**Original Research / Özgün Araştırma**

# Anxiety Level of Family Physicians and Family Health Workers in COVID-19 Pandemic

## COVID-19 Pandemisinde Aile Hekimleri ve Aile Sağlığı Elemanlarında Anksiyete Düzeyi

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**ABSTRACT**

**Introduction:** It has been observed that outbreaks experienced throughout history have caused anxiety by profoundly affecting societies. COVID-19 pandemic soon affected the entire world and caused the deaths of thousands of people. Frequently encountering COVID-19 patients increase the anxiety levels of healthcare workers during the pandemic. This study aimed to determine the anxiety levels of healthcare workers of family health centers in Kayseri during the pandemic. **Materials and Methods:** A total of 214 physicians and family health workers between the ages of 20 and 65 and actively working in Family Health Centers in Kayseri participated in the study. The Beck Anxiety Inventory (BAI) was used to determine the level of anxiety. **Results:** Of 214 people who participated in the study, 71.0% were female, 82.7% were married, 52.8% were physicians and 47.2% were family health workers. Their mean age was 38.85. Median employment duration was 14 (min-max: 1-34) years and the median Beck Anxiety Inventory Score was 17 (min-max: 0-63). Of the participants, 53.7% stated that they attended a training program on COVID-19 while 84.1% stated that the outbreak had psychologically affected them. **Conclusion:** The pandemic has increased the anxiety level of healthcare workers. Mental health of healthcare workers in family health centers affects the quality of the service they provide in the primary care. Therefore, psychosocial support teams should be built up in our country and around the world, and health workers should be supported psychologically as well as patients.

**Keywords:** COVID-19, family physician, family health worker, anxiety

**ÖZET**

**Giriş:** Tarih boyunca yaşanan salgınların toplumları derinden etkileyerek anksiyete oluşturduğu görülmüştür. COVID-19 salgını kısa sürede tüm dünyada etkisini göstermiş ve binlerce kişinin COVID-19 nedeniyle öldüğü bildirilmiştir. Salgın döneminde sağlık çalışanlarının COVID-19 hastaları ile sık karşılaşmaları anksiyete düzeylerini artırmaktadır. Bu çalışmanın amacı Kayseri'de hizmet veren aile sağlığı merkezlerinde çalışanların salgın dönemindeki anksiyete düzeylerini belirlemektir. **Yöntem:** Çalışmaya telefonla ulaşılan 20 ile 65 yaş arası Kayseri'de bulunan aile sağlığı merkezlerinde aktif olarak çalışan 214 doktor ve aile sağlığı elemanı katılmıştır. Anksiyete düzeyini belirlemek için Beck Anksiyete Indexi (BAI) kullanılmıştır. **Bulgular:** Çalışmaya katılan 214 kişinin %71'i kadın, %82,7'si evli, %52,8'i doktor, %47,2'si aile sağlığı elemanıydı. Yaş ortalaması 38,85 idi. Görev süresi ortancası 14 (min-max:1-34) yıl ve Beck Anksiyete Skor ortancası 17 (min-max: 0-63) idi. Katılımcıların %53,7'si COVID-19 hakkında eğitim aldığını, %84,1'i salgının kendilerini ruhsal olarak etkilediğini belirtmiştir. **Sonuç:** Pandemi sağlık çalışanlarının anksiyete düzeyini artırmıştır. Aile sağlığı merkezlerindeki sağlık çalışanlarının ruhsal sağlığının iyi olması birinci basamakta verdikleri hizmetin kalitesini etkilemektedir. Bunun için ülkemizde ve dünyada psikososyal destek ekipleri kurulmalı ve hastalar ile birlikte sağlık çalışanları da psikolojik olarak desteklenmelidir.

**Anahtar Kelimeler:** COVID-19, aile hekimi, aile sağlığı çalışanı, anksiyete

## INTRODUCTION

Anxiety can be defined as an abnormal and causeless uneasiness and condition of fear accompanied by somatic symptoms.[1] Anxiety can also be defined as apprehension or mope.[2] It has been observed that outbreaks experienced throughout history have caused anxiety by profoundly affecting societies.[3] The World Health Organization (WHO) declared a new coronavirus outbreak a global pandemic on 11th of March, 2020.[4] This new coronavirus was called SARS-CoV-2, and the disease it caused was called Coronavirus Disease-19 (COVID-19). It is known that SARS-CoV-2 is transmitted from human to human via respiratory droplets or direct contact. Incubation period of the infection is estimated to be between 2-14 days and its main reproduction coefficient between 2.24-3.58.[5]

The outbreak affected the whole world within a short time and caused deaths of thousands of people.[6] All of these resulted in high anxiety and worry in the society. Anxiety levels of healthcare workers increase due to conditions such as frequently encountering COVID-19 patients during pandemic, increased workload, fear of being infected or contaminating their parents, and inadequate personal protective equipment.[7,8] This study aimed to determine anxiety levels of healthcare workers in Kayseri during the pandemic.

## MATERIALS AND METHODS

### Study Design

This study was designed as web-based research and performed with a multiple-choice survey technique. Family physicians and family health workers working in family health centers of Kayseri were called and the questionnaire in Turkish was sent to them via text message or e-mail with its link. The participants were asked to complete Beck Anxiety Inventory to determine their anxiety levels. Besides, demographic data and employment durations of the participants and how many times they washed their hands within a day were questioned. Presence of a chronic disease or psychiatric disease, regular medication use or psychiatric medication use, alcohol and smoking habits, whether they had children or not, whether they lived with someone older than 65, their family structures, and their opinions about protective equipment were questioned. Our study was a cross-sectional descriptive study.

### Sample Size

Population of the study consisted of family physicians and family health workers between the ages of 20 and 65 who worked in family health centers in Kayseri City Center. Family health centers were selected randomly. Randomization was made to be a family health center from each county. Healthcare workers who were actively working as physicians and family health workers in family health centers in Kayseri and who gave consent to participate in the study were included. Four out of 218 people who did not accept to give consent were excluded from the study and as a result, 214 people who gave consent formed the sample. They were asked to complete an online questionnaire form between 25th -30th May, 2020.

G*power 3.1 analysis program was used for power analysis in this study for determination of the sample size. The minimum number of the participants to include in the study was determined as 197 (α- value:0.05, ß-value:0.80). Beck Anxiety Inventory (BAI) was used to determine the anxiety level. These are multiple-choice inventories and get scores according to the point of each item.

*Beck Anxiety Inventory (BAI):* Beck, Epstein, Brown and Steer developed it in 1988. The objective of the inventory is to determine the frequency and severity of anxiety symptoms the individuals have.[9] Validity and reliability test of the inventory in Turkey was performed by Ulusoy, Şahin and Erkman.[10,11] It consists of 21 questions with 4-point Likert type (0: Not at all, 1: Mildly- It did not bother me much, 2: Moderately- It was very unpleasant, but I could stand it, and 3: Severely- I could barely stand it. According to BAI, total point the individuals get is between a minimum of 0 and a maximum of 63. BAI score between 8 points and 15 points is accepted as mild level of anxiety, the score between 16 points and 25 points as moderate level of anxiety, and the score between 25-63 as increased anxiety level. Basic epidemiological information was questioned in addition to this scale.

### Ethical Considerations

Our study was performed with the approval (105; 06/2020) of ethics committee of Kayseri City Training and Research Hospital. Consents of the participants were obtained.

### Statistical Analysis

Mean, standard deviation, median, minimum and maximum values were calculated for continuous variables and descriptive statistics were calculated as numbers and percentiles for categorical variables. Chi-Square test was used in determination of the relationship between the groups and categorical variables. Whether numerical data of the variables were normally distributed or not was determined with one-sample Kolmogorov Smirnov test. Student t-test was used in comparison of parametric two-

groups and Mann Whitney U test was used in comparison of nonparametric two-groups. SPSS version 22.0 (IBM Corp. Armonk, NY, USA) was used for statistical analysis. p<0.05 was accepted as the statistically significant value.

## RESULTS

Of 214 participants in the study, 71.0% were female, 82.7% were married, 52.8% were physicians, and 47.2% were family health workers. Median age of the participants was 40 (20-62). Of the participants, 7.5% used alcohol, 28.5% used cigarettes, 24.8% had a chronic disease and 8.9% had a psychiatric disease. Of the participants, 5.1% stated that they lived alone and 78.5% stated that they had children. Median employment duration was 14 (min-max: 1-34) and median Beck Anxiety Inventory Score was 17 (min-max: 0-63) (Table 1)

Of the participants, 53.7% stated that they attended a training program on COVID-19, 84.1% stated that the outbreak psychologically affected them, 74.8% stated that protective equipment and disinfectants were inadequate in the family health center and 87.4% stated that they were afraid of being infected with COVID-19. Of the participants, 23.4% lived with an elderly or an individual with a chronic disease (Table 2).

**Table 1:** Characteristics of Participants

| Characteristics | Number (n) (%) |
|---|---|
| **Gender** | |
| Female | 152 (71.0) |
| Male | 62 (29.0) |
| **Marital Status** | |
| Single | 37 (17.3) |
| Married | 177 (82.7) |
| **Profession** | |
| Physician | 113 (52.8) |
| Family Health Worker | 101 (47.2) |
| **Do you smoke?** | |
| Yes | 61 (28.5) |
| No | 153 (71.5) |
| **Do you use alcohol?** | |
| Yes | 16 (7.5) |
| No | 198 (92.5) |
| **Do you have a chronic disease?** | |
| Yes | 53 (24.8) |
| No | 161 (75.2) |
| **Is there a drug that you regularly use? (Except for psychiatric drugs)** | |
| Yes | 53 (24.8) |
| No | 161 (75.2) |
| **How is your family type?** | |
| Single | 11 (5.1) |
| Nuclear Family | 174 (81.3) |
| Extended Family | 26 (12.1) |
| Other | 3 (1.4) |
| **Do you have any children?** | |
| Yes | 168 (78.5) |
| No | 46 (21.5) |
| **Do you have any psychiatric disease?** | |
| Yes | 19 (8.9) |
| No | 195 (91.1) |
| **Do you use a psychiatric disease?** | |
| Yes | 53 (24.8) |
| No | 161 (75.2) |

**Table 2:** Responses to Questions in the Questionnaire

| Questions | Number (n) (%) |
|---|---|
| **Have you attended a training program on COVID-19 infection?** | |
| Yes | 115 (53.7) |
| No | 99 (46.3) |
| **Do you think COVID-19 pandemic psychologically affects you?** | |
| Yes | 180 (84.1) |
| No | 20 (9.3) |
| Not sure | 14 (6.5) |
| **Do you think personal protective equipment and disinfectant agents in the family health center are adequate?** | |
| Yes | 54 (25.2) |
| No | 160 (74.8) |
| **Do you believe protective equipment such as mask, medical gown and medical safety glasses protect you?** | |
| Yes | 42 (19.6) |
| No | 172 (80.4) |
| **Are you afraid of being infected with COVID-19?** | |
| Yes | 187 (87.4) |
| No | 27 (12.6) |
| **Do you live with an individual older than 65 years old or an individual with a chronic disease?** | |
| Yes | 50 (23.4) |
| No | 164 (76.6) |

According to severity of the anxiety in terms of gender, anxiety level of women was higher (84.2%) (p=0.003). According to severity of the anxiety, there was no difference between the groups in terms of professions (p=0.129). There was no difference in Beck Anxiety Inventory Score between participants with and without chronic disease (p=0.111). However, anxiety level was proportionally higher among family health workers (83.2%) (Table 3-4).

**Table 3:** Anxiety Levels of the Participants

| | Anxiety Level | | | | |
|---|---|---|---|---|---|
| | None Number (%) | Mild Number (%) | Moderate Number(%) | Severe Number (%) | P value |
| **Physician** | 30 (26.5) | 31 (27.4) | 31 (27.4) | 21 (18.6) | 0.129 |
| **Family Health Worker** | 17 (16.8) | 25 (24.8) | 28 (27.7) | 31 (30.7) | |
| **Men (62)** | 23 (22.0) | 17 (26.2) | 12 (27.6) | 10 (24.3) | 0.003 |
| **Women (152)** | 24 (15.8) | 39 (25.7) | 47 (30.9) | 42 (27.6) | |
| **Total** | 47 (22.0) | 56 (26.2) | 59 (27.6) | 52 (24.3) | |

Chi-square test was used

**Table 4:** Comparison of Anxiety Scores

| Characteristics(N) | | Anxiety Score Median (min-max) | *n* | *P* |
|---|---|---|---|---|
| **Profession** | Family Health Worker (101) <br> Physician (113) | 18 (0-63) <br> 15 (0-55) | 4652 | **0.020** |
| **Gender** | Female (152) <br> Male (62) | 18 (0-59) <br> 9.5 (0-63) | 3234 | **<0.001** |
| **Training on COVID-19** | Yes (115) <br> No (99) | 18 (0-59) <br> 15 (0-63) | 5032 | 0.144 |
| **Status of Finding Protective Equipment Adequate** | Yes (54) <br> No (160 | 15 (0-43) <br> 17 (0-63) | 3654 | 0.090 |
| **Status of Living with an Individual Older than 65 or with a chronic disease** | Yes (50) <br> No (164) | 20.5 (1-63) <br> 15 (0-59) | 3256 | **0.028** |
| **Employment Duration** | Less than 10 years (58) <br> 10 years or more (156) | 16 (0-56) <br> 17 (0-63) | 4405 | 0.768 |
| **Status of Having a Psychiatric Disease** | Yes (19) <br> No (195) | 20 (1-63) <br> 16 (0-56) | 1307 | **0.034** |

Mann Whitney U test was used.

## DISCUSSION

Severe level of anxiety was detected in 24.3% of the participants in this study. In comparison of anxiety scores, the anxiety level was higher in family health workers than in physicians, in women, and in those who lived with an individual older than 65 years old. The rate of those stating that current events about COVID-19 psychologically affected them was 84.1%.

Anxiety disorder is a psychiatric disorder common in society. According to the data of national research in which the prevalence of psychological diseases was investigated in the USA, the prevalence rates were 30.5% in women and 19.2% in men within a lifetime.[12] It is known that prevalence rates of anxiety subtypes are higher in women than in men.[13] In this study, anxiety score of female healthcare workers working in the family health center was higher than that of male healthcare workers. While the rate of those who did not show any anxiety symptoms were 15.8% in women and 22.0% in men.

In a study performed with Generalized Anxiety Disorder 7-item (GAD-7) scale among healthcare workers in Wuhan, anxiety symptoms were detected in 24.1% of healthcare workers. In this study, 24.3% had severe anxiety symptoms. In the study in Wuhan, employment duration longer than 10 years, female gender and presence of psychiatric disease were found to be risk factors for increased stress.[13]

In a study performed on primary healthcare workers including 79 physicians and 86 nurses in Gansu, China with self-rating anxiety scale (SAS), self-rating depression scale (SDS) and simplified coping style questionnaire (SCSQ), while the prevalence rates of anxiety and depression symptoms in physicians were 11.4% and 45.6% respectively the prevalence rates of anxiety and depression symptoms in nurses were 27.9% and 43.0% respectively.[14]

The Impact of Event Scale aims to measure the stress of individuals experiencing trauma during they complete the scale.[15] A study performed with the Impact of Event Scale during SARS outbreak in Taiwan in 2003 found that scores of the Impact of Event Scale decreased as the employment duration extended.[16] In this study, anxiety levels were higher in female healthcare workers in family health centers than in male healthcare workers and in those with a psychiatric disease than in those without a psychiatric disease. No statistically significant difference was found between anxiety levels of those

whose employment duration was longer than 10 years and those whose employment duration was shorter than 10 years.

In a study performed with a 9-item Patient Health Questionnaire, 7-item Generalized Anxiety Disorder scale, 7-item Insomnia Severity Index, and 22-item Impact of Event Scale in January-February 2020 during COVID-19 pandemic in China, 50.4% of healthcare workers had depression, 44.6% had anxiety and 34.0% had insomnia.[17] It was reported in a study in Taiwan that 77.4% of healthcare workers had anxiety symptoms and 74.2% had depression symptoms during SARS outbreak.[16] In a study performed to measure social mental health burden of COVID-19 by Huang et al. in China, anxiety level, presence of depressive symptoms and sleep quality of general population were questioned. The prevalence of anxiety disorder was 35.1% in general population and 35.6% among healthcare workers. The difference was not statistically significant.[18] In this study, the total rate of family health center healthcare workers with mild, moderate and severe anxiety levels were 78.0%.

It is known that providing adequate protective equipment for healthcare workers in family health centers decreases their stress.[7] In this study, median anxiety scores of those who stated that personal protective equipment provided for them were inadequate were compared with the scores of those who stated that theirs were adequate and no statistically significant difference was found out. However, the rate of individuals who stated that personal protective equipment provided for them was inadequate was 74.8% in this study and providing personal protective equipment was quite important for healthcare workers to protect themselves from the pandemic. In the study of Taş et al., 90% of family physicians stated that they were not provided with adequate protective equipment or insufficiently provided. The anxiety experienced by the whole society at the beginning of the pandemic caused the demand for excess products. However, the measures taken and the distribution of protective equipment, especially the distribution of masks, were determined by the rules in a short time, which solved this problem.[19]

Liu et al. used the Self-Rating Anxiety Scale (SAS) in their study in which the factors affecting anxiety in healthcare workers in China were investigated and found that prevalence of anxiety was 12.5% in healthcare workers.[20]

A large number of studies asserting that the course of COVID-19 infection is more mortal in patients with advanced age have been published.[21,22,23] Higher rate of mortality in advanced age may cause anxiety to transmit the disease in those who live with individuals with advanced age. In this study, 23.4% stated that they lived with an individual older than 65 years old. Anxiety score of those living with an individual older than 65 years old was found to be statistically higher than the anxiety score of those who did not live with such an individual.

### Study Limitations

The limitation of our study is that it could not be interviewed face to face with the participants due to the pandemic and that it was done online.

### Conclusions

During the pandemic, most of the hospitals were announced as pandemic hospitals and almost all the physicians working in the hospital served in these services. This has increased the appeal to family medicine healthcare centers. Having family doctors to work in this way has increased their workload.[19] Besides, they are afraid of transmitting the infection to their family members. Many healthcare workers died during the pandemic. Primary care physicians are the first point of contact with patients. Family physicians are maintaining the outpatient clinic services, which secondary and tertiary healthcare services are struggling to sustain during the pandemic. For sure, the quality of service that healthcare workers in family health centers provide is affected by their mental health. Therefore, psychosocial support teams should be built up in our country and around the world and health workers should be supported psychologically as well as patients.

**Conflict of Interest:** The authors have no conflict of interest to declare.

**Financial Disclosure:** The authors declare that this study has received no financial support.

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