DECREASED FUNCTIONING AND CONTENTS OF WORRIES ASSOCIATED WITH ANXIETY OR DEPRESSION SYMPTOM LEVELS WITHIN PATIENTS HOSPITALIZED WITH COVID-19 INFECTION

Özgecan Tuna[1], Çağatay Ermiş[2], Aslı Enez Darçın[3], Ekin Dağıstan[4], Recep Akkoş[5], Umut Mert Aksoy[6], Ömür Tabak[7] & Ali Kocataş[8]

[1]*Kanuni Sultan Süleyman Training and Research Hospital, Department of Adult Psychiatry, Küçükçekmece, Istanbul, Turkey*
[2]*Queen Silvia Children's Hospital, Sahlgrenska University Hospital, Gothenburg, Sweden*
[3]*Istanbul Topkapı University, Department of Adult Psychiatry, Istanbul, Turkey*
[4]*French School of Public Health (Ecole des Hautes Etudes en Santé Publique), Paris, France*
[5]*Başakşehir Çam ve Sakura City Hospital, Department of Psychology, Başakşehir, Istanbul, Turkey*
[6]*Aydın University, Department of Adult Psychiatry, Sefaköy-Küçükçekmece, Istanbul, Turkey*
[7]*Kanuni Sultan Süleyman Training and Research Hospital, Department of Internal Medicine, Küçükçekmece, Istanbul, Turkey*
[8]*Kanuni Sultan Süleyman Training and Research Hospital, Department of General Surgery, Küçükçekmece, Istanbul, Turkey*

SUMMARY

Background: High levels of anxiety and depression symptoms have been reported in patients with COVID-19 compared to the general population. These symptoms were related to variables such as gender, age, and education level with anxiety/depression levels. We aimed to determine the relationship between anxiety and depression symptoms and epidemic-related decreased functioning, worry, and quality of life (QoL).

Subjects and methods: The study included 238 hospitalized participants due to COVID-19 and 168 participants who were hospitalized for reasons other than COVID-19. The Hospital Anxiety and Depression Scale (HADS), Short Form 36 (SF-36) QoL Scale, and questionnaires prepared by the researchers were applied. The effects of current worries, impairment in QoL, and decreased functioning during quarantine on levels of anxiety and depressive symptoms were investigated by implementing multiple linear regression analyzes.

Results: Our study results suggested the anxiety and depression levels of patients with COVID-19 were not higher than those in the internal medicine inpatient unit at the same time. Worries about transmission to others, uncertainty, social media news, and health anxiety increased the psychiatric symptoms of participants with COVID-19. Disruptions in social relationships and health also have an effect on anxiety/depression symptom levels. Conversely, results indicated losses and worries in occupation and finance did not significantly affect mental symptoms.

Conclusion: Worries about transmission to others, uncertainty and health anxiety are closely related to anxiety and depression among patients with COVID-19. There is a need for research in the mental health field for the later stages of the pandemic in different cultures.

Key words: COVID-19 - anxiety - finance - contaminating - uncertainty

*   *   *   *   *

INTRODUCTION

The World Health Organization (WHO) has declared COVID-19 as a pandemic disease by 11 March 2020 when Turkey has reported the first case with COVID-19 (World Health Organization 2020). In addition to the effects of the COVID-19 pandemic on physical health, it has also had several effects on mental health, such as anxiety and depression (Bäuerle et al. 2020, Salari et al. 2020, Sinanovic et al. 2020, Sljivo et al. 2020). Also, anxiety and depression symptoms associated with social isolation have been aggravated (Lazzari et al. 2020, Sønderskov et al. 2020). Studies have reported higher levels of anxiety and depression among patients diagnosed with COVID-19 who received inpatient treatment, compared to individuals who were not hospitalized (Zarghami et al. 2020). In a recent study, the psychopathology levels of patients hospitalized with COVID-19, community controls, and those with previous COVID-19 infection were compared. The results suggested that the levels of anxiety and depression of patients in the hospital were not higher than the comparison groups. Conversely, the results suggested that community controls and individuals with previous COVID-19 infection had higher levels of depressive complaints (Zhang et al. 2020).

A recent meta-analysis indicated COVID-19 patients commonly reported symptoms of anxiety (47%) and depression (45%). Of thirty-one studies included, twenty-seven were conducted in China; therefore, authors suggested the impact of COVID-19 infection on mental health should also be investigated in countries other than China (Deng et al. 2020). On the other hand, studies comparing depression and anxiety levels in individuals hospitalized with COVID-19 infection with other hospitalized patients remained scarce. Therefore, this remains an important research question to be answered. Finally, there is a need to understand the effects of decreased functioning during the curfew period and the concerns of patients, which they worry about, on anxiety/depression symptoms.

In this study, we aimed to investigate the effect of the preexisting decrease in the functioning to sustain social roles of patients with COVID-19 during the epidemic period on anxiety and depression symptom levels measured in the hospital. Also, the correlation between the severity of worries and psychopathology levels was investigated. The first hypothesis of our study proposed anxiety and depression symptom levels in COVID-19 patients receiving inpatient treatment are higher than patients hospitalized in the internal medicine inpatient unit for other reasons in the same time interval. Secondly, we hypothesized that financial concerns, the fear of transmission, and the sense of uncertainty that occurred within the context of the pandemic were correlated with anxiety and depression symptom levels. Finally, one of the exploratory objectives of the study is to show the relationship between the quality of life (QoL) levels during the quarantine period and the anxiety and depression levels of the subjects.

SUBJECTS AND METHODS

Participants

The training and research hospital where the study was conducted was a referral hospital in Istanbul for patients with COVID-19. It also continued to serve patients without a diagnosis of COVID-19 in several inpatient units during the pandemic. The COVID-19 group consisted of patients receiving treatment in an isolated inpatient unit suitable for pandemic conditions. The comparison group was composed of patients who were hospitalized at the same time. These individuals had similar age and gender characteristics and treated in the internal medicine service involving various systems, such as gastrointestinal (e.g. gastrointestinal system bleeding, pancreatitis), hematological (e.g. anemia), endocrine (e.g. diabetes control, thyroiditis), rheumatological and oncological diseases. Individuals who were admitted to the intensive care unit or received general anesthesia for the last month, with stroke, epilepsy, a neurodegenerative disease, severe respiratory failure, sepsis, or any surgical operation were excluded.

History of a substance use disorder (except for smoking), autism spectrum disorder, mental retardation, and delirium were also not endorsed. Finally, patients who were in social isolation for a transmissible infection were not included in the comparison group. 10 patients with COVID-19 and 12 patients with any internal disease refused to participate in the study. A total of 406 participants aged ≥ 18 years were included in the study, including 238 patients diagnosed with COVID-19 and 168 patients without a diagnosis of COVID-19. All participants were consecutively hospitalized between July and October 2020. All patients gave written informed consent for the study. The Local Ethics Committee reviewed and approved the study protocol with the protocol number 2020.07.126.

Procedures

During the hospitalization period (median = 2 days, interquartile range = 2-4 days, after hospitalization), the Hospital Anxiety and Depression Scale (HADS), the Short Form 36 (SF-36) QoL scale, and the questionnaires prepared by the researchers were performed. The scales and special questionnaires were implemented via hospital phones and patients' mobile phones given the risk of contamination. The telephones in the patient rooms were called by the interviewers to ask questions.

Hospital Anxiety and Depression Scale

The scale was developed by Zigmond and Snaith (1983) to evaluate the symptoms of anxiety and depression in people with physical illnesses (Zigmond & Snaith 1983). It consists of 14 questions scored between 0-3 points. HADS also has two subscales, anxiety and depression. The cut-off score for both subscales was 7. Additionally, total subscale scores of MADS are subdivided into four categories: i) 0-7 point interval as no or minimal anxiety/depression; ii) 8-10 points interval as mild anxiety/depression; iii) 11-14 points interval as moderate anxiety/depression and iv) ≥ 15 points as high anxiety/depression. The Turkish validity and reliability study of the scale was conducted by Aydemir and colleagues (1997) (Aydemir 1997). It evaluates anxiety and depression independently as well as the somatic symptoms related to the disease; Therefore, it is recommended to be used in individuals with medical comorbidities (Clark & Steer 1994).

Short Form 36 (SF-36) – Quality of Life

SF-36, developed by Ware and Sherbourne (1992) and used in the assessment of QoL, consists of 36 questions that include physical and mental components (Ware Jr & Sherbourne 1992). SF-36 is suitable for face-to-face or telephone interviews for individuals aged ≥ 14 years, being implemented through self-report or conducted by a trained interviewer (Ware Jr & Sherbourne 1992).

SF-36 has eight subscales scored between 0-100 points. High scores correspond to a high quality of life for the associated domain. Subscales are; physical functioning, social functioning, role functioning, bodily pain, mental health, role emotional, vitality, and general health perceptions. The scale does not have a composite score, and the scoring of each section is calculated based on section-specific mathematical formulas. Turkish validity and reliability study was conducted by Kocyigit and colleagues (1995).

Questionnaire form

The first part of the questionnaire prepared by researchers contains questions evaluating the sociodemographic information of the participants. The second part of the form assesses a possible decrease in functioning in terms of patients' i) social relations, ii) physical health iii) finance iv) family relations v) occupation/profession domains in the process of COVID-19 pandemic and the curfew. The patients were questioned for the period of curfew before the hospitalization. All questions have possible Likert-type five answers (1 = definitely disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = definitely agree). An example query was "Do you agree that your financial status was affected since the outbreak of COVID-19 and the curfew period?" or "do you agree that your social life was affected during the outbreak of COVID-19 and the curfew period?" were asked to assess affected life domains.

Thirdly, participants' concerns and worries were also investigated using a Likert-type questionnaire including health anxiety-, contamination-, occupation-, finance-, uncertainty-, and news in social media-related worries, such as "How often do you worry about your financial concerns after the outbreak of COVID-19? Possible answers were could be coded between 1 to 5 (1=never 2=rarely, 3=occasionaly, 4=often, 5=most of the time/always").

Data analysis

Categorical variables were expressed as the number of cases in each group and their frequencies. Continuous variables were expressed as means and standard deviations. Categorical variables were compared using the Chi-square test. Normal distribution of continuous variables was tested using skewness and kurtosis values. The values for skewness and kurtosis that fall between -2 and +2 indicate normal distribution. (George & Mallery 2019). Continuous variables were compared between study groups implementing Student's t-test. The effects of current worries, impairment in QoL, and decreased functioning during quarantine on levels of anxiety öd depressive symptoms were investigated by implementing multiple linear regression analyses.

In regression analyses, results were stratified for both genders. Also, in regression models, results were controlled for age, marital status, education, employment status, history of psychiatric disorder, smoking, having children, and elder family member requiring daily care. The statistical significance was set at 0.05 two-sided. All statistical analyses were performed in SPSS version 24 (IBM Corporation, Armonk, New York).

RESULTS

Table 1 illustrates the sociodemographic characteristics of inpatients with COVID-19 and the comparison group. 238 participants with COVID-19 and 168 inpatients from the internal medicine unit were recruited for the study. The mean ages of the COVID-19 group and the comparison group were similar (52.8±17.6 years vs. 54.7±18.5 years, respectively, *p*=0.316). 48.7% of patients in the COVID-19 group and 50.0% of the comparison group were females (*p*=0.802). The duration of education was significantly less in the COVID-19 group (5.5±3.9 vs. 6.5±4.4, *p*=0.025). Patients with COVID-19 infection were also more commonly married compared to those in the comparison group (83.6% vs. 68.5% *p*<0.001). Additionally, study groups were similar considering their employment status and the number of children. The history of psychiatric follow-up did not differ between study groups (COVID-19 group=16.8% vs. the comparison group=17.9%, *p*=0.783)

The number of current smokers and past smokers was less in the COVID-19 group (*p*=0.002). There was a significant difference between both groups regarding total scores of HADS (the COVID-19 group=13.3±8.3 vs. the comparison group = 15.4±8.6, *p*=0.016), HADS-anxiety (the COVID-19 group = 6.2±4.3 vs. the comparison group = 7.2±4.7, *p*=0.037), and HADS-depression subscales (the COVID-19 group = 7.2±4.7 vs. the comparison group = 8.2±4.7, *p*=0.029). In the COVID-19 sample, 50.8% of the patients had subsyndromal depressive symptoms. Also, 61.4% of the patient in the COVID-19 group had subsyndromal anxiety levels.

Table 2 shows the associations between the decrease in functioning during the outbreak of the COVID pandemic and the quarantine period in the COVID-19 group. All results were stratified for gender and psychiatric symptoms were included in six different (e.g domains assessed in the study) linear regression models, which were adjusted for marital status, education, employment status, history of psychiatric disorder, smoking, having children, or elder family member requiring daily care. There was a significant positive association between impairment in the physical health domain and anxiety/depression levels in both genders (Table 2). Impairments in the occupational/professional domain did not affect the psychopathology levels in both genders. Additionally, impairments in the monetary/financial status were significantly associated with anxiety levels but not with the depression levels in both males and females. Impairments in the domain of

Table 1. Sociodemographic characteristics of patients diagnosed on COVID-19 infection and hospital controls

Variables	Patients with COVID-19, n=238	Control group, n=168	Statistics	*P*
Age, years, mean ± SD	52.8±17.6	54.7±18.5	t=1.0	0.316
Sex, female, n (%)	116 (48.7)	84 (50.0)	χ^2=0.1	0.802
Education, years, mean ± SD	5.5±3.9	6.5±4.4	t=2.2	*0.025*
Married, n (%)	199 (83.6)	115 (68.5)	χ^2=12.9	*<0.001*
Having children, n (%)			χ^2=6.2	0.101
None	20 (8.4)	27 (16.1)		
1	32 (13.4)	21 (12.5)		
1-3	91 (38.2)	64 (38.1)		
> 3	95 (39.9)	56 (33.3)		
Employed, n (%) [a]	91 (40.1)	66 (39.5)	χ^2=0.0	0.910
History of psychiatric follow-up	40 (16.8)	30 (17.9)	χ^2=0.1	0.783
Smoking status, n (%)			χ^2=13.0	*0.002*
Current smoker	28 (11.8)	39 (23.2)		
Past smoker	11 (4.6)	14 (8.3)		
Non-smoker	199 (83.6)	115 (68.5)		
HADS, mean ± SD				
Anxiety	6.2±4.3	7.2±4.7	t=2.1	*0.037*
Depression	7.2±4.7	8.2±4.7	t=2.2	*0.029*
Total	13.3±8.3	15.4±8.6	t=2.4	*0.016*
HADS, anxiety, n (%)			χ^2=9.6	*0.022*
None or minimal (0-7)	145 (61.4)	97 (58.1)		
Mild (8-10)	48 (20.3)	27 (16.2)		
Moderate (11-14)	36 (15.3)	26 (15.6)		
Severe (≥15)	7 (3.0)	17 (10.2)		
HADS, depression, n (%)			χ^2=2.2	0.539
None or minimal (0-7)	120 (50.8)	77 (46.1)		
Mild (8-10)	56 (23.7)	38 (22.8)		
Moderate (11-14)	43 (18.3)	34 (20.4)		
Severe (≥15)	17 (7.2)	18 (10.8)		

[a] This variable is missing for 12 cases;   HADS - Hospital Anxiety Depression Scale;   Hospitalization median (Q1-Q3) = 2.0 (2.0-4.0) days

Table 2. Multiple regression analyses to investigate the association between psychiatric symptom levels and decrease in functioning during quarantine among 238 patients with COVID-19 infection

Decrease in functioning before hospitalization	Anxiety		Depression	
	Females, n=116	Males, n=122	Females, n=116	Males, n=122
	β^a *(95% CI)*	β^a *(95% CI)*	β^a *(95% CI)*	β^a *(95% CI)*
Social relations	*0.27 (0.08-0.46)*	*0.25 (0.06-0.44)*	0.17 (-0.02 to 0.36)	*0.23 (0.04-0.43)*
Physical Health	*0.22 (0.03-0.41)*	*0.28 (0.10-0.47)*	*0.28 (0.10-0.46)*	*0.43 (0.25-0.61)*
Financial	0.19 (-0.02-0.39)	0.15 (-0.05 to 0.35)	*0.21 (0.01-0.41)*	*0.21 (0.01-0.40)*
Family relations	*0.22 (0.03-0.40)*	0.13 (-0.07 to 0.33)	0.09 (-0.09 to 0.28)	0.11 (-0.09 to 0.31)
Occupational	-0.14 (-0.35 to 0.08)	0.08 (-0.14 to 0.29)	-0.21 (-0.41 to 0.00)	0.11 (-0.10 to 0.33)

[a] Each variable was included in a separate regression model. Results were adjusted for sociodemographic variables (i.e age, marital status, education, employment status, history of psychiatric disorder, smoking, having children, or elder family member requiring daily care). *Significant values at 0.05 level were italics*

social relationships were significantly associated with the levels of anxiety in both genders. Also, disruptions in the domain of social relationships were significantly associated with the levels of depression in males. There was a significant positive association between impairments in family relations and anxiety within females.

Associations between contents of worries of patients with COVID-19 infection since the outbreak of pandemic including nationwide curfew period and psychopathology levels stratified by gender are presented in Table 3. Health anxiety, worrying about contaminating others, and intolerance to uncertainty were associated

Table 3. Multiple regression analyses to investigate the association between psychiatric symptom levels and worries related to pandemics in 238 patients with COVID-19 infection

Worries related to pandemics	Anxiety		Depression	
	Females, n=116 β^a (95% CI)	Males, n=122 β^a (95% CI)	Females, n=116 β^a (95% CI)	Males, n=122 β^a (95% CI)
Health anxiety	*0.30 (0.11-0.49)*	*0.32 (0.15-0.50)*	*0.27 (0.08-0.45)*	*0.27 (0.09-0.46)*
Contaminating others	*0.20 (0.00-0.40)*	*0.27 (0.08-0.46)*	*0.23 (0.04-0.43)*	*0.25 (0.04-0.45)*
Occupational	0.02 (-0.20 to 0.24)	0.12 (-0.08 to 0.33)	0.03 (-0.18 to 0.24)	0.19 (-0.01 to 0.40)
Financial	0.14 (-0.08-0.35)	0.11 (-0.09 to 0.32)	0.18 (-0.03 to 0.39)	*0.22 (0.02-0.43)*
Uncertainty	*0.27 (0.08-0.47)*	*0.37 (0.19-0.55)*	*0.24 (0.04-0.43)*	*0.38 (0.19-0.56)*
Social media/news	*0.20 (0.00-0.39)*	0.09 (-0.10 to 0.28)	0.18 (-0.02 to 0.37)	0.09 (-0.11 to 0.28)

[a] Each variable was included in a separate regression model. Results were adjusted for sociodemographic variables (i.e age, marital status, education, employment status, history of psychiatric disorder, smoking, having children, or elder family member requiring daily care). *Significant values at 0.05 level were italics*

Table 4. Multiple regression analyses to investigate the association between psychiatric symptom levels and quality of life before hospitalization for 238 patients with COVID-19 infection

Domains of QoL	Anxiety		Depression	
	Females, n=116 β^a (95% CI)	Males, n=122 β^a (95% CI)	Females, n=116 β^a (95% CI)	Males, n=122 β^a (95% CI)
SF-36				
Physical functions	*-0.41 (-0.62 to -0.20)*	*-0.24 (-0.44 to -0.04)*	*-0.23 (-0.45 to -0.01)*	*-0.30 (-0.50 to -0.10)*
Role functioning	*-0.29 (-0.48 to -0.10)*	*-0.43 (-0.60 to -0.25)*	*-0.23 (-0.43 to -0.04)*	*-0.44 (-0.61 to -0.26)*
Role emotional	*-0.37 (-0.55 to -0.19)*	*-0.24 (-0.41 to -0.05)*	*-0.30 (-0.49 to –0.12)*	*- 0.23 (-0.42 to -0.03)*
Vitality	*-0.54 (-0.72 to -0.36)*	*-0.46 (-0.64 to -0.29)*	*-0.61 (-0.78 to -0.43)*	*-0.49 (-0.67 to -0.31)*
Mental health	*-0.55 (-0.73 to -0.36)*	*-0.48 (-0.65 to -0.32)*	*-0.65 (-0.82 to -0.48)*	*-0.59 (-0.75 to -0.43)*
Social functioning	*-0.32 (-0.51 to -0.13*	*-0.21 (-0.39 to -0.02)*	*-0.21 (-0.41 to -0.01)*	*-0.29 (-0.47 to -0.11)*
Bodily pain	*-0.22 (-0.43 to 0.00)*	*-0.27 (-0.45 to -0.09)*	-0.19 (-0.40 to 0.01)	*- 0.32 (-0.50 to -0.14)*
General health	*-0.36 (-0.57 to -0.16)*	*-0.32 (-0.50 to -0.14)*	*-0.36 (-0.57 to -0.16)*	*-0.32 (-0.51 to -0.14)*

[a] Each variable was included in a separate regression model. Results were adjusted for sociodemographic variables (i.e age, marital status, education, employment status, history of psychiatric disorder, smoking, having children, or elder family member requiring daily care). *Significant values at 0.05 level were italics*; QoL - Quality of Life; SF-36, Short-Form-36

with more severe psychopathology in both genders. While the occupational concerns were not significantly associated with levels of anxiety or depression. Also, the relationship between financial concerns and depression within male patients reached a significant level (*β*=0.22, 95% CI = 0.02-0.43). Social media use and news were also associated with anxiety symptoms in females.

Table 4 shows the associations between anxiety/depression levels and QoL before hospitalization measured by SF-36. The levels of anxiety and depression at the hospital were significantly associated with the reduced quality of life before hospitalization in all the subscales of SF-36.

DISCUSSION

The results of the study showed that patients hospitalized for medical reasons other than COVID-19 had higher levels of anxiety/depression symptoms than patients treated for COVID-19. Among the pandemic-related worries in hospitalized patients, the fear of contagion and uncertainty affected the anxiety/depres-

sion symptom levels; however, finance- or work-related worries were less pronounced in anxiety/depression symptom levels. Also, the deterioration in physical health and social relations during the social isolation period affected the anxiety/depression symptom levels in the hospital; on the other hand, it was determined that the deterioration in the finance and work areas during the social isolation period was less associated with anxiety/depression symptom levels. Besides, the low QoL during the pandemic period was associated with the anxiety/depression symptoms in the hospital.

Depression and anxiety levels of study participants

Similar to the previous outbreaks like MERS (Middle East Respiratory Syndrome), SARS (Severe Acute Respiratory Syndrome), in the COVID-19 pandemic, higher rates of anxiety and depression are reported in those infected compared to the normal population (Huremović 2019, Deng et al. 2020, Brooks et al. 2020).

Somewhat surprisingly, our results suggested COVID-19 inpatients did not have higher levels of anxiety and depression than other patients in the internal medicine ward of the hospital. These results go beyond the previous findings indicating higher levels of depression and anxiety among COVID-19 inpatients compared to healthy controls. Nevertheless, inpatients with a diagnosis of COVID-19 were not compared with a non-COVID 19 inpatient group in terms of anxiety and depression levels. On one hand, for those patients not diagnosed with COVID-19, being hospitalized during the pandemic might increase anxiety levels compared to the period before the pandemic. On the other hand, lower levels of anxiety/depression symptoms in patients diagnosed with COVID-19 may be associated with the acute and transient nature of the infection compared to long-lasting and debilitating illnesses such as cancer, kidney failure, or rheumatologic illnesses. Also it is possible that staying in isolation may alleviate these concerns to keep others safe given the risk of contamination from patients with COVID-19. Finally, the results might be partially related to the difference in characteristics such as marital status, education year and illnesses seen in the comparison group.

Despite the adverse effects of social isolation on mental health, few studies suggested patients hospitalized in isolation rooms did not develop more anxiety and depression symptoms than patients hospitalized in the same hospital but not in isolation rooms (Brooks et al. 2020, Day et al. 2013, Huremović 2019). While patients with COVID-19 were treated in isolation rooms, other patients were hospitalized in the routine internal medicine ward, where non-isolated social interaction could also occur. From this point of view, being in the hospital itself might be one of the risk factors increasing mental distress for both groups. It may also be suggested that isolation of patients in COVID-19 wards in the first wave of the pandemic may have prevented these inpatients from accessing media related anxiety-provoking information about COVID-19 and being in isolation does not overly increase anxiety/depression for those treated in the hospital.

Concerns of patients with COVID-19

Increased health anxiety during the outbreak of the pandemic, the risk of transmitting SARS-CoV-2 to others, and uncertainty had a significant effect on anxiety/depression symptoms in COVID-19 patients. These findings are largely consistent with the previous literature, according to studies conducted during the Zika virus and Influenza epidemic, it was previously shown that health anxiety and fear of transmission affect the symptoms of anxiety/depression among infected patients (Blakey & Abramowitz 2017, Wheaton et al. 2011). After the emergence of COVID-19, studies showed that health anxiety, fear of transmission, and uncertainty are associated with anxiety/depression

in the general population (Barzilay et al. 2020, Rettie & Daniels 2020, Sauer et al. 2020). On the other hand, in a study conducted by Sauer and colleagues (2020), health anxiety within the general population was associated with COVID-19 anxiety; however, there was no relationship between the intolerance of uncertainty and the fear of SARS-CoV-2 infection (Sauer et al. 2020). In another study, participants from the healthy population stated they were more anxious about infecting others than the risk of catching COVID-19 (Barzilay et al. 2020). In the regression analyzes performed in our study, the fear of contaminating the others and uncertainty significantly affected the anxiety/depression symptom levels of the subjects. This effect was also controlled for sociodemographic variables, and more pronounced in men than in women. Therefore, during the COVID-19 pandemic period, the development of anxiety/depression symptoms could commonly occur in people who have a high level of worries about infecting others and have a low tolerance to uncertainty. Considering, the COVID-19 outbreak inherently contains equivocalness, to reduce these uncertainties in public opinion, community health implications of the study results suggest that providing necessary information by authorized persons can reduce the negative effects of the pandemic on mental health. Obtaining sufficient information from appropriate and authorized sources may have a positive effect on these concerns.

In our study, social media exposure has an effect on anxiety symptom levels in women. The frequency of social media use was significantly associated with anxiety/depression symptom levels during the COVID-19 period (Al-Qahtani et al. 2020, Gao et al. 2020). In another study conducted on healthy adults during the COVID-19 pandemic period, results suggested being preoccupied with the news released on social media about pandemic was a risk factor for the increased psychopathology (Holingue et al. 2020). Frequent coverage of coronavirus news in the media and excessive exposure to contradictory or catastrophizing information may increase the level of anxiety/depression symptoms in patients.

Our study results showed the effects of finance- and work-related worries during the COVID-19 period on anxiety symptoms were not as pronounced as other contents. Results suggested financial worries significantly affect solely depression symptom levels in men. During the time of the COVID-19 pandemic, finance and business-related concerns are at the forefront as a source of stress for many people (Barzilay et al. 2020, Hodžić et al. 2020, Islam et al. 2020). In a study investigating the concerns associated with COVID-19 in the general population living in the UK, the US, and Israel, results revealed financial anxiety levels are similar to health anxiety levels and higher than other anxiety contents (Bareket-Bojmel et al. 2020). A study

conducted in the general population in the USA showed job insecurity stem from the COVID-19 pandemic is associated with depressive symptoms and financial concerns are also associated with anxiety symptom levels (Wilson et al. 2020). Since our study was implemented between July-October 2020 interval, it covers the first wave of the pandemic in Turkey. Also, individuals' health anxiety and the fear of infecting their close friends or family may take precedence over their professional and financial worries. Considering the time interval of our study, occupations and financial concerns might remain low for the early stage of the epidemic. The long-term effects of the pandemic are not fully known, and the consequences of financial effects are not yet fully revealed. For this reason, we believe that people's concerns may also change during the follow-up.

Impairments in occupational and financial domains

In our study, impairments in physical health, social relations, family relations, occupation, and finance domains were related to the anxiety/depression symptom levels. Among the measured life areas, the deterioration in work conditions could not show a significant effect on anxiety/depression symptoms, while the deterioration in financial status affected depression symptoms; however, its effect on anxiety symptoms was not significant. Authorities in Turkey officially prohibited layoffs and provided financial support to employers to sustain their financial resources. This situation was also largely announced in the media (Official Gazette of the Republic of Turkey 2020). This situation can be considered as a reason for the above-mentioned results of our study. Data reported by Turkey Statistical Institute did not reveal any increase in unemployment rates compared to those in the previous year (Turkey Statistical Institute 2020). Nevertheless, considering the effects of the pandemic on the global economy, the long-term effects on mental health should be updated with new studies in different societies.

Quality of life

In our study, all dimensions of the quality of life show a high level of correlation with anxiety/depression symptom levels except for the pain dimension of QoL. Bodily pains were not significantly associated with depression symptom levels in women. Overall, these findings seem parallel to previous studies. During the pandemic period, patients who showed symptoms of COVID-19 had lower quality of life compared to patients without COVID-19 contact (Nguyen et al. 2020). In another study conducted during the COVID-19 period, Low QoL was associated with health anxiety and severe depressive symptoms in healthcare providers (Stojanov et al. 2020). The COVID-19 pandemic continues to affect individuals in several aspects. Many people experience suffered from occupational losses during the isolation and quarantine period, or they are unable to contact their families or friends. In addition to these impairments in social and professional life, the reduced level of physical activity has also negative effects on individuals during the pandemic process (Ammar et al. 2020, Rogers et al. 2020). Taken together, it could be proposed that psychosocial interventions focusing on the physical, social, and psychological dimensions of QoL will decrease psychiatric complaints.

Strengths and Limitations

Limitations of the study have to be taken into when interpreting its results. The study was single-centered; therefore, does not cover the population of the whole country. Nevertheless, the hospital is one of the largest hospitals in our country's most populous city where > 15 000 000 people inhabit. Also, our hospital was declared as a "pandemic" center right after the COVID-19 outbreak. The study was conducted in a cross-sectional manner, and questions regarding the curfew period were retrospectively questioned. However, considering that the median interview time is the second day of hospitalization, we felt that the effect of recall bias is limited. Another limitation of this study is the heterogeneity of the comparison group, although all of them received inpatient treatment in the internal medicine unit. This heterogeneity might affect our outcomes since the impact of different illnesses varies. Finally, we did not use a repeated measures design to demonstrate the long-term prospects of depression and anxiety. Yet, study results contributed to the extant literature by showing the contents of anxiety, the mental effects of the curfew, and the decrease in QoL.

CONCLUSION

Our study results suggested the anxiety and depression levels in patients with COVID-19 were not higher than those in the internal medicine ward. The effects of impaired social relationships and physical health domains before COVID-19 infection were associated with depression and anxiety symptoms. Uncertainty, news in social media, the fear of contaminating others, and health-related concerns were closely associated with psychopathology. Future studies should investigate the long-term effects of the pandemic in different cultures from financial perspectives.

References

1. Al-Qahtani AM, Elgzar WT, Ibrahim HA: COVID-19 Pandemic: Psycho-social consequences during the social distancing period among Najran City population. Psychiatr Danub 2020; 32:280-286

2. Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L, et al: Effects of COVID-19 Home Confinement on Eating Behaviour and Physical Activity: Results of the ECLB-COVID19 International Online Survey. Nutrients 2020; 12:1583

3. Aydemir OGT, Küey L, Kültür S: Validity and reliability of Turkish version of Hospital Anxiety and Depression Scale. Turk Psikiyatri Derg 1997; 8:280-287

4. Bareket-Bojmel L, Shahar G, Margalit M: COVID-19-Related Economic Anxiety Is As High as Health Anxiety: Findings from the USA, the UK, and Israel. Int J Cogn Ther 2020; 29:1-9

5. Barzilay R, Moore TM, Greenberg DM, DiDomenico GE, Brown LA, White LK, et al: Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. Transl Psychiatry 2020; 10:291

6. Bäuerle A, Teufel M, Musche V, Weismüller B, Kohler H, Hetkamp M, et al: Increased generalized anxiety, depression and distress during the COVID-19 pandemic: a cross-sectional study in Germany. Journal of Public Health 2020; 42:672-678

7. Blakey SM, Abramowitz JS: Psychological Predictors of Health Anxiety in Response to the Zika Virus. J Clin Psychol Med Settings 2017; 24:270-278

8. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al: The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet 2020; 395:912-920

9. Clark DA, Steer RA: Use of nonsomatic symptoms to differentiate clinically depressed and nondepressed hospitalized patients with chronic medical illnesses. Psychol Rep 1994; 75:1089-1090

10. Day HR, Perencevich EN, Harris AD, Gruber-Baldini AL, Himelhoch SS, Brown CH, et al: Depression, anxiety, and moods of hospitalized patients under contact precautions. Infect Control Hosp Epidemiol 2013; 34:251-258

11. Deng J, Zhou F, Hou W, Silver Z, Wong CY, Chang O, et al: The prevalence of depression, anxiety, and sleep disturbances in COVID-19 patients: a meta-analysis. Ann NY Acad Sci 2021; 1486:90-111

12. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, et al: Mental health problems and social media exposure during COVID-19 outbreak. PLoS One 2020; 15:e0231924

13. George D, Mallery P: IBM SPSS Statistics 26 Step by Step: A Simple Guide and Reference (16th ed.). Routledge, 2019

14. Hodžić N, Hasanović M, Pajević I: Covid-19 affected mental health of at-risk groups of psychiatric patients: Two case reports. Psychiatria Danubina 2020; 32:294–9

15. Holingue C, Badillo-Goicoechea E, Riehm KE, Veldhuis CB, Thrul J, Johnson RM, et al: Mental distress during the COVID-19 pandemic among US adults without a pre-existing mental health condition: Findings from American trend panel survey. Prev Med 2020; 139:106231

16. Huremović D: Mental Health of Quarantine and Isolation. In: Huremović D. (eds) Psychiatry of Pandemics, 95-118. Springer Cham, 2019

17. Islam SMD, Bodrud-Doza M, Khan RM, Haque MA, Mamun MA: Exploring COVID-19 stress and its factors in Bangladesh: A perception-based study. Heliyon 2020; 6:e04399

18. Kocyigit H, Aydemir O, Fisek G, Olmez N, Memis A: Reliability and Validity of Turkish version of Short Form-36 (SF-36). J Drug Treat 1995; 12:102-106

19. Lazzari C, Shoka A, Nusair A, Rabottini M: Psychiatry in Time of COVID-19 Pandemic. Psychiatr Danub 2020; 32:229-235

20. Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TTP, Pham KM, et al: People with Suspected COVID-19 Symptoms Were More Likely Depressed and Had Lower Health-Related Quality of Life: The Potential Benefit of Health Literacy. J Clin Med 2020; 9:965

21. Official Gazette of the Republic of Turkey: The Law On Reducing The Economic And Social Effects Of The New Coronavirus (Covid-19) Outbreak And The Law On The Amendments Of Some Laws. available online: https://www.resmigazete.gov.tr/eskiler/2020/04/20200417-2.htm last accessed on 10.05.2021

22. Rettie H, Daniels J: Coping and tolerance of uncertainty: Predictors and mediators of mental health during the COVID-19 pandemic. Am Psychol 2020. 10.1037/amp0000710

23. Rogers NT, Waterlow NR, Brindle H, Enria L, Eggo RM, Lees S, et al: Behavioral Change Towards Reduced Intensity Physical Activity Is Disproportionately Prevalent Among Adults With Serious Health Issues or Self-Perception of High Risk During the UK COVID-19 Lockdown. Front Public Health, 2020; 8:575091

24. Salari N, Hosseinian-Far A, Jalali R, Vaisi-Raygani A, Rasoulpoor S, Mohammadi M, et al: Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. Globalization and health 2020; 16:1-11

25. Sauer KS, Jungmann SM, Witthoft M: Emotional and Behavioral Consequences of the COVID-19 Pandemic: The Role of Health Anxiety, Intolerance of Uncertainty,

and Distress (In)Tolerance. *Int J Environ Res Public Health*, 2020; 17:7241

26. Sinanovic O, Muftic M, Sinanovic S: *COVID-19 Pandemia: Neuropsychiatric Comorbidity and Consequences. Psychiatr Danub* 2020; 32:236-244

27. Sljivo A, Kacamakovic M, Quraishi I, Dzubur Kulenovic A: *Fear and Depression among Residents of Bosnia and Herzegovina during COVID-19 Outbreak - Internet Survey. Psychiatr Danub* 2020; 32:266-272

28. Sønderskov KM, Dinesen PT, Santini ZI, Østergaard SD: *The depressive state of Denmark during the COVID-19 pandemic. Acta neuropsychiatrica* 2020; 32:226-228

29. Stojanov J, Malobabic M, Stanojevic G, Stevic M, Milosevic V, Stojanov A: *Quality of sleep and health-related quality of life among health care professionals treating patients with coronavirus disease-19. Int J Soc Psychiatry* 2020; 20764020942800 *Advance online publication https://doi.org/10.1177/0020764020942800*

30. Turkey Statistical Institute: *Employment, Unemployment and Wages. available online: https://data.tuik.gov.tr/Kategori/GetKategori?p=Istihdam, -Issizlik-ve-Ucret-108 last accessed on: 10.05.2021*

31. Ware Jr JE, Sherbourne CD: *The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. Medical care,* 1992; 30:473-483

32. Wheaton MG, Abramowitz JS, Berman NC, Fabricant LE, Olatunji BO: *Psychological Predictors of Anxiety in Response to the H1N1 (Swine Flu) Pandemic. Cognitive Therapy and Research* 2011; 36:210-218

33. Wilson JM, Lee J, Fitzgerald HN, Oosterhoff B, Sevi B, Shook NJ: *Job Insecurity and Financial Concern During the COVID-19 Pandemic Are Associated With Worse Mental Health. Journal of Occupational & Environmental Medicine* 2020; 62:686-691

34. World Health Organization: *Rolling updates on coronavirus disease (COVID-19). available online: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen last accessed on 10.05.2021*

35. Zarghami A, Farjam M, Fakhraei B, Hashemzadeh K, Yazdanpanah MH: *A Report of the Telepsychiatric Evaluation of SARS-CoV-2 Patients. Telemed J E Health* 2020; 26:1461-1465

36. Zhang J, Lu H, Zeng H, Zhang S, Du Q, Jiang T, et al: *The differential psychological distress of populations affected by the COVID-19 pandemic. Brain Behav Immun* 2020; 87:49-50

37. Zigmond AS, Snaith RP: *The hospital anxiety and depression scale. Acta Psychiatr Scand,* 1983; 67:361-370

Correspondence:
Özgecan Tuna, MD
Kanuni Sultan Süleyman Training and Research Hospital, Department of Adult Psychiatry
Atakent Mh, Turgut Özal Bulvari No:46/1, 34303 Küçükçekmece, İstanbul, Turkey
E-mail: ozgecantuna@gmail.com