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Effect of the novel type coronavirus on the mental health of patients

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Abstract:

BACKGROUND AND AIM: The novel Coronavirus disease (COVID-19) emerged in China in 2019 and significantly affected the entire world. The pandemic and the restrictions led to an increase in the frequency of mental health disorders (i.e., depression and anxiety) and insomnia. The aim of the study was to evaluate mental health disorders in patients who were hospitalized because of COVID-19. The patients were evaluated 6 months after hospital discharge.

METHODS: A total of 114 patients who were hospitalized at Ufuk University Hospital with the diagnosis of COVID-19 were consented to participate in the posttreatment questionnaire about demographics and a Depression, Anxiety, and Stress Scale-21. The Pittsburgh Sleep Quality Index was also given to the patients to answer.

RESULTS: In our study, anxiety symptoms were detected in 34 (29.8%) individuals, stress symptoms in 9 (7.9%) individuals, and depressive symptoms in 17 (14.9%). When gender, education level, age, and marital status were evaluated, there was no significant relationship observed between depression, anxiety and stress, and sleep disorders. Only those with a history of psychiatric illness had significantly higher levels of anxiety, stress, and depression (p=0.040, p=0.047, and p=0.009, respectively). Sleep quality was poor in 88 (77.2%) patients and good (normal) in 26 (22.8%) patients.

CONCLUSIONS: The results show that the sleep quality of the patients deteriorated and the symptoms of stress and anxiety increased during the COVID-19 pandemic period. Patients with a previous history of psychiatric illness were more affected.

Keywords:

Anxiety, COVID-19 pandemic, depression, sleep quality, stress level

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Introduction

COVID-19, caused by the SARS-CoV-2 virus, emerged in Wuhan, China, in December 2019 and became a worldwide pandemic.[1] As a result of the global effects of the pandemic, the lives of societies and the world economy have been greatly affected. Furthermore, country borders

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have been closed, tourism and commercial activities have slowed down, and access to basic needs such as medicine and food became difficult.[2,3] The fact that the cause of the disease is not known exactly, the virus cannot be seen, and all individuals in the society are at risk have turned the pandemic into a global trauma for humanity.[4,5]

To control the pandemic, individuals were isolated with social distancing and quarantine measures. These measures caused a decrease in social interaction and an increased sense of loneliness, mood changes, and a more stagnant and sedentary lifestyle.[6,7] Emotions such as fear, helplessness, unhappiness, and hopelessness caused intense strain, and accordingly, the sleep quality of individuals was adversely affected.[8] Intense emotional and behavioral reactions such as fear, anxiety, boredom, feelings of loneliness, insomnia, and anger have been reported in people who have had or are suspected of being infected with COVID-19. These symptoms can be seen more frequently in quarantined patients.[9,10] In addition, having a previous history of psychiatric illness was associated with the symptoms of anxiety and anger they experienced after leaving quarantine.[11]

Stigma and discrimination are other major issues that persist during and after quarantine. It has been reported that quarantined people are stigmatized in the area they live in, their social invitations are rejected, and people stay away from them. Patients are approached with fear and suspicion given their prior illness and fear of viral spread.[12]

In a study on the COVID-19 pandemic, a high rate of anxiety disorders and sleep quality problems were seen in the community. Anxiety symptoms are more common in young people, especially those who spend a lot of time watching the news about the pandemic.[13] It has been stated that the postponement or cancellations of plans, social distancing rules, and constant exposure to media information about the pandemic trigger anxiety and depression. There is also panic about getting the supply of necessary materials to meet the basic leading to mental health conditions all over the world.[14]

In addition to the physical and economical effects of the COVID-19 pandemic on public health, it can be predicted in light of the literature that it will cause psychological effects. In addition to physical harm during the pandemic, psychological effects tend to be neglected. The number of studies evaluating the effects on the mental health of patients following hospitalization with the diagnosis of COVID-19 is very limited. It is important to evaluate the mental health effects of COVID-19 to monitor patients and develop appropriate health strategies.

In this study, the aim was to evaluate the sleep quality, stress level, presence of anxiety, and depression symptoms through a questionnaire applied by contacting patients with COVID-19 disease by telephone 6 months after the hospital admission.

Materials and Methods

Patients over the age of 18 who were hospitalized with a diagnosis of COVID-19 were included in the study. Six months after discharge, 114 patients who agreed to participate in the survey were contacted by phone. A questionnaire about demographic characteristics, the Depression, Anxiety, and Stress Scale-21 (DASS-21), and the Pittsburgh Sleep Quality Index (PSQI) were utilized.

Ethics committee approval with protocol number 2021-02-01/1 was obtained from Ufuk University of Medicine Ethics Committee for the study. The study was conducted in accordance with the Declaration of Helsinki of the World Medical Association.

PSQI was developed in 1989 by Buysse et al. The reliability and validity of the scale in our country was performed by Ağargün et al.[15] in 1996, and it is grouped as 7-component points. These components are: It provides information about subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleep medication, and daytime sleep dysfunction. The sleep quality of those with a total score of 5 or less was "good"; those with a score above 5 were considered to have "poor" sleep quality.

DASS was developed in 1995 by Lovibond and Lovibond. It consists of 42 items. There are 42 items in total, 14 of which belong to depression, 14 to anxiety, and 14 to stress level. The validity and reliability study of the short form of the scale was conducted by Yılmaz et al.[16] The scale was prepared to measure depression, anxiety, and stress symptoms and consists of 21 items. In this scale, there are 7 questions each to measure the dimensions of depression, stress, and anxiety. The scale provides a 4-point Likert-type (sum of degrees) measurement of 0 (not at all suitable for me),

1 (somewhat suitable for me), 2 (usually suitable for me), and 3 (completely suitable for me). The 0–9 point range in this scale is normal depression, the 0–7 point range is normal anxiety, and the 0–14 point range is normal stress.

Statistical analysis

The data obtained from the study were evaluated with the SPSS (Statistical Package for Social Sciences) 27.0 program. Descriptive statistics were used to summarize the characteristics of the demographic data. The distribution of the data was evaluated with the Kolmogorov–Smirnov test. Qualitative variables by frequency and percentage; numerical variables were summarized as mean±standard deviation. Chi-squared and Mann–Whitney U tests were performed to compare variables, and $p<0.05$ was considered statistically significant.

Results

The mean age of 114 patients diagnosed with COVID-19 was 49.82±16.74 years. Eighty three (72.8%) patients had positive COVID-19 real-time polymerase chain reaction (RT-PCR) test results. Thirty one (27.2%) of them was found negative. The diagnosis of patients who had negative RT-PCR test was confirmed by clinical and radiological evaluation (Table 1). Thirty-four (29.8%) patients showed anxiety, 9 (7.9%) showed stress symptoms, and 17 (14.9%) showed depression symptoms. One hundred three (90.4%) people lived with their families. Sixty-eight (59.6%) people stated that they had fear of infecting their families. The daily average of watching the news about the COVID-19 pandemic is 2.07 h (min: 0.00; max: 10.00; SD: ±2.19). Sixty-two (54,38%) people stated that they think that watching the news increased their stress. The mean PSQI was 8.40±3.87 (Table 2). The sleep quality of 88 (77.2%) people was poor, and the sleep quality of 26 (22.8%) people was good. Nine people (7.89%) had a history of psychiatric illness. When the PSQI score of the patients with a history of psychiatric illness were evaluated, we found that having a history of psychiatric illness did not significantly differ from the PSQI score, but the scores of the anxiety, stress, and depression scales were significantly higher in patients with a history of psychiatric illness ($p=0.040$, $p=0.047$, $p=0.009$, respectively). The DASS-21 depression scale of individuals with comorbidity and smoking was significantly higher ($p=0.007$ and $p=0.028$, respectively). There was no significant relationship between gender, marital status, educational status, COVID-19 PCR result, and PSQI and DASS-21 scores (Tables 3–5).

Table 1: Demographic characteristics of the participants

Variables	n	%
Gender		
Female	54	47.4
Male	60	52.6
Marital status		
Married	82	71.9
Single	22	19.3
Divorced/separated/widowed	10	8.8
Educational status		
Illiterate	6	5.3
Literate	2	1.8
Primary school	27	23.7
Middle School	8	7
High school	18	15.8
University and above	53	46.5
Comorbidity		
Have	45	39.5
Do not have	69	60.5
Smoking status		
Current smokers	21	18.4
Nonsmokers	72	63.2
Former smokers	21	18.4
COVID-19 RT-PCR		
Positive	83	72.8
Negative	31	27.2

COVID-19 RT-PCR: COVID-19 real-time polymerase chain reaction

Table 2: PSQI scores

PSQI subgroups	Mean±SD
Subjective sleep quality	1.28±0.84
Sleep latency	0.86±0.78
Sleep time	0.80±0.73
Sleep activity	1.57±1.02
Sleeping disorder	1.42±0.96
Sleeping pill use	1.21±0.80
Daytime dysfunction	1.23±0.98
Total PSQI	8.40±3.87

PSQI: Pittsburgh Sleep Quality Index

Discussion

In our study, it was observed that the prevalence of mental illnesses such as anxiety and depression increased during the COVID-19 pandemic. Thirty-four (29.8%) individuals had anxiety symptoms, 9 (7.9%) had stress symptoms, and 17 (14.9%) had depressive symptoms. Similarly, in a study by Pieh et al.,[17] the prevalence of depression was reported to be 21% and the prevalence of anxiety as 19%, whereas the scores were 20% and 30%, respectively, in the study conducted by Huang and Zhao.[18] These rates were higher than those in the pre-pandemic period.[19,20] According to another study

Table 3: Evaluation of PSQI scale scores according to demographic data

Variables	PSQI				p
	5 and under		Over 5		
	n	%	n	%	
Gender					
Female	14	25.9	40	74.1	0.507
Male	12	20.0	48	80.0	
Marital status					
Married	17	20.7	65	79.3	0.391
Single	5	22.7	17	77.3	
Divorced/separated/widowed	4	40.0	6	60.0	
Educational status					
Illiterate	4	66.7	2	33.3	0.057
Literate	0	0.0	2	100	
Primary school	9	33.3	18	66.7	
Middle School	1	12.5	7	87.5	
High school	3	16.7	15	83.3	
University and above	9	17.0	44	83.0	
Comorbidit					
Have	11	24.4	34	75.6	0.821
Do not have	15	21.7	54	78.3	
Smoking status					
Current smokers	4	33.3	17	66.7	0.438
Nonsmokers	15	20.8	57	79.2	
Former smokers	7	19.0	14	81.0	
COVID-19 RT-PCR					
Positive	18	21.7	65	78.3	0.625
Negative	8	25.8	23	74.2	

PSQI: Pittsburgh Sleep Quality Index, COVID-19 RT-PCR: COVID-19 real-time polymerase chain reaction

Table 4: DASS-21 scores

DASS-21 subgrups	Mean±SD	Median (IQR)
Stress DASS-21	5.0175±5.69	3 (0–8)
Anxiety DASS-21	3.0877±5.04	0 (0–4)
Depression DASS-21	3.107±4.98	0 (0–4)

DASS-21: Depression, Anxiety, and Stress Scale-21, IQR: 25–75% interquartile range

conducted with large participation from 194 cities in China,[21] 16.5% of the participants had moderate and severe depressive symptoms, 28.8% had moderate and severe anxiety symptoms, and 8.1% had moderate and severe symptoms. These findings are consistent with studies conducted during previous pandemic periods. Hawryluck et al.[22] stated that the quarantine applied during the SARS epidemic in 2003 was associated with high depression (31.2%) and anxiety (28.9%).

When gender, education level, age, and marital status were evaluated, no significant relationship was observed between depression, anxiety, stress, and sleep disorders. Only those with a history of psychiatric illness had significantly higher levels of anxiety, stress, and depression (p=0.040, p=0.47, and p=0.009, respectively). Similarly, in studies conducted during the pandemic period, it has been observed that individuals experience intense anxiety, worry, and stress, and preexisting psychological symptoms may intensify during the pandemic as there is an increase in the number of cases of COVID-19.[23,24] In our study, sleep quality was evaluated as bad in 88 (77.2%) people and good in 26 (22.8%) people.[25] Before the pandemic, Şahin et al.[26] found that 63.6% of people who presented to a primary health care institution had poor sleep quality. In our study, the percentage of poor sleep quality was found to be higher than that in the pre-pandemic period. This can be explained by the increase in the frequency of mental illness during the pandemic and the strain created by feelings such as fear, helplessness, and uncertainty.

The fact that 29.8% of the patients showed symptoms of anxiety and 77.2% had symptoms of sleep disorders after discharge indicates the importance of monitoring their mental health along with their physical follow-up.

Table 5: Comparison of DASS-21 scale scores with demographic data

Variables	Stress					Anxiety					Depression				
	14 and under		Over 14		p	7 and under		Over 7		p	9 and under		Over 9		p
	n	%	n	%		n	%	n	%		n	%	n	%	
Gender															
Female	48	88.9	6	11.1	0.304	34	63	20	37	0.151	44	81.5	10	18.5	0.430
Male	57	95.0	3	5.0		46	76.7	14	23.3		53	88.3	7	11.7	
Marital status															
Married	77	93.9	5	6.1	0.110	59	72	23	28	0.391	71	86.6	11	13.4	0.776
Single	18	81.8	4	18.2		13	59.1	9	40.9		18	81.8	4	18.2	
Divorced/separated/ widowed	10	100	0	0.0		8	80	2	20		8	80	2	20	
Educational status															
Illiterate	6	100	0	0.0	0.180	6	100	0	0.0	0.052	6	100	0	0.0	0.356
Literate	2	100	0	0.0		1	50	1	50		1	50	1	50	
Primary school	23	85.2	4	14.8		14	51.9	13	48.1		21	77.8	6	22.2	
Middle School	6	75.0	2	25.0		4	50	4	50		6	75.0	2	25.0	
High school	18	100	0	0.0		13	72.2	5	27.8		16	88.9	2	11.1	
University and above	50	94.3	3	5.7		42	79.2	11	20.8		47	88.7	6	11.3	
Comorbidity															
Have	40	88.9	5	11.1	0.314	26	57.8	19	42.2	0.023	33	73.3	12	26.7	0.007*
Do not have	65	94.2	4	5.8		54	78.3	15	21.7		64	92.8	5	7.2	
Smoking status															
Current smokers	21	100	0	0.0	0.223	14	66.7	7	33.3	0.027	18	85.7	3	14.3	0.028*
Nonsmokers	66	91.7	6	8.3		56	77.8	16	22.2		65	90.3	7	9.7	
Former smokers	18	85.7	3	14.3		10	47.6	11	52.4		14	66.7	7	33.3	
COVID-19 RT-PCR															
Positive	74	89.2	9	10.8	0.111	53	63.9	30	36.1	0.021	68	81.9	15	18.1	0.149
Negative	31	100	0	0.0		27	87.1	4	12.9		29	93.5	2	6.5	

*P-value less than 0.05 (typically ≤0.05) is statistically significant. DASS-21: Depression, Anxiety, and Stress Scale-21, COVID-19 RT-PCR: COVID-19 real-time polymerase chain reaction

Close follow-up of this patient group is especially important because of the increased prevalence of anxiety, depression, and stress symptoms in the group with a history of psychiatric illness. It is necessary to carry out studies to prevent the recurrence or increase in the severity of psychological disorders and to provide psychopharmacological and behavioral interventions when necessary. For this, risk groups can be supported with trauma-focused interviews, social skills training, and support programs. Online psychotherapy applications can be designed. Publications and recommendations aimed at protecting psychological health can be presented through media outlets. Sharing meetings and support group meetings can be organized to prevent long-lasting effects of traumatic experiences related to the disease.[27] It is important that health authorities, in addition to their studies to control and treat the disease, provide adequate information and include measures for psychological needs.[28,29]

Conclusion

With the lessons we have learned from the current COVID-19 pandemic, it is important to develop strategies for the physical, mental, and social needs. It is also important to screen for psychological diseases in COVID-19 patients to determine the relevant interventions and care following the viral infection. Additionally, there is a need for the development of assessment tools to ensure screening of these effects in groups sensitive to mental health disorders. Training to raise awareness of the psychological effects is needed. On a societal level, the development of a professional support system infrastructure via telephone or the Internet to provide timely psychological intervention could also be helpful. Further studies on the effects of the COVID-19 pandemic on mental health are needed.

Conflicts of interest

There are no conflicts of interest.

Ethics Committee Approval

The study was approved by the Ufuk University Ethics Committee (No: 2021-02-01/1, Date: 01/02/2021).

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Peer-review

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Authorship Contributions

Concept – E.S.G., B.G.Ç.; Design – B.G.Ç., E.S.G., E.E.A.; Supervision – A.Y., N.O.; Funding – E.S.G., A.Y.; Materials – E.S.G., E.E.A.; Data collection &/or processing – A.Y., N.O.; Analysis and/or interpretation – A.A., N.O., B.G.Ç.; Literature search – E.S.G., A.A., B.G.Ç.; Writing – E.S.G., B.G.Ç.; Critical review – E.S.G., B.G.Ç.

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