

Evaluation of state and trait anxiety levels in endoscopic procedure patients during the COVID-19 pandemic period

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ABSTRACT

Objective: The association between the COVID-19 pandemic and mental well-being has been researched in several studies. State-Trait Anxiety Inventory is one of the most widely used tests for measuring anxiety. In this study, we aimed to determine the anxiety levels of patients waiting for the gastrointestinal endoscopic procedure during the COVID-19 pandemic

Material and Methods: Patients above 18 years of both genders who were waiting for the gastroenterological endoscopic procedure were included in the study. State-Trait Anxiety Inventory applied to the patient waiting in line for the procedure

Results: A total of 150 patients were included in the study. During the pandemic, a greater proportion of women (36.9%) feared endoscopy than men (19.7%) (chi-square =0.016). The number of patients (94, 62.7%) reporting they feared visiting the hospital during pandemic (p<0.001, chi-square) had a significantly higher fear of undergoing endoscopy during the pandemic (87.5%, n=49). The median STAI-S score (39 [IQR 30.25 - 47]) was significantly lower in patients who had previously undergone endoscopy than in patients who had not (p=0.028).). The mean STAI-T score of women (46.11±7.62) was 5.08 (95% CI 2.67 - 7.48) higher than that of men (41.03±7.09) (p<0.001, Student's t test).

Conclusion: Mortality and morbidity experienced during the COVID-19 period had devastating effects on patients' mental health, but some groups were more affected by this situation. Therefore, identifying vulnerable groups, paying special attention to these groups, and providing more intense information will reduce potential concerns.

Keywords: Anxiety, Covid-19, endoscopy

INTRODUCTION

COVID-19 Infection has had devastating effects on humans since early 2020, and for an average of 2 years, it has caused significant changes in daily lifestyle. Especially, pandemic had significant negative effects on mental well-being. Many people have experienced fear of dying, risk of getting sick and severe stress, so they reported significant levels of uncertainty, irritation, anxiety, insomnia and tension. Patients with chronic diseases did not admit to hospitals for their routine visits. Many patients had to or preferred postponing their planned examinations for their different complaints. During the pandemic, many people faced various stress factors like worrying about getting sick, dying, and fearing losing loved ones, friends, and family (1). Anxiety is a feeling of excitement, distress and fear that something bad will suddenly happen and is characterized by physical symptoms such as palpitations, rapid breathing, excessive sweating, dry mouth, tremors, and muscle tension. Anxiety can be inhibitory, but sometimes it may help the person adapt to new conditions (2).

Several studies have researched the association between the COVID-19 pandemic and mental well-being. State-Trait Anxiety Inventory is one of the most widely used tests for measuring anxiety (3). This test have been translated by Oner et al. and validation studies have also been carried out. State anxiety is excessive anxiety when there is an undesirable, dangerous situation, whereas trait anxiety is high anxiety for no apparent reason or disproportionate anxiety for that reason (4).

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In this study, we aimed to determine the anxiety levels of patients waiting for gastrointestinal endoscopic procedures during the COVID-19 pandemic.

MATERIAL and METHODS

Our descriptive cross-sectional study was conducted in Istanbul. We enrolled 150 patients who were admitted to the tertiary-care hospital gastroenterology endoscopy unit between October 2020 and February 2021. Ethical approval was obtained from local ethical committee under protocol number E2-22-2966.

Patients above 18 years of both genders who were waiting for the gastroenterological endoscopic procedure were included in the study if they gave their informed consent. State-Trait Anxiety Inventory was applied to the patient waiting in line for the procedure.

State-Trait Anxiety Inventory

State-Trait Anxiety Inventory is a self-assessment inventory that consists of the short expressions. State-Trait Anxiety Inventory (STAI): It is a scale developed by Spielberger et al., inspired by the two-factor anxiety theory to determine state and trait anxiety levels separately. The State-Trait Anxiety Inventory (STAI-S and STAI-T) is a self-report questionnaire consisting of brief expressions. It comprises two subscales of 20 items, forty items in total. The Turkish validity and reliability study was conducted by Oner and Le Compte in 1985 (4, 5).

The state anxiety scale consists of options describing feelings and behaviors; 1) Not at all, 2) A little, 3) A lot, and 4) Completely. Trait anxiety inventory consists of options that describes feelings and behaviors; 1) Almost never 2) Sometimes, 3) Often, and 4) Almost always. 3, 4, 6, 7, 9, 12, 13, 14, 17, and the 18th questions increase the total anxiety score.

Questions 1, 2, 5, 8, 10, 11, 15, 16, 19, 20 decrease the total anxiety score. After adding negative and positive points, a fixed number of 50 is added to the result obtained. For trait anxiety scores, the constant 35 was added to the result. In the interpretation of scores, the total point value obtained from the inventory ranges from 20 to 80. High score indicates high anxiety low score indicates low anxiety level.

Patients participated in the inventory while waiting for their turn in the outpatient clinics in random days. The participants were not paid to participate in the study and were informed that they were free to decline to attend to inventory. Informed consent forms were obtained from all participating patients. The face-to-face interview took an average of 20 minutes to complete.

Statistical analysis: The data were analyzed with SPSS 24 program (Statistical Package for Social Sciences, IBM Inc., Chicago, IL, USA). Numbers, means, percentages, and standard deviations were used in the descriptive statistics of categorical variables. Independent samples t-test and the Mann-Whitney U test were used to test the significance of the difference between two independent groups. Normal distribution of data was assessed using the Kolmogorov-Smirnov test and normality plots. One-way ANOVA was used for parametric data and Kruskal-Wallis test was used for non-parametric data in groups of three or more. In cases

where the ANOVA test was significant, the posthoc Tukey test was used to determine which groups differed. Spearman correlation analysis was performed for nonparametric data. A multiple linear regression analysis was applied to confirm the contribution of relevant predictors on state anxiety. A p-value was considered significant under 0.05.

RESULTS

A total of 150 patients were included in the study. There were 27 patients (18%) between the ages of 18-34 years, 72 patients (48%) between the ages of 35-49 years, 45 patients (30%) between the ages of 50-64 years, and 6 patients (4%) over the age of 65 years. Female gender was partially predominant in the study (n=84, 56%). It was reported that 94 patients (62.7%) were reluctant to seek medical attention during pandemic. 76 (50.7%) of the patients included in our study had previously undergone endoscopy for diagnostic or therapeutic purposes. There were 44 patients (29.3%) who feared having an endoscopy during the pandemic. In the 74 patients who had never had an endoscopy before, 22 (22.9%) were afraid of endoscopy during the pandemic. There was no significant relationship between endoscopy history and fear of endoscopy during the pandemic ($p=0.529$, chi-square). There was no association between gender and fear of being physically inside hospital buildings during the pandemic ($p=0.081$, chi-square). However, during the pandemic, a greater proportion of women (36.9%) feared endoscopy than men (19.7%) (chi-square =0.016). The number of patients (94, 62.7%) reporting they feared visiting the hospital during the pandemic ($p<0.001$, chi-square) had a significantly higher fear of undergoing endoscopy during the pandemic (87.5%, $n=49$).

STAI-S scores were 40.95 ± 10.25 , and STAI-T scores were 43.87 ± 7.79 . The STAI-S and STAI-T scores did not differ significantly between age groups ($p=0.307$, $p=0.166$, Kruskal-Wallis). STAI-S median score was significantly higher among women (45 [IQR 37.25 - 50]) than among men (38 [IQR 28.75 - 45]) ($p<0.001$, Mann-Whitney U). The mean STAI-T score of women (46.11 ± 7.62) was 5.08 (95% CI 2.67 - 7.48) higher than that of men (41.03 ± 7.09) ($p<0.001$, Student's t test). STAI-S scores for patients who weren't worried about coming to the hospital during Covid were not significantly different from those who came (42.5 [IQR 34.75 - 50], 41 [IQR 30.25 - 48.75], $p=0.296$, Mann-Whitney U). STAI-S scores were 6.7 (95% CI 3.22 - 10.18) and STAI-T scores were 2.94 (95% CI 0.22 - 5.67) higher in patients who were afraid of having an endoscopy during the outbreak ($p<0.001$, $p=0.035$, student's t test, respectively) compared with patients who were not afraid of having an endoscopy. The median STAI-S score (39 [IQR 30.25 - 47]) was significantly lower in patients who had previously undergone endoscopy than in patients who had not (44.5 [IQR 36.25 - 50]) ($p=0.028$, Mann-Whitney U). The STAI-T score of patients who had previously undergone endoscopy (42.28 ± 8.25) was significantly lower than that of patients who had not (45.51 ± 6.94), 3.24 (95% CI 5.7 - 7.7) ($p=0.01$, Student's t-test). There was a moderate positive correlation between STAI-S score and STAI-T score ($r=0.555$, $p<0.001$). In a model that controlled for the covariate of fearing endoscopy during the outbreak, we found a moderate partial correlation between STAI-S score and STAI-T score ($r=0.519$, $p<0.001$).

Table 1: The comparison of STAI-S and STAI-T scores

		n(%)	STAI-S	p	STAI-T	p
Age	18-34	27 (18%)	45 (34-50)	0.307	43 (40-47)	0.166
	35-49	72 (48%)	42.5 (33-50)		45 (40-50)	
	50-64	45 (30%)	40 (32.5-49)		44 (38.5-50)	
	65+	6 (4%)	38.5 (29.5-42)		37.5 (31.5-43.25)	
Sex	Female	84 (56%)	45 (37.25-50)	<0.001	46.11+-7.62	<.001
	Male	66 (44%)	38 (28.75-45)		41.03+-7.09)	
Hospital fear	Yes	94 (62.7%)	42.5 (35.75-50)	0.296	44.19+-7.56	0.528
	No	56 (37.3%)	41 (30.25-48.75)		43.34+-8.2	
Endoscopy fear	Yes	44 (29.3%)	45.68+-9.54	<0.001	45.95+-5.79	0.035
	No	106 (70.7%)	38.98+-9.92		43.01+-8.35	
Prior endoscopy	Yes	76 (50.7%)	39 (30.25-47)	0.028	42.28+-8.25	0.01
	No	74 (49.3%)	44.5 (36.25-50)		45.51+-6.94	

DISCUSSION

The pandemic process has caused significant concerns in people, many people changed their daily lifestyles. One of the most important problems in this process was to reach patient groups that need to be followed and treated due to chronic diseases. This situation did not develop only as a result of the restrictions. One of the important reasons was especially those with chronic diseases who were afraid to come to the hospital. As a result, there was a significant decrease in the endoscopic procedures to be performed in this period. For this reason, we planned to evaluate the level of anxiety caused by endoscopic procedures during the pandemic period. To the best of knowledge this is the first study evaluating the anxiety levels of patients waiting for endoscopic procedures. Our findings were as follows; 1-Women were more afraid of having an endoscopy in this process. 2- The majority of patients are not willing to come to the hospital. 3- State and trait anxiety scores were higher in women than men. 4- Anxiety scores were lower in patients who had undergone endoscopic procedures before.

During the COVID-19 period, there were significant decreases in the number of endoscopic procedures, and most of the reductions were in patients who needed screening. The study by Holland et al. determined that the number of procedures performed in the same period before COVID-19 decreased by 82%, colorectal cancer (CRC) screenings decreased by 48%, and those diagnosed with CRC decreased by 28% (6). In another study, a 65.7% decrease in the number of colonoscopies to be performed, a 44.6% decrease in the number of colonoscopies performed for the purpose of CRC screening, while a 2-9% increase in the number of emergency endoscopies was observed (7). The reasons for this decrease were the fact that the endoscopy units did not work at full capacity during this period, as well as the reduction in the number of patients admissions.

In a study conducted in Turkey evaluating the state and trait anxiety levels of healthcare workers during the COVID-19 period, anxiety levels were found to be higher in women than in men (8). In a similar study conducted in China, anxiety scores were higher in women (9).

In our study, state and trait anxiety scores were higher in female patients waiting for endoscopy.

One of the important concerns in patients undergoing endoscopy is the interventional procedure and possible diagnoses. Therefore, pre-procedural information is very important. During the COVID-19 period, the anxiety level of the patients was higher, probably due to the inadequacies in the information process, but the anxiety level was lower in the patients who had undergone endoscopic procedures before. In a study by Ersoz et al., state and trait anxiety scores were lower in patients who had previously undergone endoscopic procedures, and anxiety levels were higher in women (10).

CONCLUSION

Mortality and morbidity experienced during the COVID-19 period had devastating effects on patients' mental health, but some groups were more affected by this situation. Therefore, identifying vulnerable groups, paying special attention to these groups, and providing more intense information will reduce potential concerns.

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Ethical approval: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and/or with the Helsinki Declaration of 1964 and later versions. Informed consent or substitute for it was obtained from all patients for being included in the study.

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