the problems experienced in providing masks and equipment in some health institutions also increase burnout.

Participants frequently reported changes in their working conditions (mostly modifications to protective equipment use), and alterations in psychological conditions. In addition, an increase in working hours during the COVID-19 pandemic was one of the commonly observed changes. The literature extensively documents a change in the working conditions of healthcare workers during the pandemic, such as deteriorating working conditions, modifications in service provision, an upsurge in patient caseloads, and an increase in patient density. It is essential to note that these changes do not imply that working conditions were better in the pre-pandemic period but worsened during the pandemic period. Even before the pandemic, numerous healthcare professionals voiced concerns regarding working conditions, which were associated with burnout (Hu et al., 2015). Another area of change was related to psychological conditions. Participants stated that they experienced many psycho-social changes (social isolation, uncertainty, higher stress) during the pandemic. A substantial body of literature has shown the psychological issues experienced by healthcare workers during the COVID-19 pandemic (Barello et al., 2020; Evanoff et al., 2020). Therefore, the high psychological changes due to COVID-19 reported by healthcare professionals are in line with existing literature.

The findings from the mixed analysis indicated that individuals with high and very high degrees of burnout reported a greater number of psychological changes. However, it is noteworthy that the most challenging factors are not necessarily psychological but rather work-related. Although these findings may seem contradictory at first glance, it is not unexpected that participants experienced significant psychological changes/problems as a result of changes in their professional environments. When asked to identify the most significant changes, the participants initially described their psychological situations. This may also explain why individuals in the low-burnout group tended to focus on occupational adjustment. Participants with low burnout may have concentrated on environmental changes and attempted to rectify them, while those with high burnout may have been more focused on their psychological situation and cognizance of their psychological problems.

4.1. Limitations

This study has some limitations. First, there was no differentiation between healthcare workers on the frontlines of the COVID-19 fight and those working in other departments. This distinction was not feasible because of the sampling method employed and the occasional reassignment of staff from other departments to COVID-19 services. Second, the unequal distribution of professions and genders among healthcare workers hinders comprehensive evaluation of these aspects. Half of the participants in our study were nurses, which does not accurately represent the healthcare worker population. Future studies should address these limitations to provide a more nuanced understanding of the experiences and needs of healthcare professionals with different roles and demographics.

5. CONCLUSIONS

In the current phase, where the impact of the pandemic has diminished, it is crucial to comprehend the experiences of healthcare workers who bore the brunt of the pandemic workload and endured significant psychological distress. Gaining insight into their experiences can provide valuable guidance for future research. It is imperative to investigate burnout because it heightens the risk of medical errors and has serious consequences, such as resignations and suicides. Taking the necessary measures is essential to mitigate these risks in the future.

DECLARATION OF THE AUTHORS

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