RESEARCH ARTICLE

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The Prevalence of Pandemic Anxiety, Anxiety and Depression During the COVID-19 Pandemic in Turkey

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ABSTRACT

Background: This prevalence study involved participants from various cities in Turkey was conducted in April 2020, during the coronavirus pandemic in Turkey, with a view to evaluate the pandemic-related anxiety, generalized anxiety, and depression in the society.

Method: The study was conducted with 1267 people in more than 70 cities in Turkey. The study data were obtained by means of online data collection forms, due to the risks posed by the contagious COVID-19 disease in face to face interviews. The Demographic Properties Form, the Utkan Pandemic Anxiety (UPA) scale, the Generalized Anxiety Disorder (GAD-7) scale, and the Beck Depression Inventory for Primary Care (BDI-PC) were utilized as data collection tools.

Results: The average value for the UPA scale for the sample was calculated as 10.5 ± 0.257 points, for the GAD-7 scale as 5.5 ± 0.153 points, and for the BDI-PC as 3.8 ± 0.095 points. The cut-off threshold for the UPA scale was exceeded by 34%, for the GAD-7 scale by 25.7%, and for the BDI-PC by 30.9% of the sample.

Conclusion: It was concluded that the level of pandemic-related anxiety in the community was high, that the level of generalized anxiety and depression had increased in comparison to pre-pandemic times, and that women had a higher risk of pandemic-related anxiety, generalized anxiety, and depression, because they were a group at risk, and also due to the effect of media surveillance and reports.

ARTICLE HISTORY

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KEYWORDS: Anxiety, anxiety disorder, Coronavirus, depression, prevalence

INTRODUCTION

Epidemics have induced many changes in life, in the spheres of business, society, and health systems, every time they have occurred, from past to present. The term "pandemic" used to remind us of the Spanish flu, SARS, plague and cholera in the past, but today COVID-19 has been added to the list. Although the COVID-19 pandemic has hugely impacted daily life, its ultimate effect on the health and well-being of the people is not exactly known yet.

The disease is a multifaceted phenomenon, adversely affecting both the sick individual and those healthy ones around, in terms of biological, emotional, psychological and social aspects, wherever it is experienced.[1] New research data are added regularly to the literature on coronavirus and the disease (COVID-19), as its symptoms and effects are better understood,[2-4] but many uncertainties still prevail. It is well known that many undesired factors such as a high risk of infection, the high death toll worldwide, and the unavoidable self-isolation can have severe negative consequences for mental health in the community.[5] Pandemic anxiety, generalized anxiety disorder, and depression are the main negative consequences that may occur due to the pandemic.

Anxiety disorders and mood disorders rank among the top conditions when the most common mental problems in the society are examined. In the "Mental Health Profile of Turkey" report, mental illness was determined in 17.2% of the population, and the most frequent diagnoses were anxiety and depression.[4] The lifetime prevalence of depression in the community varied between 5% and 17% and that of generalized anxiety disorder between 3% and 6%. Individuals experienced a very stressful period with

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the outbreak of the COVID-19 pandemic, and it posed an even greater risk for developing anxiety and depression, which already exist in the society at high frequencies.[6]

COVID-19 caused a total of 65 111 cases and 1403 deaths in Turkey, as of April 14, 2020,[7] and more than 100 000 deaths worldwide in the same period.[8] Although the physiological effects of COVID-19 are known up to a certain extent, the potentially destructive mental effects of the pandemic are yet to be studied. There is no study in the literature measuring the prevalence of pandemic anxiety, generalized anxiety, and depression in the whole population in Turkey. Hence, this study seeks the answers to the following research questions:

What is the depression prevalence in the population?
What is the prevalence of generalized anxiety disorder in the population?
What is the prevalence of epidemic anxiety in the community?

METHODS

Study Type and Aim

This present study was carried out in order to determine the prevalence of pandemic-related anxiety, generalized anxiety, and depression in the society, during the COVID-19 outbreak in Turkey.

This is a cross-sectional type of analytical prevalence study, conducted with participants from different cities in Turkey. Cross-sectional studies assess the prevalence of an issue in a given population or try to determine the factors relevant to the outcome of the topic under investigation, where the whole population or a sample representing the whole population is investigated; hence the obtained results are generalized to the society.

Time and Place of the Study

The data collection was done in the first week of April 2020. The first COVID-19 positive (+) case was observed on March 10, 2020 in Turkey. Since then, stringent precautions were taken across the country, various restrictions and partial lockdowns were imposed, as the number of cases increased. The changes induced in social life by the COVID-19 disease, in addition to the rapid spread of the pandemic and the high mortality rate, led to psychological variations. Normally, it takes some time for an individual to be able to recognize such changes. Therefore, data collection started 1 month after the first case was detected in the country.

MAIN POINTS

- The study was conducted with 1267 people in more than 70 cities in Turkey. The sample size can be generalized to 100 million people.
- For the first time in the society, the prevalence of epidemic anxiety was measured and found higher than the scale cut-off score.
- Although it is only within the first 2 months of the epidemic, it has been proven that the prevalence of anxiety and depression has already increased.

Study Population and the Sample

Eighty-one cities in Turkey constituted the study population during the coronavirus outbreak. According to Turkish Statistical Institute data (2019), the total population in Turkey was 83 154 997.[9] Based on the literature, the sample size calculation table was used in order to calculate the sample size. According to this table, the minimum sample number was determined as 1067 people, with 95% confidence interval and 3% sampling error, when the number of individuals in the target population was between 1 000 000 and 1 000 000 000. For this reason, the sample size was aimed to be a minimum of 1067 in this study; eventually 1267 people participated in the study from more than 70 cities of Turkey.

The study data were collected by means of online data collection forms (WhatsApp, Instagram, etc.), due to the risks posed by the contagious disease during face to face interviews. The snowball sampling method was used in the study. In this method, 1 subject out of the sample population is initially contacted. With the help of the contacted unit, researchers contact the second unit, and with the help of the second unit, they contact the third unit. Thus, the sample size grows in a manner similar to the growth of a snowball.[10] The data collection tools prepared based on this information for the purpose of this study were transferred to the online environment. The links to these forms were shared by the researchers with the participants known to them via various applications (WhatsApp, Instagram, etc.), and these participants were asked to share the forms with other participants they knew. Data accumulation was followed daily, and the data collection was completed when no data accumulated for a week. Participation was on a voluntary basis. As data collection tools, the Demographic Properties Form, the Utkan Pandemic Anxiety (UPA) Scale, the Generalized Anxiety Disorder (GAD-7) Scale and the Beck Depression Inventory for Primary Care (BDI-PC) were utilized.

Demographic Properties Form: It is a questionnaire that includes the sociodemographic characteristics of the participants (age, gender, marital status, family type, and time spent in following the coronavirus-related news and developments).

Utkan Pandemic Anxiety (UPA) Scale: It is a scale developed by Fırat et al. in 2020 to measure pandemic anxiety in the general population. This one-dimensional survey contains 9 items, which account for 70.8% of the total variance for pandemic anxiety in the general population over 15 years of age. This is a very high variance value for a one-dimensional scale. The Cronbach's alpha coefficient of the scale was calculated

as 0.94, which indicates high reliability. The score that can be obtained from the scale varies between 0 and 36. Statements in the scale were organized as 1 = Totally Disagree, 2 = Disagree, 3 = Moderately Agree, 4 = Agree, and 5 = Totally Agree. Scores < 12 are evaluated as normal, but scores ≥ 12.5 as anxiety. Increasing scores on the scale mean higher anxiety about the pandemic. Although this tool provides reliable results for the population of patients ≥ 18 years, further studies should be performed to determine the validity and reliability of this scale in the younger population, to enable the use of the scale in a wider population.[11]

Beck Depression Inventory for Primary Care (BDI-PC): The Beck Depression Inventory for Primary Care (BDI-PC), prepared by Beck et al. and adapted to Turkish by Aktürk et al., is a measurement tool revealing the presence of depression in an individual, with reference to the preceding 15 days. The scale scans for depression under 7 topics, using the symptoms of sadness, pessimism, past failure, self-dislike, self-criticism, loss of interest, and suicidal thoughts or wishes. Each topic contains a 4-graded score from 0 to 3. Scoring is obtained by summing up the scores of each topic. The Cronbach's alpha coefficient of the scale was calculated as 0.91, which indicates high reliability. To address the minimum DSM-IV requirement for the duration of MDD symptoms, respondents are asked to describe themselves for the "past 2 weeks, including today." A maximum of 21 points can be obtained from the scale. Although there is no cut-off score reported, the probability of depression is above 90% with scores of 4 and above.[12] The Cronbach's alpha coefficient of the scale was calculated as 0.81 for this study, which indicates high reliability.

Generalized Anxiety Disorder (GAD-7) Scale: It is a 7-item, self-reported, 4-point Likert-type scale developed by Spitzer et al. (2006), based on DSM-IV-TR criteria. It evaluates generalized anxiety disorder in the previous 2 weeks. It was adapted to the Turkish language by Konkan et al. (2013), and its validity and reliability were proved. According to Spitzer et al. (2006), the total score may be categorized into 4 severity groups: minimal (0-4), mild (5-9), moderate (10-14), and serious (14-20). The acceptable cut-off value was calculated as 8 in the Turkish version.[13] The Cronbach's alpha coefficient of the scale was calculated as 0.90, which indicates high reliability.

Data Analysis

Data analysis was performed by the Statistical Package for the Social Sciences (SPSS) version 23.0 (IBM SPSS Corp.; Armonk, NY, USA). Correlation analysis was used to examine the relationships, and the Student's *t*-test was used for group comparisons. In addition, when examining demographic variables, number, average, and percentage were used.

Ethics

The necessary ethics committee approvals for the study were obtained from the Artvin Çoruh University Scientific Research and Publication Ethics Committee (date April 15, 2020, session number 2020/5). Institutional permissions were obtained from the institutions where the data collection phase was carried out. In addition, the required permission was obtained from the Ministry of Health Scientific Research Platform (2020-05-09T21_14_32).

RESULTS

First of all, data analysis included the analysis of the distribution of the sociodemographic data to identify the sample. The mean age of the participants was 28.6 ± 10.13 years, 71.1% of them were female, and 28.9% of them were male . Among the participants, 63.4% were single, 36.6% were married, 84.7% had a nuclear family, and 15.3% had extended families. Finally, it was found that the participants watched TV for news relating to the coronavirus, for an average of 3.04 ± 1.35 hours a day.

Figure 1 displays the participants' mean scores obtained from the scales and the cut-off points of the scales.

The UPA scale scores varied between 0 and 36 points, with a mean value of 10.5 ± 0.257 points, indicating a normal level of pandemic anxiety. The GAD-7 scale scores ranged between 0 and 21 points, with the mean value calculated as 5.5 ± 0.153 points, and the mean value was considered to be within normal limits. The sample scores for the BDI-PC scale ranged from 0 to 19 points, and the mean value was calculated as 3.8 ± 0.05 points. The value found is within normal limits (Figure 1).

Figure 2 displays the participants' mean scores obtained from the scales, and the group percentages that were found to be at risk.

The sector of the sample below 12.5 points, the cut-off point of the UPAS, was 66%, and for the sector above 12.5 points, it was 34%. In other words, 66% of the sample

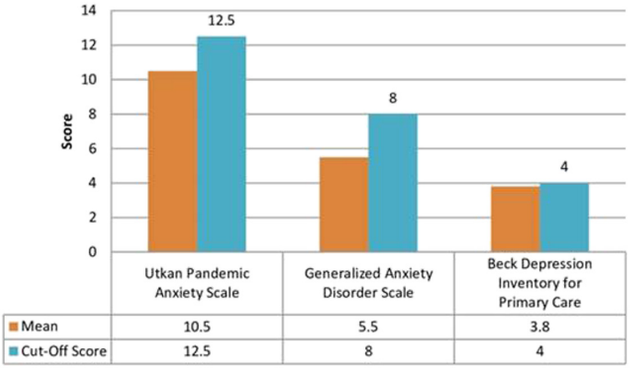

Figure 1. The mean and cut-off values of the scales.

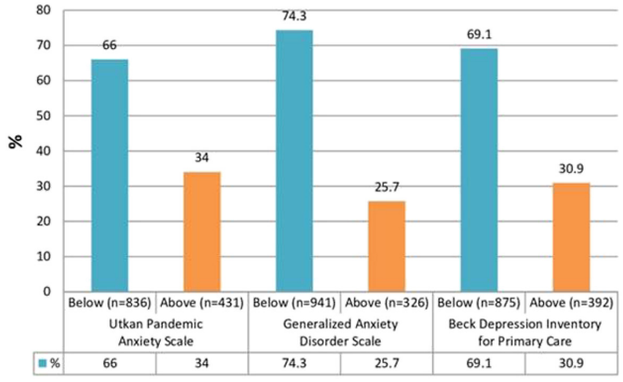

Figure 2. Percentage distributions of the groups below and above the scale cut-off scores.

was found to be normally anxious and 34% anxious about the pandemic. The anxiety level was above normal levels in 25.7% of the sample. The depression level however, was above normal levels in 30.9% of the sample, which was a significant rate (Figure 2).

Figure 3 demonstrates the comparison of the participants' mean scores obtained from the scales according to the gender variable.

The mean score obtained in the UPA scale was 11.3 ± 0.307 points for women and 8.5 ± 0.451 points for men, and the difference was statistically significant (X_{female} = 11.3 ± 0.307; X_{male} = 8.5 ± 0.451; t = 4.976; P < .001), suggesting that women were more concerned about the pandemic than men. The GAD-7 scale mean score was 6.1 ± 0.188 points in women, and 4.0 ± 0.240 points in men, and the difference was statistically significant (X_{female} = 6.1 ± 0.188; X_{male} = 4.0 ± 0.240; t = 6.282; P < .001). According to this data, anxiety levels of women were found to be higher with respect to men. In the BDI-PC scale, women had a mean score of 4.2 ± 0.177 points and men had a score of 3.1 ± 0.152 points, and the difference was statistically significant (X_{female} = 4.2 ± 0.117; X_{male} = 3.1 ± 0.152; t = 5.133; P < .001), indicating higher levels of depression in women in comparison to men (Figure 3).

Figure 4 demonstrates the comparison of the participants' mean scores obtained from the scales according to the marital status variable.

The mean score of the UPA scale was 10.4 ± 0.319 points among singles, and 10.8 ± 0.431 points among married individuals, displaying a statistically insignificant

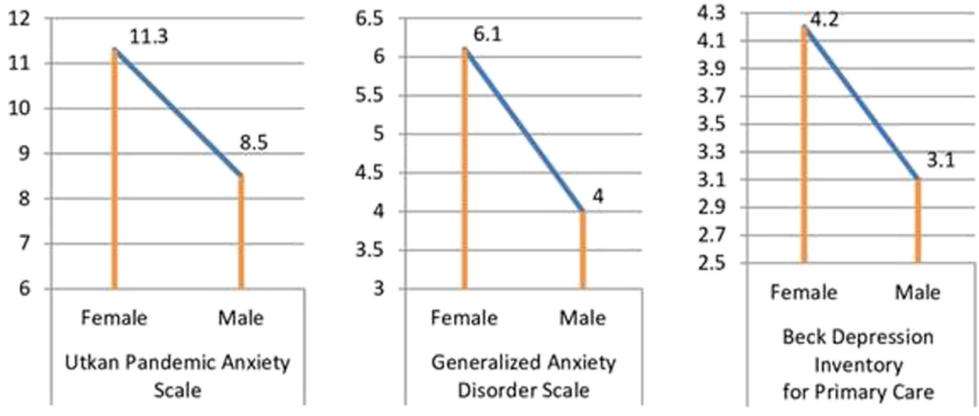

Figure 3. Comparison of the mean values of the scales in terms of gender, with Student's t-test (n_{female} = 901, n_{male} = 366).

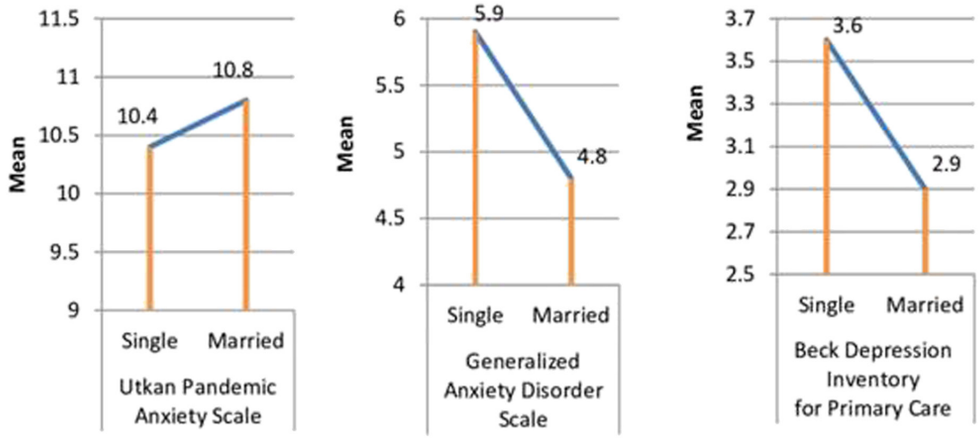

Figure 4. Comparison of the mean values of the scales in terms of marital status, with Student's t-test (n_{single} = 803, $n_{married}$ = 464).

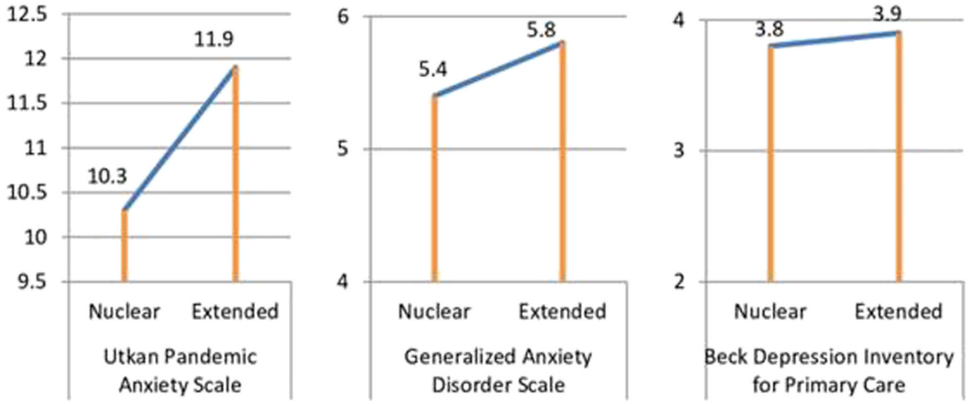

Figure 5. Comparison of the mean values of the scales in terms of family type, with Student's t-test($n_{nuclear\ family}=803$, $n_{extended\ family}=464$).

difference ($X_{single}=10.4 \pm 0.319$; $X_{married}=10.8 \pm 0.431$; $t=-0.777$; $P > .05$). According to this result, the anxiety levels experienced by married couples and singles were similar. The mean score of the GAD-7 scale was 5.9 ± 0.195 points in singles, while it was 4.8 ± 0.242 points in married individuals, with a statistically significant difference ($X_{single}=5.9 \pm 0.195$; $X_{married}=4.8 \pm 0.242$; $t=3.362$; $P < .01$). According to this result, the anxiety levels of single individuals were found to be higher than married individuals. The BDI-PC scale mean score for singles was 3.6 ± 0.127 points, while the mean score for married individuals was 2.9 ± 0.133 points, and the difference was statistically significant ($X_{single}=3.6 \pm 0.127$; $X_{married}=2.9 \pm 0.133$; $t=6.301$; $P < .001$), showing that depression levels of singles were higher than married individuals (Figure 4).

Figure 5 displays the comparison of the participants' mean scores obtained from the scales according to the family type variable.

The participants having a nuclear family had a mean score of 10.3 ± 0.278 points in the UPA scale, and it was 11.9 ± 0.663 points for those living in extended families, which was statistically significant ($X_{nuclear\ family}=10.4 \pm 0.319$; $X_{extended\ family}=10.8 \pm 0.431$; $t=-2.164$; $P < .05$). Accordingly, the anxiety levels of individuals living in extended families were found to be higher in comparison to those having a nuclear family. The mean GAD-7 score was 5.4 ± 0.166 points for the individuals having a nuclear family, while it was 5.8 ± 0.386 points for those having an extended family, and the difference was found to be statistically insignificant ($X_{nuclear\ family}=5.4 \pm 0.166$; $X_{extended\ family}=5.8 \pm 0.386$; $t=-0.826$; $P > .05$). According to this data, generalized anxiety disorder did not change with family type. The BDI-PC scale mean score of individuals with nuclear family was 3.8 ± 0.105 points while the score of the individuals with extended family was 3.9 ± 0.230 points, and the difference was found to be statistically insignificant ($X_{nuclear\ family}=3.8 \pm 0.105$; $X_{extended\ family}=3.9 \pm 0.230$; $t=-0.173$; $P > .05$). According to this finding, the level of depression did not vary with family type (Figure 5).

Finally, Table 1 presents the correlation analysis between the time participants allocate to follow the news on media and the scale scores.

There was a positive and significant relationship between the time spent in following the coronavirus-related news and developments, and the scores of UPA scale ($r=0.273$; $P < .001$), the GAD-7 scale ($r=0.295$; $P < .001$), and the BDI-PC scale ($r=0.245$; $P < .001$). Consequently, pandemic-related anxiety, and the anxiety and depression levels of individuals showed an increase as the time spent following media channels for updated news about coronavirus increased (Table 1).

DISCUSSION

In this study assessing pandemic-related anxiety, generalized anxiety, and depression levels in Turkish society during the COVID-19 pandemic, the obtained data were discussed in light of the literature.

It was found that the mean UPA scale score of the participants was 10.5 ± 0.257, and 34% of them suffered a high level of pandemic-related anxiety. It can be stated

Table 1. Analysis of the Correlation Between the Time Allocated to Follow News About Coronavirus in the Media and the Scale Scores ($n=1267$)

	Scale Score		
	Utkan Pandemic Anxiety	GAD-7	BDI-PP
Media monitoring on coronavirus-related developments (Mean ± SS = 3.04 ± 1.35)	$r=0.273$ $P=.000$	$r=0.295$ $P=.000$	$r=0.245$ $P=.000$

that pandemic-related anxiety is rather high, and attention should be paid from the psychiatric point of view. Various studies have been conducted about anxiety and depression in different groups since the pandemic started, and similar results have been reported. Hence, all of these studies have reported that anxiety and depression levels increased in the pandemic process, and that attention should be paid to this issue. The difference of this study from others is that it investigated anxiety specifically associated with the pandemic.[14-18]

It was found that the GAD-7 mean score of the participants was 5.5 ± 0.153, and 25.7% of them had a serious risk for generalized anxiety disorder. Considering the lifetime prevalence (3-6%) of generalized anxiety disorder, such a high percentage value may be concrete evidence that the society is facing a serious psychological risk during the pandemic.[19]

The BDI-PC mean score of the participants was very close to 4, which is the cut-off value of the scale, and indeed 30.9% of the participants were above the cut-off point, suggesting that these individuals may display symptoms of depression and require professional psychological support. In the literature review, the prevalence of depression varied between 2% and 17% in the depression prevalence studies, as seen using the Beck depression scale in the primary care before the pandemic.[20,21] We obtained an increase of at least 12% in this study, which is considerably higher than the values reported in the studies conducted before the pandemic. This result indicates an increased depression rate in the society during the pandemic, as well as an increasing risk in terms of psychological disorders day by day. When compared to pre-pandemic levels, the increasing rates of anxiety and depression in Turkey, since the beginning of COVID-19 outbreak, are conspicuous and terrifying. The rates of anxiety and depression have been found to increase similarly after the pandemic.[22, 23]

When the gender variable was examined in terms of scale scores, women were observed to have a higher level of pandemic-related anxiety, generalized anxiety disorder, and depression risk, in comparison to men. In the literature, anxiety disorders and depression are reported to be higher in women.[24,25] Female gender is recognized as an important risk factor for anxiety disorders and depression.[14] The physical and mental structure of women, problem solving skills, social place, and social rules make women more susceptible to anxiety and depression.[19] There are many studies reporting the women to men ratio of 2 : 1 in terms of generalized anxiety disorder and depression.[13,19] We can state that although women already carry higher risks of mental disorders before and after COVID-19, they become much more vulnerable and tender during the pandemic.

Marital status did not have a significant effect on pandemic-related anxiety, but single individuals were found to be under higher risk in terms of generalized anxiety disorder and depression. Previous studies and more recent studies in the literature reported that marital status did not affect anxiety and depression levels.[24] In recent years, living alone has become more prevalent in Turkey as well as all over the world, and Özdemir and Tatar (2019) pointed out that loneliness is directly related to anxiety and depression.[26] Individuals who are locked in their homes due to the pandemic feel the loneliness more deeply, which consequently predisposes them to anxiety and depression.

The family type variable was found to be effective on pandemic-related anxiety, and individuals living in extended families suffered pandemic-related anxiety more. These days, because it is necessary to be physically isolated, individuals try to remain healthy by staying physically away from others as much as possible. Therefore, the result is not surprising, given that there are more individuals in an extended family, and more unavoidable physical contacts. The presence of elderly people living in the extended family may additionally worry the individuals about getting infected, due to the risk of transmitting the disease to the elderly at home. This situation causes an additional burden of responsibility, remorse, and anxiety. This topic may guide future studies on pandemic anxiety.

Studies on the effects of media on societies and individuals reveal its explicit impact on mental health. For example, Andreassen et al. (2016) and Demirci (2019) determined the association between social media addiction and mental health variables such as depression, anxiety, attention deficit disorder, hyperactivity disorder, and obsessive-compulsive disorder,[25,27] while Genis (2018) found that social media was correlated with depression.[28] It was also found in this present study that the individuals frequently following COVID-19-related news in the media experienced higher levels of pandemic-related anxiety, generalized anxiety, and depression, in line with the literature. Today, as the information is quite abundant and easily accessible, there is, of course, misinformation and disinformation as well as genuine information in media channels. Frequent news about the disease spreading and the death tolls increasing continuously, and the individuals focusing on this news all day, result in decreasing hopes for the future and increasing risks of pandemic-related anxiety, generalized anxiety, and depression.

CONCLUSION

According to the research findings, the following results were concluded and various suggestions are made. The mean scores of the sample were below the cut-off scores in the UPA scale, the GAD-7 scale, and the BDI-PC scale. On the other hand, 34% of the sample were under risk for pandemic anxiety, 25.7% for generalized anxiety disorder, and 30.9% for depression.

The women in the sample displayed higher scores than men, in terms of pandemic anxiety, generalized anxiety disorder, and depression. Single individuals had higher

scores than married individuals in terms of anxiety disorder and depression scores, whereas pandemic anxiety remained unaffected by marital status. Although the pandemic anxiety scores of individuals with extended families were higher than those with nuclear families, the family type variable did not have a significant effect in terms of generalized anxiety disorder and depression variables. As the time spent in following the developments about COVID-19 from the media increased, the prevalence of pandemic anxiety, generalized anxiety disorder, and depression also increased.

Based on these results, and considering that the rates of generalized anxiety and depression are already high in the society, it is recommended to take necessary precautions during epidemic diseases such as the COVID-19 pandemic, which is affecting human life in many respects. It is therefore recommended that measures are taken to prevent mental stress, just like the measures taken to prevent the physical transmission of COVID-19. As another outcome of this study, women were found to be more vulnerable than men in terms of pandemic-related anxiety, anxiety, and depression. Therefore, it is recommended that special attention is paid to women in prevention and monitoring studies regarding anxiety and depression. In addition, another significant result was that close follow-up of the COVID-19 related news in the media would result in negative consequences in terms of mental health. Therefore, it is recommended that the effects of the media on mental health issues in crisis situations like this are examined, and the effects of the way the media handles health-related news are assessed.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Artvin Çoruh University, (Approval No: 2020/5; Date: April 15, 2020).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Peer Review: Externally peer-reviewed.

Author Contributions: Concept - M.F., Y.K., M.U.; Design - M.F., A.O., Y.K.; Supervision - M.F., A.O., Y.K., B.D.G.; Funding - M.F., Y.K., M.U., B.D.G., Materials - M.F., Y.K., M.U., B.D.G.; Data collection and Processing - M.F., Y.K., M.U., B.D.G.; Analysis and Interpretation - M.F., Y.K.; Litarature Review - M.F., A.O., Y.K., B.D.G.; Writting - M.F., A.O., Y.K., B.D.G.; Critical Review - M.F., A.O., Y.K., B.D.G.

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Conflict of Interest: The authors have no conflict of interest to declare.

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