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RESEARCH ARTICLE

The effect of the COVID-19 pandemic on the anxiety levels of patients admitted to emergency departments

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ABSTRACT

Aim: We aim to research the effect the COVID-19 pandemic has on the anxiety levels of patients admitted to emergency departments.

Materials and Methods: This study involves 205 patients over the age of 18 who have been admitted to emergency departments. Patients have been separated into two groups according to being clinically suspected of SARS-CoV-2. Each patient is analyzed using the GAD-7 anxiety questionnaire through a face-to-face survey.

Results: No significant difference exists between the self-suspected COVID-19 and control groups' anxiety levels; however, patients self-suspected of COVID-19 stated having experienced the problem of not being able to relax more often than the control group stated.

Discussion and Conclusion: Because the COVID-19 pandemic has increased social anxiety due to illness anxiety, similar results have been obtained in all patients admitted to emergency departments.

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COVID-19 • Emergency department • Anxiety • Triage • Survey

The COVID-19 pandemic, which started in Wuhan in December 2019, has affected millions of individuals around the globe, and the World Health Organization (WHO) has declared the pandemic as a global emergency. Measures states have taken regarding staying at home and maintaining at least a meter of social distance have triggered health complications such as depression and anxiety disorders in the general population (Marco et al., 2019). The quarantine measures that were taken and people's use of social media resulting in the spread of disinformation have also increased social stress (Torales et al., 2020). During pandemics, individuals with health anxiety encounter pathological behavioral patterns further impairing the quality of life (Blakey & Abramowitz, 2017). Turkey has also implemented measures that are anticipated to affect people psychologically to get the pandemic under control, such as restricting social life.

Health anxiety surges during viral epidemic periods. For instance, admissions to health centers have increased in the previous outbreaks of H1N1 and the Zika virus (Blakey & Abramowitz, 2017; Taylor et al., 2017). Therefore, managing psychological factors in pandemic periods is essential for determining healthcare strategies (Taylor et al., 2017), as well as detecting anxiety disorder in advance during these periods to reduce health costs and increase the quality of life. Generalized anxiety disorder is a psychological disorder that covers the symptoms of tension, irritability, and becoming easily fatigued toward activities or events almost every day (Konkan et al., 2013). Our study aims to compare the effect the COVID-19 pandemic has on the anxiety of patients admitted to emergency rooms who are and are not suspected of COVID-19.

Method

A prospective study has been conducted involving adult patients aged 18 years and over who applied to a tertiary emergency department with 800 daily admissions between April and May 2020. The study was approved by the local ethics committee. Informed consent was obtained from the 205 patients participating in the study. Patients who have limited communication skills

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due to their mental status, who are aphasic due to cerebrovascular diseases, who were assessed below triage-level T4 according to Manchester Triage Scale, or who have a history of previous psychiatric disease were excluded from the study. We noted the ages, genders, and chronic diseases of the patients with symptoms considered to be associated with the COVID-19 symptomatology, as well as their General Anxiety Disorder-7 (GAD-7) scores.

To provide isolation for viral transmission, our emergency department is divided into clean and contaminated areas. The initial evaluation is performed by the emergency medicine nurses and practitioners in a prefabricated triage outpost implemented outside the emergency department. The patients not suspected of COVID-19 are directed to the non-contaminated area of the emergency room, while those suspected of COVID-19 are led to the predesignated area where the surveys are performed. Patients suspected of COVID-19 are divided according to the triage system dictated by WHO and the local infectious disease committee. Our study separates the patients two groups: those suspecting themselves of COVID-19 and those not. The self-suspected COVID-19 group is defined as patients demanding to be examined by a physician as to whether they have COVID-19 symptomatology or not in addition to having at least one of the clinical parameters (i.e., fever > 38^0C, cough, shortness of breath, COVID-19 exposure). The control group consists of patients triaged as T5 according to the Manchester Triage Scale with minor symptoms such as sore throat or coughing apart from upper airway disease symptoms. A generalized anxiety score was measured by applying the GAD-7 to each group of patients. Physicians performed the survey interviews face-to-face after the initial medical evaluation and discharge. GAD-7 is a short self-report test evaluating generalized anxiety disorder and was developed according to DSM-IV criteria (Abar et al., 2017). This 7-item four-point Likert scale evaluates patients' experiences over the last 2 weeks. GAD-7 is a paper-and-pencil scale that scores patients cumulatively according to each item asked (0 = none, 1 = several days, 2 = more than half of the days of the week, 3 = almost every day). Total scores from the scale of 5, 10, and 15 mark the respective cut-off points for mild, moderate, and severe anxiety. The test has been validated for the Turkish population (Konkan et al., 2013).

Statistical Analysis

The statistical analyses in our study have been performed using the package program Number Cruncher Statistical System (NCSS): Statistical Software (NCSS, 2007).

When evaluating the data, the distribution of variables has been examined using the Shapiro - Wilk normality test in addition to descriptive statistical methods (mean, standard deviations), the independent t-test was used to compare the normally distributed variables in binary groups, and the chi-square test was used to compare the qualitative data. The results have been evaluated at a significance level of $p < 0.05$.

Results

A total of 205 patients enrolled in the study. Of these patients $n = 94$ (45.8%) are male, and $n = 111$ (54.2%) are female. The COVID-19 group consists of $n = 86$ patients ($n_{male} = 34$; $n_{female} = 52$). The control group consists of $n = 119$ patients ($n_{male} = 60$; $n_{female} = 59$). The average age is 36.15 ± 14.33 years for the control group and 44.21 ± 19.42 for the COVID-19-suspected group. The mean age of the COVID-19-suspected group is seen to be statistically significantly higher than that of the control group ($p = 0.001$). The age and gender distributions of patients and relationships between the parameters with GAD-7 scores are given in Table 1.

Table 1
Age, Gender, and GAD-7 Scores and Relationships

		Control Group		COVID 19 Group		p
Age		36.15 ± 14.33		44.21 ± 19.42		0.001*
Gender	**Male (n)**	60	50.42%	34	39.53%	0.123+
	Female (n)	59	49.58%	52	60.47%	
GAD-7		6.61 ± 5.37		7.12 ± 4.13		0.461*
GAD-7 < 10		82	57.7%	60	42.3%	0.770
GAD-7 > 10		35	55.6%	28	44.4%	

Cronbach's alpha value for the GAD-7 Scale is found to be 0.854. No statistically significant correlation has been observed between GAD-7 scores and age for either group (r = -0.049, p = 0.594 for the control group; r = 0.118, p = 0.280 for the COVID-19 group). No significant difference exists between identification of moderate-severe anxiety with respect to GAD-7 scores between those suspected themselves of having COVID-19 and those not. The mean GAD-7 score for the females in the control group has been found to be statistically significantly higher than their male counterparts (p = 0.0001).

No statistically significant difference is observed between the GAD-7 score distributions of male and female patients in the self-suspected COVID-19 group (p = 0.064). The distributions for the questions asked on the questionnaire are shown in Table 2. Thirty-one patients have chronic hypertension. The distribution of these patients is 17 (14.5%) of the 117 in the control and 14 (15.9%) of those in the self-suspected COVID-19 group. No significant difference exists between patients suspecting themselves of COVID-19 and their chronic hypertension in terms of their GAD-7 anxiety scores (p = 0.785).

Table 2
The Distribution of GAD-7 Questionnaire Parameters with COVID-19 and Control Group

	Control Group	**COVID-19 Group**	**p†**
Feeling nervous, anxious, or on edge	1.21 ± 1.13	1.26 ± 0.86	0.475
Not being able to stop or control worrying	0.81 ± 0.96	0.88 ± 0.91	0.405
Worrying too much about different things	0.92 ± 0.89	0.87 ± 0.91	0.575
Trouble relaxing	0.72 ± 0.94	1.13 ± 0.76	0.0001
Being so restless that it's hard to sit still	0.83 ± 0.98	0.63 ± 0.74	0.276
Becoming easily annoyed or irritable	1.25 ± 1.08	1.33 ± 0.94	0.562
Feeling afraid as if something awful might happen	0.86 ± 0.98	1.02 ± 1.1	0.369

Discussion

We have evaluated whether the anxiety of patients self-suspected of COVID-19 differs from those not self-suspecting who were admitted to an emergency department with minor complaints. No significant difference in GAD-7 scores was found in these two patient groups. Our study determined GAD-7 scores to be moderate for both those self-suspected of COVID-19 and those in the control group. Patients currently admitted to the emergency department with higher anxiety levels compared to the normal population may also be a factor (Marco et al., 2019; Abar et al., 2017)those with mental health issues often have difficulty accessing care. Unfortunately, issues of anxiety and depression are frequently not addressed in the ED due to competing care priorities. This may lead to increased burden and overcrowding in EDs.\nOBJECTIVE: This study related anxiety and depression with ED utilization and perceived barriers to care.\nMETHODS: To limit the impact of insurance coverage on ED utilization and access to care, a convenience sample of adults 45 to 85 years of age in the ED were surveyed. The Generalized Anxiety Disorder 7 and Patient Health Questionnaire 9 were used to measure anxiety and depression.\nRESULTS: A total of 251 subjects were enrolled. Severe anxiety was observed in 10% of patients, while moderately severe or severe depression was observed in 12%. Patients who were both severely anxious and depressed visited the ED nearly twice as often as nonanxious and nondepressed patients. The majority of patients cited at least one moderate barrier to care, and greater anxiety and depression scores were related to greater perceived barriers to care. Perceived barriers to care were more than three times higher among patients who were both anxious and depressed compared to those in patients who were neither depressed nor anxious and twice as high as in those who were either depressed or anxious ($p < 0.001$. This result may reflect that the anxiety effect from the COVID-19 pandemic may have generalized to the entire population. A study from the USA testing patients admitted to an emergency department found their median GAD-7 score to be 8; this means patients were already moderately anxious when they were admitted to the emergency department (Marchesi et al., 2004). The reasons for this could be barriers to getting health care in the emergency department, pain, or respiratory problems (Abar et al., 2017).

The literature is abundant with online surveys aimed at determining the anxiety caused by COVID-19. For instance, researchers in one study found 35.1% of the general population to have anxiety (Hinz et al., 2017). In a study based on the Turkish population, anxiety scores were found to be lower (Özdin, & Bayrak, 2020). Although surveys conducted over the Internet reach more individuals in a shorter time, they are considered to be less reliable than face-to-face studies in terms of data quality (Heerwegh, & Loosveldt, 2008). As we have designated our study with face-to-face interviews, the self-reported anxiety scores might have been exaggerated.

Although the relationship between hypertension and anxiety is well-known, anxiety is generally attributed to incidental hypertension (Johnson, 2019). Our study has shown self-suspicion of COVID-19 and hypertension to have similar effects on anxiety. Social awareness campaigns from WHO and the Ministry of Health informing that hypertension is a risk factor for severe COVID-19 may explain the similar levels of anxiety between these patient groups.

Considering that the expressions of patients with generalized anxiety disorder differ according to gender and cultural factors, the pandemic can be said to be able to generate different mental responses in virtually every society (Asoglu et al., 2018). For example, lower depression, stress, and anxiety levels have been detected in Spain compared to China during the COVID-19 outbreak (Ozamiz-Etxebarria et al., 2020). Also, the study conducted by Daniel Kwasi Ahorsu et al on a COVID-19 fear scale in Iran found no difference to exist in terms of gender; this shows studies in this field to be affected by socio-cultural differences (Ahorsu et al., 2020). Our study found women's GAD-7 scores to be significantly higher in terms of anxiety levels, which parallels findings from studies previously conducted in Turkey and Germany (Hinz et al., 2017; Özdin & Bayrak, 2020). As our study is about the Turkish population being presented to an emergency department, its results may differ from studies conducted in other countries due to factors such as sociocultural structure and pandemic control policy.

Our study found the anxiety of patients applying to an emergency department to be higher compared to the current literature (Marchesi et al., 2004; Marco et al., 2019). Among the factors affecting the results of this study are emergency room admissions already having high anxiety and emergency services being the riskiest areas for disease transmission during pandemics. In this respect, emergency services may provide an appropriate occasion for screening for generalized anxiety during the pandemic.

The answers to the fifth question from the GAD-7 scale regarding the inability to relax are found to be statistically elevated in patients self-suspected of COVID-19. The literature has shown this parameter from the GAD-7 questionnaire to be sufficient for detecting anxiety and to be usable on patients who are not very willing to communicate (Micoulaud-Franchi et al., 2017). This parameter can be used in emergency departments to detect anxiety, but further studies should be performed for clarification.

Conclusion

As the COVID-19 pandemic has increased social anxiety due to health anxiety, similar results were obtained in all the patients admitted to our emergency department. Generalized anxiety disorder is higher in women than in the whole population. Patients self-suspected of COVID-19 more often stated experiencing the problem of not being able to relax compared to the control group, and this parameter might be useful in future studies for scanning anxiety in emergency departments.

Limitations

The main limitation of the study is the less numerous population sample being from one single healthcare center. Additionally, our study was performed in the first peak wave of the COVID-19 pandemic; these results might not reflect the anxiety of patients at the current time.

Ethical approval

This study was approved from Istanbul Medeniyet University Social and Human Sciences Ethics Committee.

Authors' contribution

All authors contributed equally to this manuscript.

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