An investigation of smoking habits and mental well-being in healthcare personnel during COVID-19

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Original Article

Abstract
Aim: This study aimed to the smoking levels of the healthcare personnel (n = 761) in Turkey, the changes in their smoking levels, and their mental well-being levels.

Design and Methods: Data were collected via social networks from various cities in Turkey using a personal information form, the Fagerstrom test for nicotine dependence, and the Warwick–Edinburgh mental well-being scale.

Findings: Their mean nicotine dependence score was 3.50 ± 2.57 and mental well-being score was 25.01 ± 5.44. The frequency of smoking during the pandemic was increased in 22.4% of the participants and was the same as that before the pandemic in 57.4% of the smokers.

Practice Implications: It is an introductory study of the current situation for healthcare professionals and researchers. It suggests protecting mental well-being and reducing smoking.

Keywords: health workers, mental well-being, smoking

Introduction

The coronavirus disease 2019 (COVID-19) pandemic is a crisis defined as a global threat. During such a crisis, people tend to make irrational decisions and exhibit inappropriate behaviors because of negative emotions. In particular, healthcare personnel, who have to continue to perform their duties, experience stress and difficulties because of the fear of contracting the infection, the possibility of spreading it to their family members, the guilt in the case they pass it on to their loved ones, and the fact that their lives are at risk.1

Smoking is a reaction shown to cope with difficult situations. Smoking is a reaction shown to cope with difficult situations.2 Individuals smoke to eliminate their negative feelings, such as fear, anxiety, and anger and feel positive. They describe smoking as a relaxing, pleasant, and satisfying habit.3 Many factors play a role in starting, continuing, and quitting smoking. One of these factors is psychological resilience, which is a part of positive psychology.4,5

Individuals who do not smoke are reported to be more resilient than those who smoke.6-7 Although the terms psychological resilience, psychological hardiness, psychological well-being, subjective well-being, and mental well-being have different meanings, they are used interchangeably across various studies in the literature.6 Mental well-being of individuals depends on their ability to cope with stress, awareness of their skills, feeling positive emotions more often and negative emotions less frequently, self-acceptance, autonomy, and ability to use environmental resources.6 In today's dynamic world, individuals are affected by both external and internal stimuli. Smoking is an external stimulus, while mental well-being is an internal stimulus. Thus, the question that needs to be asked is "Does smoking affect mental well-being, or does mental well-being affect smoking?"

Healthcare personnel are significant role models for the society; therefore, the status of their smoking habit is equally critical.8-10 Regardless of the country or society, all healthcare personnel across the world have played an active role and undertaken more burden during...
the COVID-19 pandemic. It is considered that in adapting to this process, their smoking and mental well-being levels may change due to their emotional burden and heavy workload. Thus, this study aimed to determine the answers to the following questions:

1. Did the smoking levels of the healthcare personnel change during the COVID-19 pandemic?
2. What are the mental well-being levels of the healthcare personnel?
3. Does smoking affect mental well-being?

2 | MATERIALS AND METHODS

This descriptive study aimed to determine the smoking levels of the healthcare personnel in Turkey, the changes in their smoking levels, and their mental well-being levels.

The study population consisted all of the 1,061,635 healthcare personnel affiliated to the Ministry of Health in Turkey.\(^\text{11}\) The study sample included all healthcare personnel who could be contacted using the snowball sampling method. The sample size calculation formula for the populations where the number of individuals is known was used to determine the minimum sample size.

\[
n = \frac{N \times (t^2 \times p \times q)}{d^2(N - 1) + t^2(p \times q)}
\]

- \(N\): Number of individuals in the target group (1,061,635)
- \(n\): Sample size
- \(t\): Significance
- \(p\): Prevalence of the studied incidence (accepted as 50% for this study)
- \(q\): Frequency of nonoccurrence of the studied incidence (accepted as \(q\): 50% since \(p\): 50%)
- \(d\): Sampling error (accepted as 0.05 for this study)

\[
n = \frac{1.061,635 \times (1.96^2 \times 0.50 \times 0.50)}{0.05^2 \times 1.061,634 + (1.96^2 \times 0.50 \times 0.50)} = 384
\]

The results of this calculation showed that a minimum of 384 healthcare personnel should be included; however, the researchers aimed at contacting the maximum possible number of healthcare personnel.

The snowball sampling method was used in the study. In this method, one of the units of the population is contacted. With the help of the contacted unit, researchers contact the second unit, and with the help of the second unit, they contact the third unit. Thus, the sample size grows in a manner similar to the growth of a snowball.\(^\text{12}\)

The data collection tools prepared based on this information for the purpose of this study were transferred to the online environment. The link to these forms were shared by the researchers with the healthcare personnel known to them via various applications (WhatsApp, Instagram, etc.), and these healthcare personnel were asked to share the forms with other healthcare personnel they knew. Data accumulation was followed daily, and the data collection was completed since no data accumulated for a week. Participation was on a voluntary basis. A total of 761 healthcare personnel participated in the study. Data were collected using a personal information form, the Fagerström test for nicotine dependence (FTND), and the Warwick-Edinburgh mental well-being scale (WEMWBS).

2.1 | Data collection tools

2.1.1 | Personal information form

This form was prepared by the researchers in line with the relevant literature and consisted of 11 questions on the participants' socio-demographic characteristics (age, marital status, years of employment, etc.) and smoking-related information of the participants.

2.1.2 | Fagerstrom test for nicotine dependence (FTND)

The FTND was developed by Fagerström et al. and consists of 6 questions, each scored depending on their answers. The Turkish validity and reliability study of the FTND was conducted by Uysal et al. under the title “Fagerstom test for nicotine dependence: Reliability in a Turkish sample and factor analysis”. Minimum and maximum scores of the FTND are 0 and 10, respectively. Higher scores indicate higher dependence levels. Individuals' dependence level is categorized as very low (a score of 0–2), low (a score of 3–4), moderate (a score of 5–6), high (a score of 7–8), and very high (a score of 9–10).\(^\text{13}\)

2.1.3 | Warwick-Edinburgh mental Well-Being scale short form (WEMWBS-SF)

The WEMWBS was developed by Tennant et al. to measure the mental well-being levels of people in England. This scale is used to measure psychological and subjective well-being and consists of 14 positive items. High scores indicate high levels of mental well-being.\(^\text{9}\) Subsequently, the scale was shortened, and this short form (SF) was used in this study. The SF consists of seven positive statements in a five-point Likert-type scale (1 = never and 5 = always). During the administration of the scale, individuals were asked to respond based on their experience within the previous two weeks. A correlation of 0.95 was found between the 7-item short form and the 14-item long form. The seven items in the WEMWBS-SF were mainly associated with functioning rather than emotions. The validity and reliability study of the WEMWBS-SF was conducted with 848 participants living in Norway and Sweden. The results of the exploratory and confirmatory factor analyses indicated that the single-factor scale had a high construct validity and the explained variance was between 52% and 57%.\(^\text{14}\) In addition, the Cronbach's alpha reliability
The mean duration of smoking was 11.71 ± 8.45 years. Among the smokers, 81% smoked less than 20 cigarettes in a day (Table 1). The mean mental well-being score of the healthcare personnel was 25.10 ± 5.83, whereas it was 24.96 ± 5.25 the participants who did not smoke (Table 2). No statistically significant difference was found between the mean WEMWBS-SF scores of the groups in terms of their smoking status \( (t = 0.319, p = 0.750) \).

Dependence levels were very low, low, moderate, high, and very high in 38.6%, 26.3%, 11%, 16.5%, and 7.6% of the participants who smoked, respectively. The mean WEMWBS-SF scores for the very low, low, moderate, high, and very high dependence levels were 24.94 ± 5.17, 24.45 ± 6.93, 24.65 ± 4.26, 26.46 ± 6.62, and 25.88 ± 5.06, respectively (Table 3). No statistically significant difference was found between the groups’ mean WEMWBS-SF scores based on their dependence level \( (F = 0.855, p = 0.492) \).

Compared to the smoking frequency before the COVID-19 pandemic, the frequency during the pandemic was decreased in 20.3% of the smokers and was increased in 22.4% of the smokers. The mean WEMWBS-SF score of participants who showed a lower frequency of smoking were 24.62 ± 5.70, whereas that of participants who showed an increased smoking frequency were 24.07 ± 5.71 (Table 3). No statistically significant difference was found between the groups’ mean WEMWBS-SF scores \( (F = 1.646, p = 0.195) \).

### 4 | DISCUSSION

This study aimed to analyze the smoking habits and mental well-being levels of the healthcare personnel during the COVID-19 pandemic; the results obtained were discussed in line with the results reported in the literature, and accordingly, some recommendations were made.

Between 2000 and 2014, the incidence of smoking among healthcare personnel was 18%–21% in the countries with a high revenue, 22%–28% in the countries with a moderate revenue, and 15%–23% in the countries with a low revenue. Turkey is classified as a country with a moderate revenue. This study was conducted with 761 healthcare personnel working in various cities in Turkey, and 31.1% of the participants were found to be smoking. The rate of smoking among healthcare personnel reported in Turkey was higher than that reported in other countries around the world. Comparison of the rate of smoking reported in the present study with that reported in previous studies conducted in Turkey showed a decrease in the rate of smoking over the past years. The results reported in some recent studies are consistent with those reported in this study, whereas studies conducted in the past report a higher incidence of smoking. The results of the present study showed that the smoking rate decreased during the COVID-19 pandemic in Turkey, which complies with the World Health Organization recommendations most and the world leader in fighting against tobacco. The legal measures implemented to curb the use of tobacco may have affected the results.

In this study, the mean mental well-being score of the healthcare personnel were 25.01 ± 5.44. Considering the minimum and maximum scores that can be obtained in the scale, it may be stated that this value was above average, and the healthcare personnel who participated in the study were mentally well. Previous studies have examined the mental and psychological well-being of healthcare personnel, and the mean mental well-being scores obtained in the present study are similar to those reported in previous studies. However, it is important to note that the previous studies were conducted in the pre-COVID-19 era, and...
The results were obtained when people had a normal life. The results of this study showed that the mental health of the healthcare personnel who were closely involved in management of the COVID-19 pandemic was minimally affected or not affected during this period. As the university graduation rate among the healthcare personnel included in the study was high, it is considered that the education they had received on mental states throughout their studies may have been effective on this result.

The results of this study showed that smoking, dependence level, smoking level, and the changes in frequency of smoking after the pandemic did not affect the mental well-being of the healthcare personnel. In addition, among the healthcare personnel who smoked, 38.6% had a very low and 7.6% had a very high level of dependence. The results of a previous study by Okutan et al. found that 40.9% of the healthcare personnel had a very low and 7.6% of them had a very high level of dependence; these results are consistent with those reported in the present study, whereas results of other studies showed that 47% of the healthcare personnel had a very high level of dependence, which is contrary to the finding of the present study. The different results

| TABLE 1 | Demographic characteristics and smoking status of the healthcare personnel during the COVID-19 pandemic |
|---------|---------------------------------------------------------------------------------|
| Variables | n | % | Variables | n | % |
| Gender | | | Marital status | | |
| Female | 526 | 69.1 | Married | 448 | 58.9 |
| Male | 235 | 30.9 | Single | 313 | 41.1 |
| Age (years) | Mean = 32.65 ± 7.97 | | Income level | | |
| Education | | | Very high | 26 | 3.4 |
| Primary or secondary school | 6 | 0.8 | High | 322 | 42.3 |
| High school | 77 | 10.1 | Moderate | 395 | 51.9 |
| University | 588 | 77.3 | Low | 18 | 2.4 |
| Postgraduate/doctorate | 90 | 11.8 | Smoking | | |
| Position | Yes | 237 | 31.1 | No | 524 | 68.9 |
| Nurse | 616 | 80.9 | Duration of smoking (years) | Mean = 11.71 ± 8.45 |
| Physician | 39 | 5.1 | Civil servant | 28 | 3.7 |
| Janitor | 14 | 1.8 | Medical secretary | 22 | 2.9 |
| Duration of employment (years) | Mean = 9.64 ± 8.20 | | Other health personnel | 42 | 5.5 |
| Direct contact with suspected/positive COVID-19 patients | | | Number of cigarettes smoked daily (n = 237) | |
| Yes | 406 | 53.4 | 31 and more | 10 | 4.2 |
| No | 355 | 46.6 | 21–30 | 35 | 14.8 |
| | | | 11–20 | 96 | 40.5 |
| | | | 10 and less | 96 | 40.5 |

Abbreviation: COVID-19, coronavirus disease 2019.

| TABLE 2 | Mean WEMWBS-SF and FTND scores of the healthcare personnel |
|---------|---------------------------------------------------------------------------------|
| n | Minimum and maximum scores | X ± SD |
| WEMWBS-SF | 761 | 7–35 | 25.01 ± 5.44 |
| FTND | 237 | 0–10 | 3.50 ± 2.57 |

Abbreviations: FTND, Fagerström test for nicotine dependence; WEMWBS-SF, Warwick-Edinburgh mental well-being scale.
reported in different studies indicate that the healthcare personnel experience constant changes. In a crisis situation, such as the COVID-19 pandemic where negative reactions and behaviors may be ineffective methods of coping, the low smoking levels (31.1%) observed among the healthcare personnel were a positive finding. Considering the fact that individuals who have difficulty in regulating and stabilizing their moods during a stressful situation or a crisis are inclined to be dependent, it may be concluded that the healthcare personnel could manage their moods well due to the education they had received on crisis management during their studies. Presence of healthy individuals who use positive coping methods and have a high mental well-being is important for overcoming this process more easily and with less overall damage.

5 | LIMITATIONS

It was a limitation of this study that the majority of the participants of the study consisted of nurses. Additionally, because the pandemic increased the workload of healthcare personnel, participation in the study was limited. Therefore, these results may be generalized to not all healthcare personnel in Turkey but only those who were included in the scope of the study.

6 | CONCLUSIONS AND RECOMMENDATIONS

The results of this study showed minor changes in the frequency of smoking and high levels of mental well-being among healthcare personnel. These findings suggest that this pandemic, which is a painful process that is still ongoing and is expected to last for an unpredicted period, did not affect the frequency of smoking level and mental well-being of the healthcare personnel.

7 | IMPLICATIONS FOR NURSING PRACTICE

Since only a limited number of studies have addressed this topic, it is recommended that further studies be conducted with larger sample sizes. Further, qualitative studies should be conducted with a focus on the positive features of positive psychology. These studies may also contribute to the studies to be conducted on fighting against smoking. In addition, adequate support should be provided to healthcare personnel, who play an important role during such situations, for maintaining their mental well-being.

ACKNOWLEDGMENT

The authors want to thank the healthcare personnel who participated in this study.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

Data will be made available on request. Data available in article supplementary material. Shared data availability only upon request.

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How to cite this article: Firat M, Demir Gökmen B, Karakurt P. An investigation of smoking habits and mental well-being in healthcare personnel during COVID-19. Perspective Psychiatr Care. 2021;1-6. https://doi.org/10.1111/ppc.12819