

BEHAVIORAL AND INTERPERSONAL EFFECTS OF THE COVID-19 EPIDEMIC ON FRONTLINE PHYSICIANS WORKING IN EMERGENCY DEPARTMENTS (EDs) AND INTENSIVE CARE UNITS (ICUs)

TURGUT KARAKOSE¹, NEDİM MALKOC²

¹Department of Educational Administration, Kutahya Dumlupınar University, Turkey - ²Department of Exercise and Sport Sciences, University of Health Sciences, Istanbul, Turkey

ABSTRACT

Introduction: This study aimed to explore the behavioral and interpersonal effects of the COVID-19 epidemic on frontline physicians working in Emergency Departments or Intensive Care Units of Turkish hospitals assigned to treat COVID-19 patients.

Materials and methods: The current study was conducted using a case study approach which is one of the qualitative research designs. This research was conducted on 204 frontline physicians working within 40 different hospitals assigned to fight the COVID-19 epidemic across 15 provinces of Turkey. A semi-structured survey consisting of two open-ended questions was utilized as a data collection tool, and the collected data was analyzed using the content analysis technique.

Results: The study's findings revealed that frontline physicians exhibited various behavioral changes such as adhering to social distancing, personal hygiene, using personal protective equipment, eating too much, and the excessive use of mobile phones. It was also seen that frontline physicians tended to avoid social communication, interpersonal solidarity, and involvement in interpersonal conflicts. The current study's findings are consistent with other research that has investigated the effects of the COVID-19 epidemic on healthcare professionals.

Conclusion: The results of the current study demonstrate that COVID-19 epidemic significantly affects frontline physicians' behaviors in work/family life and interpersonal relations.

Keywords: COVID-19, behavioral and interpersonal effects, physicians.

DOI: 10.19193/0393-6384_2021_1_68

Received March 15, 2020; Accepted October 20, 2020

Introduction

The novel coronavirus, which emerged in Wuhan, China in December 2019 with an unknown cause and spread rapidly all over the world^(1, 2, 3, 4), turned into a health crisis threatening the whole world in a very short period. The very first novel coronavirus case in Turkey was reported on March 11, 2020, by the Turkish Ministry of Health⁽⁵⁾. According to the Turkish Ministry of Health data, from March 11 to August 6, 2020, there are 237.265 active confirmed cases, 220.546 recovered and discharged cases, 5798 deaths, and 580 cases under intensive

care⁽⁶⁾. The novel coronavirus disease, an infectious and fatal disease, has caused all people worldwide to be in a state of fear and panic. Undoubtedly, the COVID-19 epidemic, with the health problems it caused, will remain on the world agenda for a long time in terms of its economic, social and psychological effects. The frontline physicians are among the most strategic healthcare professionals in combating COVID-19 and similar diseases. While working devotedly, especially in the hospitals they work in, they also face the risk of being infected with COVID-19 at any time. This situation significantly affects the life quality, behaviors, and interpersonal relation-

ships of frontline physicians who are struggling with the pandemic. Therefore, during the fight against the COVID-19 epidemic, it is of vital importance to carry out works to improve the quality of life of healthcare workers and to take the necessary measures urgently. During the period of COVID-19 and similar epidemics, the psychology and social relations of all healthcare professionals are affected in a different way. For this reason, the effects of the COVID-19 epidemic on the psychology, behavior, and interpersonal relationships of physicians, especially those struggling at the frontline, should be investigated and appropriate intervention strategies should be developed^(5, 7, 8, 9, 10, 11). When the relevant literature is reviewed, it has been determined that many different studies have been conducted to find out the impact of the COVID-19 epidemic on healthcare workers [for example; psychological, economic, etc.].

However, there is no research done to determine the COVID-19 epidemic's behavioral and interpersonal effects on frontline physicians in Turkey. In this study, the effects of the COVID-19 epidemic on frontline physicians are discussed in the context of behavioral responses and interpersonal relations; the behavioral and interpersonal effects of the COVID-19 epidemic on physicians have been analyzed.

The current study aims to identify the behavioral and interpersonal effects of the COVID-19 epidemic on frontline physicians fighting the disease whilst working in Turkey's Emergency Departments and Intensive Care Units through studying their experiences by way of detailed analysis of their perceptions, feelings, and thoughts.

Material and methods

Study design

The current study was conducted using a case study approach^(12, 13) which is one of the qualitative research designs. Case study was selected as the research design preferred for the current research in order to provide an appropriate environment for the frontline physicians that form the working group to better express their genuine and in-depth thoughts about the effects that fighting the COVID-19 epidemic has had on them.

Participants

The working group of the current study consists of 204 frontline physicians registered to the Health Sciences University [Istanbul] and work at Education and Research Hospitals affiliated to the Turkish Min-

istry of Health. The research was conducted within a total of 40 hospitals assigned to fight the COVID-19 epidemic across 15 provinces of Turkey.

Data collection

This study was conducted between the dates of 28 May-5 June 2020. In line with the aim of the current study, a semi-structured survey consisting of two open-ended questions was utilized as a data collection tool. The survey also consists of factual questions to establish the demographic profiles of the participants, the effects of COVID-19 on their behaviors and interpersonal relations.

A survey of two open-ended questions was sent to each participant via email, and requested that they responded within 7 days by answering the questions using Microsoft Word.

Data analysis

The data collected from the participants were analyzed through an adaptation of the content analysis technique. As such, two major themes were generated based on the two questions asked of the participants. According to Attride-Stirling⁽¹⁴⁾, identified themes aim to explain crucial points regarding the research questions, and thereby represent the responses to or meanings of the questions.

Starting from this point, the major themes were identified as:

- Behavioral effects of the COVID-19 epidemic;
- Interpersonal effects of the COVID-19 epidemic.

The researchers read each survey one by one and encoded the participant's responses according to the two identified major themes. After the responses had been analyzed, subthemes were then created under each of the two major themes. A frequency value for each of these subthemes was established and reported in tabular format.

Ethics statement

The current study was reviewed and approved by the rectorate of the Health Sciences University [Istanbul], and permitted to be conducted with frontline physicians working at Education and Research Hospitals affiliated to the Turkish Ministry of Health (Official/Special Permission Document No. E.13719, dated April 27, 2020).

Before starting the study, all of the participants were provided with the necessary briefings, and their approval and consent acquired.

Results

The results obtained from the analyses of the thoughts of the frontline physicians about the COVID-19 epidemic are presented under two major themes in the following subsections, with sociodemographic findings also included.

According to sociodemographic findings, 48.04% of the participants are female, and 51.96% are male. When the participants' work experience is considered, it can be seen that 28.4% have less than or equal to 10-year's professional experience, whilst 71.6% have more than 10-year's professional experience. Moreover, the distribution of the participants' professional expertise shows that 26.5% are experts on infectious diseases, 22.5% on emergency medicine, 23.5% on chest diseases, and 7.4% on internal medicine. It is also shown that only 7.4% of the participant frontline physicians have been infected with COVID-19, whilst 6.4% reported having family members who had been infected with COVID-19.

In the scope of the two major themes, the perceptions, feelings, and thoughts of the participants regarding the COVID-19 epidemic were examined. In this phase, the results from each research question were analyzed separately and encoded by two different researchers. Then a consensus was reached after the researchers jointly examined the encoded responses of the participants, and subthemes were then created under each major theme.

The following subsections present the results for each major theme. The corresponding subthemes, codes, and frequency values are presented in tabular format for each major theme (see Tables 1, and 2).

In addition, a selection of participant responses are included for each research question as direct quotes.

Theme 1: Behavioral effects of the COVID-19 pandemic

The participants' responses were also analyzed under the first major theme, the "behavioral effects of the COVID-19 epidemic," and the results are presented in Table 1.

According to the data collected under this theme, five subthemes were formed; "social distancing," "personal hygiene and using personal protective equipment," "eating too much," "avoiding responsibility," and "excessive mobile phone usage." Following Table 1, a selection of direct quotes related to each subtheme are included from the participant frontline physicians' written responses.

Theme	Subtheme	<i>f</i>	Codes
Behavioral effects	Social distancing	77	Avoidance of contact, Safe physical distance
	Eating too much	21	Increased appetite, Fast food
	Personal hygiene and using personal protective equipment (PPE)	72	Hand cleaning, disinfectant, mask, cologne*, PPE suit
	Avoiding responsibility	28	Risky duty, Just focusing on work
	Excessive mobile phone usage	53	Phone calls, Video chats, Communication

Table 1: Behavioral effects of COVID-19 epidemic.

*Turkish "kolonya" is a scented Ottoman-era cologne still widely used in modern day Turkey. It has a high alcohol content (usually 70-80%) and is used as a daily hand sanitizer as well as in social contexts such as to welcome guests. During the COVID-19 epidemic, the use of cologne by the general public has been recommended by the Turkish Government as a hand sanitizer.

The following are a selection of direct quotes from the participant frontline physicians' views regarding the social distancing subtheme;

"... while working in the Emergency Department, I am always careful about social distancing and wearing a face mask." [K2].

"We are living in a society which attaches too much importance to social traits such as handshaking and greeting. Yet, during the pandemic, I am trying not to get close even to my family members." [K9].

"I am cautious about leaving 1.5-2.0 meters distance whilst talking to people at home or at work." [K192].

"... while examining, diagnosing, or treating patients, I follow the social distancing rule, and I do not shake hands with my friends." [K194].

"... I am careful about not being in crowded places, and not attending crowded meetings." [K197].

"I am trying to distance myself from individuals to avoid becoming infected." [K203].

The following are a selection of direct quotes from the participant frontline physicians' views regarding the eating too much subtheme;

"... I think I have begun to eat too much during the COVID-19 pandemic because of feeling too much stress. There are apparent changes in my eating habits." [K13].

"I work in the Emergency Department. Since I am under extreme pressure and stress, I find it difficult to manage the process. I try to satisfy myself with constantly eating too much." [K49].

“While working at the hospital, I am always feel the need to eat or drink something. Even when I am not hungry, I eat too much fast-food to pass the time.” [K55].

“... I let myself eat constantly during these busy and stressful days, and my fast-food consumption has increased.” [K110].

“... while working in the Emergency Department, sometimes, even when I am not hungry, I feel like I am in the middle of a hunger crisis. As a result, I feel obliged to eat.” [K150].

The following are a selection of direct quotes from the participant frontline physicians’ views regarding the personal hygiene and using protective equipment (PPE) subtheme;

“I use personal protective equipment, and I am much more meticulous now about hand cleaning.” [K29].

“... I have begun to become obsessed with cleaning. There is constant diligence in the working environment, and the use of disinfectants has increased.” [K85].

“The pandemic caused us to enhance our hygiene measures a lot more. We regularly have our working environment disinfected. We use face masks and other protective equipment regularly, too.” [K148].

“... I have begun not to use common areas in the hospital, and I am always cautious about personal hygiene rules. I use more cologne than before.” [K166].

“During the pandemic, I even avoid using the elevators at the hospital due to my anxiety about becoming infected. I am careful about hand cleaning and using a face mask.” [K174].

“When I am on duty in the Emergency Department, I try not to touch any unnecessary items in the working environment.” [K198].

The following are a selection of direct quotes from the participant frontline physicians’ views regarding the avoiding responsibility subtheme;

“... I comply with social isolation and avoid taking on additional responsibilities at the hospital.” [K3].

“... I avoid taking on more duties beyond the scope of my job so as not to encounter more risky circumstances (even if our Head of Department insists).” [K115].

“I do not attend crowded meetings unless it is really necessary. I am careful about not taking on more responsibility. I always want to go home as soon as I finish my shift.” [K132].

“I do not want to take on additional responsibility beyond the constraints of my job owing to my anxiety of becoming infected.” [K171].

The following are a selection of direct quotes from the participant frontline physicians’ views regarding the excessive mobile phone usage subtheme;

“...I make telephone calls very often now, and with a lot of people. I cannot imagine a life without a mobile phone during this period.” [K91].

“... I have begun to make telephone calls more than I used to...” [K97].

“... I constantly video chat with my friends to psychologically relax. Even I can say that I cannot live without my phone.” [K105].

“... I have never had such frequent phone conversations in any period of my life. I often make contact with my social circle using my mobile phone now, but mostly I make video chats.” [K111].

“...including my colleagues at the hospital, it looks as if all of us have become mobile phone addicts, and we cannot live without talking on the phone.” [K177].

Theme 2: Interpersonal effects of the COVID-19 epidemic

The thoughts of the participant frontline physicians with regards to the second major theme, “interpersonal effects of the COVID-19 pandemic,” were divided into three subthemes as; “avoiding social interaction,” “interpersonal solidarity,” and “interpersonal conflict” (see Table 2). Following Table 2, a selection of direct quotes related to each subtheme are included from the participant frontline physicians’ written responses.

Theme	Subtheme	f	Codes
Interpersonal effects	Avoiding social interaction	75	Social avoidance, Avoiding face-to-face activities, Little communication, Being controlled, Minimizing social contact
	Interpersonal solidarity	56	Desire to work together, Asking friends for support, Being collaborative and accommodating, Compromise, Struggle, Cooperation
	Interpersonal conflict	33	Discussion, Aggressive behavior, Getting upset quickly

Table 2: Interpersonal effects of COVID-19 epidemic.

The following are a selection of direct quotes from the participant frontline physicians’ views regarding the avoiding social interaction subtheme;

“... everybody is nervous, we are careful about social distancing, and we never take our face masks off. We have stopped all our social activities with populous groups.” [K72].

"...we are now working in a more isolated environment than we did before the pandemic. Communicating with other people makes me nervous. I have become antisocial." [K79].

"... we are no longer able to walk around without a face mask and talk to our friends as we need." [K80].

"... I have begun to meet or chat less with my friends. I switched to a more controlled and socially more isolated lifestyle." [K94].

"I have suspended some of my relationships. My friendships have weakened because of my intensive workload." [K101].

"I am trying to minimize my social dialogue with my colleagues and the people in my circle." [K130].

"Fear and panic are the main domains in my relations. I meet less with my colleagues." [K138].

"I communicate less in personal relations by being more careful about social distancing." [K167].

The following are a selection of direct quotes from the participant frontline physicians' views regarding the interpersonal solidarity subtheme;

"Our reciprocal relations with our colleagues have been affected positively during the pandemic, due to being obliged to work closely with doctors from different branches." [K17].

"The spirit of cooperation and collaboration among colleagues has been strengthened during the pandemic." [K23].

"... even I feel happier because of being able to help my colleagues during these hard times." [K67].

"Playing a crucial role in coping with coronavirus and helping people makes me happy." [K100].

"In this process, I think the devotion, solidarity and trust among healthcare professionals has increased." [K121].

"... because we have to sustain a multidisciplinary teamwork and develop a spirit of unity, we have made new friends, and gained power through our struggle." [K140].

"The COVID-19 pandemic has provided me the opportunity to make new friends with doctors and healthcare professionals from different departments." [K156].

"... my colleagues and I act with common sense. My relationship with them has been affected positively." [K172].

"The feeling of respect, love and devotion among healthcare professionals has been strengthened." [K180].

The following are a selection of direct quotes

from the participant frontline physicians' views regarding the interpersonal conflict subtheme;

"... I have begun to become more aggressive in my relations with my colleagues." [K25].

"In our workplace, even because of trivial issues, we sometimes quarrel with our colleagues." [K169].

"I constantly argue with my colleagues about maintaining social distancing, because the idea of isolation has reached the boundary of an obsession for me." [K51].

"We might be more aggressive owing to the extreme pressure and fear during the pandemic..." [K86].

"I get angry more quickly than I used to before. That is why I always argue with the people around me." [K196].

Discussion

This study analyzed behavioral and interpersonal effects of the COVID-19 epidemic on frontline physicians working in Emergency Departments or Intensive Care Units of Turkish hospitals assigned to treat COVID-19 patients.

The findings reached as a result of the analysis of the participants' written responses to a semi-structured survey are summarized under two major themes, which are:

- Behavioral effects of the COVID-19 epidemic;
- And interpersonal effects of the COVID-19 epidemic.

The COVID-19 epidemic has had a profound effect on all aspects of society, including both mental health and physical health⁽¹⁵⁾. Public health policies related to COVID-19 are heavily dependent on social and behavioral change strategies in order to decrease the infection rate of the epidemic⁽¹⁶⁾. During the COVID-19 epidemic period, it is considered important to investigate the role of both behavioral and psychosocial factors in order to predict the likely changes in the mental and physical health of people who are subject to curfew or social isolation.

According to the current study's participants' views on the behavioral effects of the COVID-19 epidemic, the top three effects of the pandemic on the behavior of frontline physicians were "social distancing" (f = 77), "personal hygiene and using personal protective equipment (PPE)" (f = 72), and "excessive mobile phone usage" (f = 53). Within the scope of the current research, the frontline physicians

emphasized that they paid significant attention to social distancing, personal hygiene, and to the use of personal protective equipment in order to safeguard themselves from contracting the COVID-19 disease. In this regard, the World Health Organization⁽¹⁷⁾ stated that it is important to maintain a social distance of at least 1 meter between patients and healthcare professionals, and to use personal protective equipment. Moreover, most of the respondents stated that during the epidemic period, they used their mobile phones excessively owing to the psychological distress that they experienced. In a study by Yang, Liu, Lian, and Zhou⁽¹⁸⁾, it was mentioned that the tendency to excessive mobile phone usage (problematic cell phone usage) was triggered by feelings of boredom which may relate to depression.

Also, Tao, Wu, Yang, and Tao⁽¹⁹⁾ found a high level of correlation between excessive cell phone use and depression. From this perspective, it can be said that the participants in the current study who reported using their mobiles phone excessively during the epidemic might also be prone to clinical depression or feeling depressed.

Besides, other behavioral effects emphasized by the frontline physicians participating in the current study were “avoiding responsibility,” and “eating too much.” Some of the participants stated that during the epidemic period, they felt that they had begun to eat more than usual, and also that they consumed fast food much more frequently. According to Lim et al.⁽²⁰⁾ individuals’ eating habits are an important factor affecting mental health and thereby the development of psychiatric disorders.

Furthermore, Jeste, Lee, and Cacioppo⁽²¹⁾, in their study, explained that a balanced diet and regular eating habits are linked to better mental health indexes. They also emphasized that personal circumstances such as experiencing loneliness or social isolation may lead to an increased risk of obesity.

From this perspective, it could be said that some of the frontline physicians who participated in the current research may be experiencing certain psychological problems (e.g., boredom, anxiety, stress etc.) that may result in excessive eating during the pandemic period.

When the views of the frontline physicians participating in the research about the interpersonal effects of the COVID-19 epidemic were examined, it could be said that the most significant effect of the epidemic on their interpersonal behaviors was “avoiding social interaction” ($f = 75$). The participating frontline physicians also expressed that they

avoided face-to-face communication and activities, and have moved to a more controlled lifestyle in order to protect themselves from the epidemic.

According to Fernández-Theoduloz et al.⁽²²⁾ avoiding social interaction may result in negative consequences by limiting one’s social skills and opportunities, and may even be a cause of depression. Similarly, Brooks et al.⁽²³⁾ claimed that avoiding social interaction negatively affects the psychology of people, and that it can cause distress, disappointment, and a feeling of being isolated from others.

From this perspective, it could be said that avoiding social interaction during the COVID-19 epidemic period may decrease the frequency of social and physical communication with others, and thereby may amplify problems of a psychological or mental health nature.

Other interpersonal effects of the epidemic identified by the current study’s participants can be listed as “interpersonal solidarity” ($f = 56$) and “interpersonal conflict” ($f = 33$).

The frontline physicians participating in the current research stated that the spirit of solidarity, cooperation, and joint action with their colleagues had strengthened during the epidemic, and that they constantly tried to support each other during these challenging times. However, contrary to this idea, some of the participants explained that they acted more aggressively due to being under constant excessive pressure and stress during the epidemic period, and reported having constant quarrels with their colleagues.

Conclusion

The current study claims that frontline physicians are paying more attention to social distancing, personal hygiene, the use of personal protective equipment, as well as reportedly eating too much, using mobile phones excessively, and the avoidance of taking on increased responsibilities [as the “behavioral effects”] during the COVID-19 epidemic. In addition, the current study asserts that during the COVID-19 epidemic period, frontline physicians may exhibit certain tendencies such as avoiding social interaction, interpersonal solidarity, and interpersonal conflicts [as the “interpersonal effects”].

As a result, the findings of this study revealed that it is necessary to develop different strategies to meet the social and psychological needs of frontline physicians struggling with the COVID-19 epidemic in order to improve their quality of life.

Limitations and future directions

Although the current research provides important information about the behavioral and interpersonal effects of the COVID-19 epidemic on frontline physicians in Turkey, it also has some limitations. An exploratory, descriptive, qualitative research design was employed in the current study, and therefore as a common characteristic of qualitative research, the size of the sample was limited in number. In order to perform a more comprehensive assessment of the wider effects of the COVID-19 epidemic, further research could be conducted to analyze the behavioral and interpersonal impact of COVID-19 on frontline physicians at the end of the current pandemic.

(In order to investigate whether these habit changes will continue into normal life or even if these changes will continue only during work). Furthermore, rather than a qualitative research design, a mixed-methods approach, encompassing both quantitative and qualitative paradigms, could be implemented in future research studies in this area.

References

- 1) Ren L-L, Wang W-M, Wu Z-Q, Xiang Z-C, Guo L, Xu T, Wang J-W. Identification of a novel coronavirus causing severe pneumonia in human: A descriptive study. *Chin Med J* 2020; 133: 1015-1024.
- 2) Organization WH. Naming the coronavirus disease (COVID-19) and the virus that causes it. Retrieved from [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it) (accessed July 12, 2020a).
- 3) Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. *Jama* 2020; 323: 1439-40.
- 4) Moccia L, Janiri D, Pepe M, Dattoli L, Molinaro M, De Martin V, Di Nicola M. Affective temperament, attachment style, and the psychological impact of the COVID-19 outbreak: an early report on the Italian general population. *Brain Behav Immun* 2020; published online. <https://doi.org/10.1016/j.bbi.2020.04.048> (preprint).
- 5) Health TM. New Coronavirus Disease 2019 (COVID-19). Retrieved from <https://covid19bilgi.saglik.gov.tr/tr/> (accessed June 22, 2020b).
- 6) Health TM. Current Situation in Turkey (Coronavirus). Retrieved [live data] from <https://covid19.saglik.gov.tr/> (accessed August 6, 2020a).
- 7) Bao Y, Sun Y, Meng S, Shi J, & Lu L. 2019-nCoV epidemic: address mental health care to empower society. *The Lancet* 2020; 395: e37-38.
- 8) Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX, Liu Z. The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *Lancet Psychiat* 2020; 7: e14.
- 9) Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian J Psychiatr* 2020: 102083.
- 10) Tan W, Hao F, McIntyre RS, Jiang L, Jiang X, Zhang L, Tam W. Is returning to work during the COVID-19 pandemic stressful? A study on immediate mental health status and psychoneuroimmunity prevention measures of Chinese workforce. *Brain Behav Immun* 2020; published online. <https://doi.org/10.1016/j.bbi.2020.04.055> (preprint).
- 11) Atas O, Talo Yildirim T, Yildirim K, Tekin S, Oztekin F, Gezer A. Investigation of healthcare workers attitudes and practices towards the COVID-19 pandemic. *Acta Medica Mediterr* 2020; 36: 2427.
- 12) Merriam SB, Tisdell EJ. *Qualitative research*. San Francisco, CA: Wiley, 2016.
- 13) Bassey, M. *Case study research in educational settings*. Philadelphia, PA: Open University, 1999.
- 14) Attride-Stirling J. Thematic networks: An analytic tool for qualitative research. *Qual Res* 2001; 1: 385-405.
- 15) Holmes EA, O'Connor RC, Perry VH, Tracey I, Wesely S, Arseneault L, Bullmore E. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiat* 2020; 7: 547-560.
- 16) Eaton LA, Kalichman SC. Social and behavioral health responses to COVID-19: lessons learned from four decades of an HIV pandemic. *J Behav Med* 2020; 43: 341-345.
- 17) Organization WH. Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19). Retrieved from https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPE_use-2020.2-eng.pdf (accessed July 12, 2020b).
- 18) Yang XJ, Liu Q-Q, Lian S-L, Zhou ZK. Are bored minds more likely to be addicted? The relationship between boredom proneness and problematic mobile phone use. *Addict Behav* 2020; 108: published online. <https://doi.org/10.1016/j.addbeh.2020.106426> (preprint).
- 19) Tao S, Wu X, Yang Y, Tao F. The moderating effect of physical activity in the relation between problematic mobile phone use and depression among university students. *J Affect Disord* 2020; 273: 167-172.
- 20) Lim SY, Kim EJ, Kim A, Lee HJ, Choi HJ, Yang SJ. Nutritional factors affecting mental health. *Clin Nutr Res* 2016; 5: 143-152.
- 21) Jeste DV, Lee EE, Cacioppo S. Battling the modern behavioral epidemic of loneliness: suggestions for research and interventions. *JAMA Psychiat* 2020; published online. <https://doi.org/10.1001/jamapsychiatry.2020.0027> (preprint).

- 22) Fernández-Theoduloz G, Paz V, Nicolaisen-Sobesky E, Pérez A, Buunk AP, Cabana Á, Gradin VB. Social avoidance in depression: A study using a social decision-making task. *J Abnorm Psychol* 2019; 128: 234-244.
- 23) Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet* 2020; 395: 912-920.

Acknowledgments:

The authors would like to thank all of the participating medical doctors who contributed to this study, and also to the rectorate of the Health Sciences University [Istanbul]. Especially, we would like to add our personal appreciation to all the devoted healthcare professionals, whose continued fearless efforts are helping in the fight against the COVID-19 pandemic, both in Turkey and worldwide.

Corresponding Author:

TURGUT KARAKOSE

Email: turgut.karakose@dpu.edu.tr

(Turkey)