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Depression, Anxiety and State Guilt in Individuals under Quarantine in an Institution due to COVID-19 and the Related Factors

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ABSTRACT

Introduction: This study identifies depression, anxiety and state guilt of Turkish citizens kept in quarantine for 14 days in an institution where they are brought upon their request within the scope of infection control measures and the related affecting risk factors during the coronavirus pandemic.

Methods: A total of 385 individuals under quarantine for 14 days between the dates of April 20-May 21, 2020 were included in the study. The data were collected using a socio-demographic data form (age, gender, employment status, having sleep disorder, duration of television review and Internet use, etc.), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI) and Guilt Scale (GS) after the participants were informed about the study objective and they signed the informed consent form.

Results: A total of 385 participants, 84 of whom were women, with a mean age of 35.32±11.7 were included in the study. According to BAI and BDI, 14.5% of the participants had anxiety and 17.1% had depression symptoms. The regression analysis found that female gender, having sleep disorder, using Internet for 8 hours or more and having chronic illness were risk factors for anxiety; while female gender, being aged 18-30, having sleep disorder, having psychiatric illness, and using Internet for 8 hours or more were risk factors for depression. The state guilt did not show any significant correlation with any socio-demographic factor.

Conclusion: Female gender, being young, having a history of psychiatric illness, having chronic illness, having sleep disorder, using Internet for 8 hours or more were found to be risk factors for more anxiety and depression symptoms. It is important to educate people about the methods of how to maintain healthy sleep during quarantine, to effectively fight against the excessive circulation of misinformation and to provide sufficient medical care to those with psychiatric and chronic diseases, being more vulnerable against infections.

Keywords: COVID-19, quarantine, anxiety, depression, feeling of guilt

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INTRODUCTION

The coronavirus disease (COVID-19) first outbroke in China, Wuhan in December 2019 and shortly afterwards, it became a pandemic (1). COVID-19 transmitted by droplets or direct contact from person to person (1), is a serious disease that can hardly be controlled, spread rapidly, hold on other organs besides lung and lead to death (2). The World Health Organization (WHO) reported 67.210.778 COVID-19 cases and 1.540.777 deaths from COVID-19 approved as of December 8, 2020 (3). At the same date, the number of total cases was 552.304 and the death number was 15.317 in Turkey (4).

After COVID-19 was announced by the WHO to be a pandemic, several measures were taken throughout the world, including Turkey. These measures included not only cleaning, wearing masks and social distancing rules, but although closure of shopping centers except for allowed hours, only takeaway services of cafes and restaurants, interrupting of face-to-face education and switching to online education, reducing working hours, weekend lockdown, travel restrictions and quarantine. Those who were infected or suspected of exposure to the disease and those who come from abroad were isolated in their homes, dormitories or hostels (5).

The aim of quarantine is to prevent contact of those who are suspected of being carrier of the disease with others, decrease the potential of its transmission to community and save their lives. However, being away from their families and communities for a long time, may lead people to have deep effects and mental problems even if they are not infected by the disease directly (6).

Except a series of measures taken in order to prevent and limit the infection, COVID-19, itself being a serious risk that may cause sudden onset disease, uncontrollable and rapidly undergoing evolution, besides its pulmonary involvement and development of pneumonia and involvement of other organs that may result in death; also the extreme, frightening and contradictory information about COVID-19 pandemic taken part in media can cause a global concern and depression atmosphere by developing stress (2.7). Except depression and anxiety in those who are under quarantine, the feeling of guilt and self-anger due to transmitting the disease to their relatives and beloved ones had been shown (8). Feeling of guilt is important as it may cause serious mental health problems such as post-traumatic stress disorder, depression, suicidal thoughts, problematic substance abuse, decrease in functionality

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and the quality of life (9). As in other pandemics before COVID-19 (8) and during COVID-19, various psychological symptoms and diseases in those under quarantine were detected (9). Especially the people who kept in quarantine in facilities out of their homes, experience social isolation, breaking social contacts, loneliness, anxiety, depression, phobia and fear of getting infected (8). Furthermore, worrying about their own health and the health of their beloved ones and contagiousness and also uncertainty of future can create fear, anxiety and depression (11).

In a research made during COVID-19 pandemic in Wuhan, the prevalence of depressive disorder has been found as 48.3% and the anxiety disorder was 22.6% (10), whereas in a study made in general public in Turkey during COVID-19 pandemic which was researching anxiety, depression, and worrying about health, the prevalence of depression was found 23% and anxiety was found 45% (12). In another study from China, the people who were affected by the quarantine and those who were not affected were compared and the severity of anxiety and depression was found to be higher in the affected group with compare to unaffected group (1). In a study from Italy which was made with people who were kept in quarantine in their homes, 24.2% of the participants showed moderate to severe depression symptoms and 32.6% showed moderate to severe anxiety symptoms (13). In another study, anxiety was found in 7.6% of people kept in quarantine and feeling of guilt was found in 10% of people kept in quarantine who had contacted with people with SARS (8).

The studies conducted during COVID-19 pandemic showed that the risks of anxiety and depression were higher in women (12), patients with chronic diseases (12), young people (1), the people who are excessively exposed to social media (10), the people who are not informed properly (22), the people who have sleep disorders (14) and the people with high education levels (12, 15). In addition, the people who had past history of psychiatric disorder are vulnerable groups to stress in relation of quarantine measures (16).

In our literature review, no study was found about researching anxiety, depression and state guilt levels of the people who are coming from abroad and kept in quarantine in an institution during COVID-19 pandemic either in Turkey or in the world. In order to fill this gap, this study aims to identify depression, anxiety and state guilt levels and define the related affecting risk factors during COVID-19 pandemic of people who were brought from abroad to Turkey upon their request and kept in quarantine for 14 days in a student dormitory in their private rooms where infection control measures were taken. Depending on the findings from the literature regarding COVID-19, we assumed the symptoms of anxiety, depression and feeling of guilt would be higher in women, young people, those with a history of psychiatric disease, those with chronic diseases, those with higher television watching time and using internet and those with sleep problems. Our results can be useful for mental health professionals and health care authorities in regard to protecting mental health of the community during the pandemic.

METHOD

A total of 385 participants, out of 499 brought from abroad to Turkey (353 from United Arab Emirates and 146 from Kyrgyzstan) by plane upon their request and kept in quarantine for 14 days in a student dormitory under the COVID-19 pandemic measures between the dates of April 20-May 21, 2020 were included in the study. The study group consisted of those aged 18–65, minimum primary school graduates, with no mental pathology (mental retardation, under psychiatric treatment, with cognitive deficiency) or physical pathology (vision problems, inability to use the upper extremity, etc.). Ten people were not included as they were under the age of 18 years, 4 provided missing information and 100 people did not want to take part in. The participants were interviewed face-to-face and provided with information about the aim of the study, then the data were collected from those signing the informed consent form. To collect the data, the Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI) and Guilt Scale (GS) were used. Permission was obtained from Abant Izzet Baysal University Clinical Research Ethics Committee (131/2020).

Sociodemographic data form: This refers to the form prepared by the researcher including information about age, gender, education and employment status, whether having a history of psychiatric and chronic disease, duration of daily watching television and daily duration of Internet use, sleep problems (difficulty falling asleep, nightmare, sleep interruptions).

Beck Depression Inventory (BDI): This scale was developed to measure the risk of depression and the change of severity in depression symptoms in adults (Beck, 1961) and its Turkish reliability and validity study was carried out by Hisli (1989) (17). The Likert type scale consists of 21 items in total. The obtainable maximum score from the scale is 63. A higher total score from the scale indicates higher depression symptoms (17). (10–16 points = mild depression symptoms, 17–29 points = moderate depression symptoms, 30–63 points = severe depression symptoms).

Beck Anxiety Inventory (BAI): This scale was developed to determine severity of anxiety experienced by individuals (Beck et al., 1988) and its Turkish reliability and validity study was carried out by Ulusoy et al. (1998) (18). The scale consists of 21 items and is a Likert type self-rating scale scored between 0 and 3. A higher total score from the scale indicates higher anxiety level (18). (8–15 points = mild anxiety symptoms, 16–25 points = moderate anxiety symptoms, 26–63 points = severe anxiety symptoms).

Guilt Scale (GS): This scale, developed by Kugler and Jones (1992), has three subscales which are trait guilt, state guilt and moral standards. It is a five-point Likert type scale consisting of 45 items. It was adapted to Turkish by Altin (19). Re-evaluation of the psychometric properties of the Turkish form of the scale in non-clinical sample and depression sample was carried out by Akin et al., and its new form consisting of 35 items was found to be reliable and valid in Turkey, too (19). State guilt subscale is used in this study.

Administration

This study started five weeks after (March 15, 2020) the first application of quarantine to those incoming from abroad to Turkey. Population of the study consisted of those brought to Turkey from abroad upon their request, who did not have COVID-19 symptoms based on the tests made at the airport, were transformed from the airport to the destination by buses where infection measures were taken to be kept in quarantine for 14 days in dormitories assigned by the authorities. The participants stayed at private rooms where their food was left at their doors as closed packs, their garbage were taken from the doors, their basic needs (food, water, and canteen) were met by authorized staff at certain times; they had possibilities for watching television and internet access. Family members or close friends were allowed to stay together in appropriate rooms. The police ensured security of the dormitory to prevent uncontrolled entrance and exit, besides there was a general practitioner and four nurses for following up the symptoms and health care. The health care team was monitoring symptoms twice a day and making tests those who were suspected of COVID-19 symptoms (55 people with fever/cough/weakness). After the necessary permissions were obtained for the study, the questionnaires were distributed by two researchers accompanied by nurses who were monitoring the patients in accordance with the infection precautionary rules (the ninth day). The researchers visited every room and informed them about the study, obtained their

written consent and distributed the questionnaires. The following day, the researchers received back the questionnaires (tenth day). Filling out the questionnaire approximately can take 10–15 minutes.

Statistical Analysis

The data were uploaded to the computer via SPSS 22.00 software and evaluated. Sociodemographic data were provided in terms of descriptive statistics. The Kolmogorov/Smirnov test was used to control whether variables were distributed normally. If the distribution was normal in the comparison of the groups, the Student t-test/one way-ANOVA was used, yet if non-normal, the Mann Whitney U test/Kruskal Wallis test was used. In our study, in order to guess the ratio of anxiety and depressive symptoms that had been seen; binary logistic regression analysis was used. When creating binary groups for regression analysis, those who scored 10 points or more from BDI for depression were deemed to have depression symptoms and those who scored 8 points or more from BAI were deemed to have anxiety symptoms. The dependent variable was found if there is no anxiety symptoms (0)/if there are anxiety symptoms (1) to estimate the ratio of anxiety symptoms; and if there is no depression symptoms (0)/if there are depression symptoms (1) to estimate the ratio of depression symptoms in binary logistic regression analysis. However, independent variables were gender, age, employment status, history of psychiatric illness, chronic illness, sleep disorder and duration of Internet use. In the comparison made using Student t-test / Mann-Whitney U test or One way-ANOVA / Kruskal-Wallis test while determining independent variables, those found to be significant were selected. The reliability level was taken 95% and the statistical significance limit was accepted as $p<0.05$.

RESULTS

According to the information obtained from socio-demographic and clinical data form, a total of 385 participants, 3/4 of whom were from the United Arab Emirates, with a mean age of 35.32±11.7 and 1/5 of whom were women, aged 18–65 years were included in the study. The mean year of education was 12.18±3.9. Most of them were married and lived in places assigned by their employer. 55% of them were not employed and 51% had children. Nearly 2/5 of them were smoking, 1/4 using alcohol, 2 of them using cannabinoid, 4% had a history of psychiatric disease, 1/10 had a chronic disease (hypertension, diabetes, COPD, cardiovascular disease). Two of them had a family member infected by coronavirus. However, there was no one died from COVID-19 in their families. Three (3) out of 55 tested due to the suspicion of COVID-19 (symptoms of fever, cough and weakness) tested positive for COVID-19. The participants' mean BAI and BDI scores were found respectively 3.89±6.4 and 4.88±6.6; and mean state guilt scores were 15.54±2.8. Based on the BAI and BDI, of the participants, 14.5% had anxiety symptoms (8.6% mild, 5.2% moderate, 1.6% severe) and 17.1% had depressive symptoms (10.1% of mild, moderate 6%, 1% severe) (Table 1).

The mean anxiety scores were significantly higher in women (p=0.023), those who were not employed (p=0.037), those with chronic disease (p=0.034), those with sleep problems (difficulty falling asleep/nightmare, etc.) (p=0.00001), those who used internet for 8 hours or more (p=0.000). On the other hand, depression scores were significantly higher in women (p=0.013), those aged 18–30 years (p=0.006), those who were not employed (p=0.050), those with a previous psychiatric illness (p=0.038), those with sleep problems (difficulty falling asleep/nightmare, etc.) (p=0.00001), those who used Internet for 8 hours or more (p=0.002). While duration of television review, marital status and period of study were not related to the severity of anxiety or depression, the state guilt did not show any significant correlation with any sociodemographic and clinical factors (Table 2).

Table 1. General characteristics of the study group

Descriptive characteristics		N	%
Gender	Female	84	21.8
	Male	301	78.2
Mean age	35.32±11.8		
Mean education years	12.18±3.9		
Country travelling from	United Arab Emirates	283	73.5
	Kyrgyzstan	102	26.5
Educational status	Primary school	87	22.7
	High school	122	31.8
	Associate degree-undergraduate	163	42.4
	Postgraduate (master's degree/doctorate)	12	3.1
Living	Alone	82	21.3
	with family	168	43.6
	a place assigned by the employer	135	35.1
Marital status	Married	206	53.5
	Single	179	46.5
Employment status	Yes	172	44.7
	No	213	55.3
Smoking habits	Yes	160	44.8
	No	223	57.9
Alcohol use	Yes	97	25.3
	No	286	74.3
Substance use	Yes	2	0.5
	No	382	99.5
Difficulty falling asleep/ nightmare	Yes	51	13.3
	No	334	86.8
Psychiatric disorder	Yes	15	3.9
	No	370	96.1
Chronic disease*	Yes	39	10.1
	No	346	89.9
COVID-19 positive in the family	Yes	2	0.6
	No	383	99.5
Deaths in the family due to COVID-19	Yes	0	0.0
	No	385	100
COVID-19 test results	Not tested	330	85.7
	positive	3	0.8
	negative	52	13.5
Having a child	Yes	198	51.4
	No	187	43.6
Television viewing time	0–3 hours	322	83.6
	4–7 hours	52	13.5
	8 hours and more	11	2.9
Internet use time	0–7 hours	332	86.2
	8 hours and more	53	13.8
BAI	No symptom of anxiety	325	84.4
	Mild anxiety symptoms	33	8.6
	Moderate anxiety symptoms	20	5.2
	Severe anxiety symptoms	6	1.6
BDI	No symptom of depression	319	82.9
	Mild depression symptoms	39	10.1
	Moderate depression symptoms	23	6.0
	Severe depression symptoms	4	1.0
		Mean ± SD	
BAI		3.89±6.4	
BDI		4.88±6.6	
State guilt subscale		15.54±2.8	

*hypertension, diabetes, cancer, etc.

Table 2. Distribution of sociodemographic and clinical attributes on anxiety, depression and state guilt feeling

Descriptive characteristics		Anxiety m ± sd	Depression m ± sd	State guilt m ± sd
Country travelling from	UAE	3.73±6.31	4.41±5.77	15.54±2.88
	Kyrgyzstan	4.34±7.01	6.18±8.62	15.57±2.72
p		U=13557.50, p=0.374	U=13857.50, p=0.541	T=0.096 p=0.92
Gender	Female	5.27±6.8	6.61±8.2	15.4±2.9
	Male	3.50±2.27	4.39±6.1	15.9±2.2
p		U=10642.00, p=0.023*	U=10436.500, p=0.013*	t=-1.695, p=0.091
Age groups	18–30	5.01±8.17 (0–55)	6.01±7.59 (0–42)	15.51±2.7 (9–25)
	31–60	3.01±4.77 (0–24)	3.93±5.84 (0–32)	15.12±2.7 (5–21)
	60 and above	4.86±6.44 (0–21)	6.42±6.03 (0–19)	15.72±2.8 (5–22)
Statistics, p		X^2=5.328, p=0.070	X^2=10.391, p=0.006*	F=1.606, p=0.188
Post-hoc		2–1.3–1	2–1.3–1	
Educational status	5–8 years	3.41±7.1	4.31±6.1	15.48±3.34
	9–12 years	2.99±4.52	4.50±6.22	15.96±3.04
	13 years and more	4.76±7.24	5.42±7.25	15.28±2.36
p		X^2=3.709, p=0.157	X^2=1.312, p=0.569	F=2.148, p=0.118
Marital status	Married	3.45±5.67 (0–41)	4.46±6.4 (0–32)	15.63±2.9 (5–25)
	Single	4.38±7.31 (0–55)	5.35±6.95 (0–42)	15.44±2.7 (5–25)
p		U=16815.50, p=0.144	U=16573.50, p=0.080*	F=1.730, p=0.526
Post-hoc			3–1.3–2.1–2	
Employment status	Yes	3.16±5.4	3.83±5.30	15.5±2.9
	No	4.47±7.1	5.72±7.5	15.55±2.7
p		U=4.361, p=0.037*	U=3.832, p=0.050*	t=-0.102, p=0.919
Chronic disease	Yes	7.15±9.7 (0–41)	6.28±8.2 (0–30)	15.97±2.8
	No	3.52±5.9 (0–55)	4.7±6.4 (0–42)	15.49±2.8
p		U=5381.500, p=0.034*	U=6436.000, p=0.629	t=0.997, p=0.320
History of psychiatric disease	Yes	8.80±11.1	12.46±12.8	15.53±2.8
	No	3.69±6.18	4.57±11.1	15.54±2.8
p		U=2153.000, p=0.132	U=1924.500, p=0.038*	t=-0.017, p=0.987
Covid-19 results	None	4.38±7.67 (0–55)	7.76±6.79 (0–42)	15.55±2.7 (5–25)
	Positive	4.04±2.3 (0–7)	4.33±3.7 (0–7)	17.66±4.16 (15–21)
	Negative	4.07±5.54 (0–21)	5.6±6.1 (0–28)	15.36±3.28 (16–16)
p		X^2=0.849, p=0.654	X^2=3.568, p=0.168	F=0.628, p=0.291
Difficulty falling asleep/nightmare	Yes	7.88±8.4	10.1±9.69	15.23±3.2
	No	3.27±5.92	4.07±5.6	15.59±2.7
p		U=4826.500, p=0.00001*	U=4889.000, p=0.00001*	T=-0.839, p=0.402
Television watching time (hour)	0–3 hours	3.71±6.10 (0–41)	4.66±6.60 (0–42)	15.49±2.84 (5–25)
	4–7 hours	5.17±8.82 (0–55)	5.85±6.95 (0–31)	15.63±2.85 (11–25)
	8 hours and more	3.00±4.00 (0–10)	6.55±7.77 (0–25)	16.54±2.46 (12–20)
p		X^2=2.198, p=0.333	X^2=4.497, p=0.106	F=0.757, p=0.470
Internet use time (hour)	0–7 hours	3.26±5.24	4.22±5.82	15.64±2.75
	8 hours and more	7.81±10.87	9.00±9.69	14.94±3.28
p		U=6542.50, p=0.00001*	U=6105.00, p=0.002*	T=1.669, p=0.96

U: Mann Whitney U test, X^2: Kruskal Wallis test, t: independent t-test, F: one way ANOVA test, UAE: United Arab Emirates, m: mean, sd: standard deviation, *p<0.050

According to the results of binary logistic regression analysis, anxiety symptoms were found in women 2.06 times more than men, in those who had chronic diseases 2.9 times more than those who did not, in those who had sleep disorders 2.8 times more than those who did not, in those who used the internet more than 8 hours 2.4 times more than who used it less (Table 3). Also, depression symptoms were found in women 3.27 times more than men, in those aged 18–30 years 0.51 times more than those aged 31–60 years, in those who had a history of psychiatric illnesses 4.5 times more than who did not, in those who reported sleep disorders 3.6 times more than those who did not, in those who used the internet more than 8 hours 3.2 times more than who used it less (Table 4).

Table 3. Effect of sociodemographic attributes on anxiety level

Variable	Regression coefficient	Standard error	p	Probability ratio	Confidence interval of 95%	
Gender						
Female/Male (ref)	0.721	0.370	0.051	2.056	0.996	4.246
Age group						
18–30 (ref)			0.223			
31–60	-0.556	0.330	0.092	0.574	0.300	1.095
61 and above	-0.022	0.741	0.976	0.978	0.229	4.177
Employment status						
No/Yes (ref)	-0.011	0.337	0.975	0.989	0.511	1.917
History of psychological disorder						
Yes/No (ref)	1.061	0.649	0.102	2.888	0.810	10.298
Chronic disease						
Yes/No (ref)	1.075	0.457	0.019	2.929	1.196	7.172
Sleep disorders						
Yes/No (ref)	1.029	0.387	0.008	2.798	1.310	5.978
Internet use time						
8 hours and more/0–7 hours (ref)	0.889	0.396	0.025	2.434	1.119	5.292
Constant	-2.442	0.373	0.000	0.087		

Table 4. Effect of sociodemographic attributes on depression level

Variable	Regression coefficient	Standard error	p	Probability ratio	Confidence interval of 95%	
Gender						
Female/Male (ref)	1.184	0.351	0.001	3.267	1.643	6.495
Age group						
18–30 (ref)			0.019			
31–60	-0.671	0.322	0.037	0.511	0.272	0.960
60 and above	0.943	0.707	0.183	2.567	0.642	10.265
Employment status						
No/Yes (ref)	-0.306	0.334	0.360	0.737	0.383	1.418
History of psychological disorder						
Yes/No (ref)	1.505	0.632	0.017	4.503	1.305	15.540
Chronic disease						
Yes/No (ref)	0.034	0.526	0.949	1.034	0.369	2.898
Sleep disorders						
Yes/No (ref)	1.282	0.374	0.001	3.603	1.732	7.496
Internet use time						
8 years of age and above hour (ref)	1.165	0.386	0.003	3.206	1.505	6.827
Constant	-1.988	0.345	0.000	0.137		

DISCUSSION

This is the first study, in which depression, anxiety, state of guilt and related risk factors is researched in individuals under quarantine in an institution during COVID-19 pandemic in Turkey. The study results showed that 14.5% of the study group had anxiety symptoms and 17.1% had depression symptoms. While women, those with chronic diseases, those with sleep disorders and those using the internet for 8 hours or more had higher anxiety symptoms. In addition, the women, young people (aged 18–30 years), those with a history of psychiatric disease, those with sleep disorder and those using the internet for 8 hours or more had higher ratio of depressive symptoms. There was no correlation between the feeling of guilt and sociodemographic and clinical features.

In our study, the participants of 14.5% had anxiety symptoms and 17.1% had depressive symptoms. In a study grouping the participants as "affected group" and "unaffected group" on the basis of whether the participants themselves or their families/colleagues/classmates/neighbors were quarantined during the COVID-19 pandemic in the Southwest China at the beginning of 2020, the anxiety and depression prevalence in the affected group was 12.9% and 22.4%, respectively (1). In a research made in Italy about people who were kept in quarantine in their homes, 32.6% of the participants showed moderate to severe anxiety symptoms and 24.2% showed moderate to severe depressive symptoms (13). In another study made in Spain, 21.6% of the participants showed anxiety symptoms and in 18.7% of the study group showed depression symptoms (20).

In the study conducted by Özdin et al. researching anxiety, depression and health concerns during COVID-19 pandemic in Turkey, the anxiety level was found to be 45% and depression was 23%, which was higher than our study (12). The fact that our study was conducted on those under quarantine in an institution and the study by Özdin et al. was conducted with general public and that may be one of the reasons why we have found lower anxiety and depression symptoms. Similar to our study, in a study conducted in China comparing the people infected with COVID-19, those under quarantine and the general public; depression symptoms were found higher in those infected with COVID-19 (19.3%) and general public (14.3%) compared to those under quarantine (4%) (21). Our study group may have experienced less stress than the general public because they were kept in an institution where the health care team was constantly present and their needs were met. Furthermore, they may have felt more safe and comfortable as they returned to their homeland and they may have had less stress to trigger their psychiatric state compared to the general public.

The results from other studies conducted before showed that women had more psychological distress than men regarding COVID-19 (12, 22). Women had three times higher anxiety disorder than men during COVID-19 pandemic (15). In our study also was found that the women under quarantine had more anxiety symptoms compared to men (3.27 times higher) and depressive symptoms (2.06 times higher) due to COVID-19. The reason may be that anxiety is more common in women compared to men, they react more emotionally to stress, they show more strong expression of anxiety symptoms and more psychological responses to sudden and unpleasant events (23). The studies conducted during the pandemic have shown that also depressive symptoms besides anxiety are seen more in women (12, 22, 24). This is probably because, the prevalence of depression is more common among women then men (23), they have more sleep problems that may trigger depression symptoms (14) and they have higher risk of depression due to different biological and socioeconomic factors compared to men (7).

The results of our study which shows that young people (aged 18–30 years) had higher depression scores seems to be similar with the results of previous studies (1, 20). The reason may be that young people have less life experiences to cope with stress (25). Another reason may be that the young people tend to have much information from social media that may trigger stress (26). In addition, compulsory physical isolation, being away from social environments due to quarantine period and uncertainty of the process may have triggered depression inducing despair and feeling of loneliness (27).

In our study the incidence of depressive symptoms is found to be 4.5 times more in those who had a history of psychiatric disease compared to those who did not. Previous studies showed that history of mental health problems is related with the appearance of depressive symptoms, anxiety symptoms and post-traumatic stress symptoms in stressful situations (22). People with a history of psychiatric disorder are vulnerable groups to stress in relation of quarantine measures taken (16). This intense stress may have relapsed and caused new psychiatric conditions as well.

Our results showed that those who were under quarantine during COVID-19 pandemic and who had a chronic disease (hypertension, diabetes, COPD, cardiovascular disease) had 2.9 times more anxiety symptoms than those who did not. These results support other studies indicating that individuals with serious illnesses have higher psychological symptoms in the presence of a crisis (1, 20). Having been reported that COVID-19 incurs more severely in individuals with chronic diseases (20) may be a reason for these individuals to have higher anxiety symptoms.

In our study, the ratio of depression and anxiety is found higher in those who have sleep problems than those who do not. In previous studies have been shown that natural disasters or stressful big events cause sleep disorders and sleep problems may lead to depression and anxiety (28). Also, sleep disorders in hospitalized patients due to COVID-19 are stated to have a relationship with the increase in the severity of fatigue and anxiety (14). The fear that insufficient sleep may affect immune system badly which is vital for fighting against infection may have led to concern about having difficulties in sleeping and consequently increase struggling to sleep and sleep disorder (29). Also, financial concerns, stress on other changes about daily life due to quarantine and pandemic may have led to sleep disorder (29). The sleep problems coming up with the reasons mentioned may have increased the risk seen about symptoms of depression and anxiety (8).

Our study is made in an environment without any limitation of Internet access. We found that those who used the internet for 8 hours and more had 2.4 times more anxiety symptoms and 3.2 times more depressive symptoms compared to those who used the internet less. Different studies have shown that exposure to both the type and duration of media affects community's psychological and physical responses to a traumatic event (30). During COVID-19 pandemic, women, young people, those with higher education levels, students and retirees are found to be at higher ratio of media exposure than others and higher media exposure is found to be correlated with anxiety and depressive symptoms (10). Aker, who made a study with Turkish medical students and found that of the students, 5.3% follow Twitter account of the Ministry of Health, 4.5% follow the website of the Ministry of Health, and 82% follow social media and WhatsApp insecure information/messages to be informed about COVID-19 (19). In another study had been shown that the physicians and medical students obtained most information about COVID-19 from social media (30). Although knowledge acquisition about COVID-19 from social media was not directly asked in our study, the mentioned studies confirm that most information is obtained from social media. Even though we looked at the duration of internet use only in our study, we presupposed people would use social media more when the using internet time increase and that means exposure for more invalidated information. Having correct information protects from anxiety and as correct information increases, psychological effects of negative events decrease (24). Invalidated knowledge which aims giving incorrect information may spread rapidly on social media (9). This rapidly spread extreme, frightening and contradictory information may have increased anxiety by causing stress (19).

According to the study about television watching tendency made by the Turkish Radio and Television Supreme Council in 2018, duration of watching television is found daily for 3.34 hours on average and the most watched programs were the news (24.2%) (www.rtuk.gov.tr). There was no relationship between the duration of watching television and the severity of anxiety and depression in the study we conducted by dividing the duration of watching television into 3 groups (0–3 hours, 4–7 hours, 8 hours and more). The government of Turkish Republic provides daily news about the developments and course of the disease in the country from national television channels and tries to increase public awareness on prevention and intervention strategies. And that's why, the people who generally followed the information from television which provides validated knowledge instead of social media can be protected from negative psychological effects of the pandemic (24).

The studies had shown that those who had been taken to quarantine felt guilty and anger towards themselves about the possibility of infecting their relatives and beloved ones because of having close contact with potential carriers of the disease during the pandemic (8, 9). However, in our study

no relationship between state of guilt and any sociodemographic factors is found. The reason may be that, our study group was consisted of those who came from abroad upon their own request and were kept in quarantine in an institution as precautionary measures but not due to COVID-19 exposure/disease and only two of them had relatives who had diagnosis of COVID-19.

This study has some limitations. The first one is that we did not have a chance to meet the participants face-to-face and self-report measures were used. Since we did not meet face-to-face, we could not evaluate the presence of a psychiatric disorder. The second one is that, the study is cross sectional and this type of research does not allow us to identify the causal relationships exactly. The third one is that no scale was used to evaluate sleep disorder; but the participants were asked with a single question whether they had any difficulty at falling asleep, having nightmare or sleep interruptions. Thus, it is open to bias. The differences in evaluating sleep disorder of individuals, who constitute the study group were not taken into consideration. Although there were studies researching anxiety and depression during COVID-19 pandemic, there was no study about people taken under quarantine in an institution. Therefore, our study results are important for representing the first mental health research which is investigating anxiety, depression and feeling of guilt state in those taken under quarantine in an institution in Turkey.

As a conclusion, in this study it is found that the women, young people, those with a history of psychiatric disease and those having chronic diseases, those with sleep problems and those who use the internet for 8 hours or more are affected by quarantine measures more and had shown more anxiety and depressive symptoms. Considering that the pandemic still continues, our results are valuable for health authorities. During quarantine, these risks can be reduced by taking preventions such as enlightening people through digital media about how to maintain healthy sleep, fighting with excessive circulation of misinformation, making people understand thoroughly both the disease and the rationale of quarantine by correct and update information, providing medical care to people with psychiatric and chronic diseases as they are more vulnerable against infection. Furthermore, since the anxiety and depressive symptoms can be seen more in women, more attention should be paid to this group. In addition, providing psychosocial evaluation and consultancy on not only for symptoms about COVID-19, also for anxiety, depression and other psychiatric symptoms is important for early determination and treatment.

Our study represents the first mental health research focusing on people kept in quarantine in an institution in Turkey; thus, further studies are necessary to approve the results provided. And also, performing follow up studies is important to evaluate the changes in mental health over time. We also recommend further studies to focus on the effectiveness of the measures to be taken to reduce negative psychiatric effects of quarantine.

Ethics Committee Approval: Permission was obtained from Abant Izzet Baysal University Clinical Research Ethics Committee (131/2020).

Informed Consent: The participants were interviewed face-to-face and provided with information about the aim of the study, then the data were collected from those signing the informed consent form.

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