

The impact of the COVID-19 pandemic on patients with tension-type headache: A multicenter survey

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Abstract

Background & Objective: Tension-type headache (TTH) is the most common primary headache. TTH worsens quality of life and is related to various psychosocial factors. We aimed to examine the severity of headache (intensity, frequency, and duration), analgesic use, quality of life (QoL), and the impact of COVID pandemic-induced stress in TTH patients. **Methods:** TTH cases seen at neurology outpatient clinics in 15 centers in Turkey were included in the study. A questionnaire incorporating sociodemographic and medical information, headache features, sleep quality, general quality of life, and impact of the pandemic event was administered to the subjects. **Results:** A total of 975 TTH patients were evaluated. Headache severity was higher in women as well as in patients with a history of COVID-19 contact. Women, those with chronic diseases, and cases with a COVID-19 contact history had worse perceptions of quality of life and were affected to a greater extent by the pandemic. The factors affecting the impact of the pandemic were female gender and difficulty in access to health services for headache. Co-existing chronic diseases and lost productive time due to headaches were negative determinants for both QoL and the impact of the pandemic.

Conclusion: Our results show that the COVID pandemic severely worsened the headache burden, quality of life and mental health of TTH patients. These findings can guide us in the clinical approach to TTH cases.

Keywords: Tension-type headache, COVID-19, Pandemic, Quality of life.

INTRODUCTION

Headache is one of the leading causes of chronic pain.¹ Tension-type headache (TTH) is the most common primary headache. Although its pathophysiology remains unclear, peripheral

and central mechanisms are considered to play a role. Due to its high incidence, TTH results in severe socioeconomic burden.² Moreover, TTH reduces the quality of life (QoL) of sufferers and is related to various psychosocial factors.³ It has

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been suggested that conditions such as stress, anxiety, fatigue, and sleep disturbance are risk factors for TTH.^{4,5}

Recently, the COVID-19 pandemic has become one of the most dominant stressors worldwide. Many negative factors such as changes in daily routine, limitations in physical activity, social isolation, fear of infection and/or death of loved ones, socioeconomic losses, and difficulty in access to healthcare services have become a part of daily life.⁶ Studies have reported that the COVID-19 pandemic adversely impacts the QoL of society and diminishes the general sense of satisfaction with health.⁷⁻⁹

Therefore, the pandemic may negatively affect both the headache severity and the QoL of individuals with TTH. However, there are no detailed studies regarding this subject.

The present study aimed to examine the severity (intensity, frequency, duration) and analgesic use of TTH in patients during the pandemic period, Pandemic-related QoL, and the impact of the pandemic event on standardized scores were also measured.

METHODS

The study included patients diagnosed with tension-type headache according to the diagnostic criteria of the International Classification of Headache Disorders-III (ICHD-III)¹⁰, who were examined at the neurology outpatient clinics of 15 centers in Turkey between 12 July - 1 October 2021.

The sociodemographic and medical information of the patients, COVID-19 contact history, living conditions at home and work during the pandemic, headache severity (i.e., duration, intensity, frequency), analgesic use and lost productive time due to headache, access to health services for headaches, comorbid disease (such as hypertension, coronary artery disease, diabetes mellitus, pulmonary disease, cancer, chronic kidney disease, hypothyroidism), sleep patterns, COVID-19 vaccination status, and any change in headache severity after vaccination were recorded through a questionnaire. Demographic and clinical data were recorded by the physician, while other questions were answered on computer-based forms by the patients in the outpatient clinic.

Any changes during the pandemic were recorded on the questionnaire as 'increased,' 'decreased,' or 'unchanged.' Patients who reported sleep disturbance during the pandemic were asked to characterize their problems as trouble falling

asleep, frequent awakenings, restless legs at night, inability to wake up in the morning, or falling asleep during the day.

A history of COVID-19 contact was defined as confirmation of COVID-19 infection or close contact following the World Health Organization (WHO) definition (spending 15 minutes or more within 2 meters of an infected individual)¹¹ while not wearing a mask.

Lost productive time related to headaches was defined as being unable to work due to headache and/or decreased productivity in daily life, including housework.

The COVID-19 pandemic has created severe public problems, disrupting health services in many areas. As in the whole world, the follow-up and treatment process of diseases other than COVID-19 have also been interrupted in our country. Difficulty in accessing health services causes uncertainty, an additional stress factor, especially in individuals with chronic diseases. Therefore, difficulty in accessing health services was also investigated in our study.

Instruments of measurement

WHOQOL-BREF Global Items (WHOQOL-BREF-GI): The first two questions of the Brief Version of The World Health Organization's QoL Questionnaire (WHOQOL-BREF) assessing general health status were included in our questionnaire. The first question evaluates the global QoL, and the second question global health.¹² Eser *et al.* have established the validity and reliability study of the Turkish version of the questionnaire.¹³ These questions are scored on a 5-point Likert scale (1-Worst, 5-Best). In this subscale assessing the general health status, the minimum score is 2, indicating the lowest QoL, and the maximum score is 10, indicating the highest QoL.

Impact of Event Scale-Revised: IES-R-(1st-4th-8th Items): The 1st, 4th, and 8th questions of the Impact of Event Scale-Revised (IES-R) were used to evaluate the impact of the pandemic.¹⁴ IES-R assesses 'intrusion' with questions 1, 2, 3, 6, 9, 14, 16, 20, 'avoidance' with questions 5, 7, 8, 11, 12, 13, 17, 22, and 'hyperarousal' with questions 4, 10, 15, 18, 19, 21. *Post-traumatic stress* disorder is assessed taking into account these three domains (intrusion, avoidance and hyperarousal) of the scale.¹⁴ It would not have been practical in an outpatient clinic setting to require study participants to answer all the

22 questions of the IES-R, so, considering the intraclass correlation coefficients (ICC) in the Revised Turkish form of Impact of Event Scale, one question was chosen to assess the intrusion, hyperarousal and avoidance domains. The intraclass correlation coefficients in the Turkish validation study of Çorapçioğlu *et al.* were as follows: for the 1st question (intrusion) ICC 0.64, for the 4th question (hyperarousal) ICC 0.69, and for the 8th question (avoidance) ICC 0.57.¹⁵ Additionally, we felt that these questions might be assessed more easily and comprehensively by study participants in relation with the pandemic-related stress disorder. These questions are scored on a 5-point Likert scale (0-Not at all affected, 4-Very affected). Vanaken *et al.* have performed a validity and reliability analysis of the IES-R to assess posttraumatic stress due to COVID-19.¹⁶ In scoring the three questions from this scale, 0 indicates the lowest possible posttraumatic stress, and 12, the highest.

Approval for the study was obtained from the local ethics committee and the Ministry of Health. The study was performed per the Principles of the Declaration of Helsinki.

Statistical analysis

The IBM SPSS Statistics 16.0 program was used in the analysis. Mean and standard deviation values were used for quantitative data, while number and percentage values were used for qualitative data. The normality of the data distribution was evaluated with the Kolmogorov-Smirnov test. The Mann Whitney U test was used to compare differences in gender, presence of chronic disease, and history of COVID-19 contact. One-way ANOVA and Tukey tests were used to compare WHOQOL-Bref-(GI) scores and IES-R-(1st-4th-8th items) scores with other parameters with more than two categories (headache severity, analgesic use, access to healthcare services, and gender (this is only 2 categories, not more than 2) changing during the pandemic). Two-way ANOVA and Tukey tests were used to evaluate the effects of two factors on WHOQOL-Bref-(GI) scores and IES-R-(1st-4th-8th items) scores. Pearson correlation analysis was performed to determine the correlation between age and WHOQOL-Bref-(GI) and IES-R-(1st-4th-8th items) scores. The factors affecting the WHOQOL-Bref-(GI) and IES-R-(1st-4th-8th items) scores were evaluated by multiple regression analysis. A p-value of <0.05 was considered statistically significant.

RESULTS

Sociodemographic and medical characteristics (Table 1)

A total of 975 patients aged 17-88 years (mean 40±13), 662 of whom were women, were included in this study. The mean age was 41±13 years for women and 40±14 years for men. The mean disease duration of TTH was 5.6±3 years. The sociodemographic and medical data of the participants are summarized in Table 1.

In the pandemic period, the intensity, frequency, and duration of the headache increased in 60%, 55%, and 48% of the patients respectively (Table 2). All of these indicators of headache severity were higher in women than in men (p<0.0001, p=0.001, p=0.002 respectively) (Table 3).

Men and women were similar in the frequency of analgesic use, and 48% of the patients used more analgesics during the pandemic (Tables 2 and 3).

Lost productive time due to the headache increased in 43% of the patients during the pandemic (Table 2). There was no difference between men and women in this respect (p=0.052).

Headache intensity, frequency, duration, and lost productive time due to headache were higher in those with a history of contact with COVID-19 than in those without such contact (p=0.02, p=0.01, p=0.01, and p=0.01, respectively).

While 40% of the participants had difficulty accessing health services (Table 2), access was not affected by gender or the presence of a history of contact with COVID-19 (p=0.41, p=0.27, respectively).

Sleep quality of TTH patients during the pandemic

28% of women and 22% of men reported sleep disturbance before the pandemic, while 53% of women and 42% of men (50% in total) rated their sleep quality as “deteriorated” during the pandemic. Reported sleep disturbances were significantly higher in women (p=0.002). There was no statistically significant difference in sleep quality between those with and without a history of COVID-19 contact (p=0.057). Of those who reported sleep disturbance, 40% stated that they had trouble falling asleep, 13% woke up frequently at night, 3% stated that the symptoms of restless legs increased, 32% could not wake up in the morning, and 12% fell asleep during the day.

Table 1: Sociodemographic and medical characteristics of the participants

<i>Sociodemographic and Medical Characteristics (%)</i>					
Gender	Male			Female	
	32%			68%	
Marital status	Married			Single	
	70%			30%	
Educational status	No	Primary school	Middle school	High school	University
	2%	15%	8%	18%	57%
Chronic disease	No			Yes	
	65%			35%	
COVID-19 contact history	No			Yes	
	41%			59%	
Lifestyle at home during the pandemic	Living alone			Not living alone	
	8%			92%	
Type of work during the pandemic	Unemployed	Employee going to work		Employee working at home	
	46%	39%		15%	

Comparison of the cases with and without chronic diseases during the pandemic (Table 4)

While 68% of the patients did not have any chronic disease, 8% had diabetes mellitus, 13% had hypertension, 4% had hypothyroidism, 3% had chronic obstructive pulmonary disease, 3% had coronary artery disease, and 1% had cancer. When those with and without chronic diseases were compared, the severity of headache in the pandemic period, analgesic use, lost productive time due to headache, sleep disturbance, and post-vaccination headache severity was similar in both groups. However, patients with chronic

diseases experienced significantly more difficulty accessing health services for their headaches ($p=0.004$) (Table 4).

Headache status post-vaccination (Table 5)

80% of respondents reported having at least one dose of the COVID-19 vaccine. 81% of those vaccinated reported no changes in headache severity (Table 5). There was no statistically significant difference between men and women regarding post-vaccination changes in headache severity ($p=0.54$).

75% of those with a history of COVID-19

Table 2: Change in headache and some sociodemographic parameters during the pandemic (%)

During pandemic	Did not change	Increased	Decreased
<i>Headache intensity</i>	37%	60%	3%
<i>Headache duration</i>	50%	48%	2%
<i>Headache frequency</i>	42%	55%	3%
<i>Lost productive time due to headache</i>	53%	43%	4%
<i>Analgesic use</i>	34%	48%	3%
<i>Economic status</i>	53%	4%	43%
<i>Easy access to healthcare</i>	Yes	No	Not needed
	23%	40%	37%

Table 3: Influence of gender

	Female (n=662)	Male (n=313)	p
Headache duration (years)	6±3	5±3	0.04*
Presence of chronic disease	40%	26%	0.0001*
COVID-19 contact history	60%	57%	0.46
During pandemic			
Type of work			
Unemployed	53%	31%	0.0001*
Going to work	32%	53%	
Working at home	15%	16%	
Lost productive time due to headache			
Did not change	50%	57%	0.052
Increased	45%	39%	
Decreased	5%	4%	
Headache intensity			
Did not change	33%	47%	<0.0001*
Increased	65%	50%	
Decreased	2%	3%	
Headache frequency			
Did not change	38%	49%	0.002*
Increased	58%	48%	
Decreased	4%	3%	
Headache duration			
Did not change	46%	58%	0.001*
Increased	51%	40%	
Decreased	3%	2%	
Analgesic use			
Did not change	33%	36%	0.56
Increased	51%	43%	
Decreased	4%	2%	
Not using	12%	19%	
Easy access to health care for headache			
Yes	22%	26%	0.41
No	43%	33%	
Not needed	35%	41%	
Sleep disturbance	53%	42%	0.002*
WHOQOL-Bref-(GI) total score			
-G-QoL (mean ± SD)	4.8 ±1.6	5.1±1.8	0.009*
-G-Health (mean ± SD)	2.3±0.8	2.4±0.9	0.07*
	2.4±1	2.6±1	0.01*
IES-R-(1st-4th-8th items) total score			
- 1 st item (mean ± SD)	9.9±2.9	9.1±2.6	0.0001*
- 4 th item (mean ± SD)	3.3±1	3±1	<0.0001*
- 8 th item (mean ± SD)	3.3±1	3±1	0.002*
	3.3±1	3.1±1	0.02*

n: number SD: standard deviation WHOQOL-Bref-(GI): WHOOL-BREF global index, G-QoL: Global quality of life: How would you rate your quality of life in the COVID-19 lockdown? G-Health (Global health): How satisfied are you with your health in the COVID-19 lockdown?

IES-R: Impact of event scale-revised 1st item: Any reminder brought back feelings about COVID-19, 4th item: I felt irritable and angry in COVID-19 lockdown, 8th item: I stayed away from reminders about COVID-19. *p<0.05

contact (n=574) and 88% of those without a history of contact (n=401) were vaccinated. There was no significant difference in the development of headache after vaccination between those with and without contact history ($p=0.34$).

Quality of life and impact of events

The WHOQOL-Bref-(GI) score for women was 4.8 ± 1.6 , and 5.1 ± 1.8 for men ($p=0.009$). WHOQOL-Bref-(global health) scores were significantly lower in women, those with chronic diseases, and those with a history of COVID-19 contact ($p=0.01$, $p=0.0001$, $p=0.007$, respectively).

IES-R total scores were higher in women and in those with chronic diseases (Tables 3, 4). Respondents with a history of contact with COVID-19 had a higher IES-R 4th item (hyperarousal) score ($p=0.01$) and 8th item (avoidance) score ($p=0.03$) than those who did not. However, there was no difference between the two groups in the IES-R 1st item (intrusion) score ($p=0.22$).

During the pandemic, the WHOQOL-Bref-(GI) score was 4.4 ± 1.5 for those whose analgesic use increased, 5.2 ± 1.6 for those whose use of analgesics did not change, 5.7 ± 1.8 for those in whom analgesic scores decreased, and 5.4 ± 1.6 for those who did not use analgesics. Those with increased use of analgesics had significantly lower WHOQOL-Bref-(GI) scores ($F=22.6$, (3,920), $p<0.0001$).

The IES-R total score was 10.0 ± 2.8 in those with increased analgesic use, 9.3 ± 2.7 in those with decreased analgesic use, 9.5 ± 2.7 in those whose analgesic use did not change, and 9.0 ± 3.0 in those who did not use analgesics. The scores of the group with increased analgesic use were significantly higher than those who did not use analgesics ($F=4.9$, (3,929) $p=0.002$). The joint effect of gender and access to health services on the WHOQOL-Bref-(GI) score was significant ($F=5.39$ $p=0.005$ $R^2=0.168$). The joint effect of gender and access to health services on the total score of IES-R was not statistically significant ($F=2.08$ $p=0.12$ $R^2=0.069$).

When the correlation table (Table 6) was examined, the quality of life of the elderly people was determined to be negatively affected. While there was a negative correlation between age with the 1st and 4th items of IES-R, a positive correlation was observed with the 8th item. The finding suggests that older individuals give more importance to avoidance without feeling anger, resentment, and constant recollection of COVID-19. A significant negative correlation was

found between total and subgroups of quality of life scores and IES-R total and subdomain scores. On the other hand, no significant correlation was found between IES-R total score and age.

In multiple regression analysis, the factors affecting the WHOQOL-Bref-(GI) score were a history of COVID-19 contact, the presence of chronic disease, and lost productive time due to headache in the pandemic. The factors impacting the IES-R total score were gender, presence of chronic diseases, easy access to a health institution, and lost productive time due to the headache during the pandemic (Tables 7 and 8).

DISCUSSION

Our study reveals that at least one of the parameters of headache severity was impaired in more than half of the people with TTH during the pandemic. Although an increase in pain intensity was reported most frequently, half of the patients also experienced an increase in the frequency and duration of the attacks. Additionally, the use of analgesics and lost productive time due to the headache were also significantly increased in approximately half of the respondents during this period, regardless of gender.

Conditions such as stress, anxiety, fatigue, and sleep disturbance are known risk factors for TTH.⁴ The COVID-19 pandemic has adversely affected people's living conditions and psychological state. The pandemic has been shown to lead to the deterioration of the QoL in chronic neurological diseases and to cause posttraumatic stress in another Turkish study.¹⁷ To the best of our knowledge, there is no published study investigating the effect of the pandemic in TTH patients. However, a study investigating the pandemic effect in migraine patients reported that the frequency of migraine attacks increased in 59.6% of the patients compared to the pre-pandemic period, and 10.3% of them progressed into chronic migraine.¹⁸

In our study population, the increase in the intensity, frequency, and duration of the headache was significantly higher in women during the pandemic period. This may be due to the greater effect of the pandemic on women, particularly with respect to social isolation. In terms of QoL, the fact that women were less satisfied with their health and more affected by events can be attributed to similar reasons. It is possible that the uncertainty and anxiety associated with the pandemic affected women to a greater extent. A study examining the clinical and psychological variables associated with headache in TTH concluded that women

Table 4: Influence of chronic diseases during the pandemic period

During pandemic	With Chronic Disease (n=345)	Without Chronic Disease (n=630)	P
<i>Lost productive time due to headache</i>			
Did not change	54%	52%	0.64
Increased	42%	44%	
Decreased	4%	4%	
<i>Headache intensity</i>			
Did not change	36%	38%	0.63
Increased	61%	60%	
Decreased	3%	2%	
<i>Headache frequency</i>			
Did not change	40%	42%	0.53
Increased	56%	54%	
Decreased	4%	4%	
<i>Headache duration</i>			
Did not change	51%	49%	0.68
Increased	46%	49%	
Decreased	3%	2%	
<i>Analgesic use</i>			
Did not change	36%	33%	0.11
Increased	49%	48%	
Decreased	4%	3%	
Not using	11%	16%	
<i>Easy access to health care for headache</i>			
Yes	24%	23%	0.004*
No	47%	36%	
Not needed	29%	41%	
<i>Sleep disturbance</i>	53%	48%	0.16
<i>WHOQOL-Bref-(GI) total score</i>			
	5.1±1.6	4.5±1.6	0.0001*
-G-QoL (mean ± SD)	2.2±0.8	2.3 ±0.9	0.03*
-G-Health (mean ± SD)	2.3±0.9	2.6 ±1	0.0001*
<i>IES-R-(1st-4th-8th items) total score</i>			
	9.4±1.8	10.1±2.9	0.001*
- 1 st item (mean ± SD)	3.3±1	3.1±1	0.04*
- 4 th item (mean ± SD)	3.3±1	3±1	0.003*
- 8 th item (mean ± SD)	3.4±1	3.1±1	0.001*

n: number SD: standard deviation WHOQOL-Bref-(GI): WHOOL-BREF global index, G-QoL: Global quality of life: How would you rate your quality of life in the COVID-19 lockdown? G-Health (Global health): How satisfied are you with your health in the COVID-19 lockdown?

IES-R: Impact of event scale-revised 1st item: Any reminder brought back feelings about COVID-19, 4th item: I felt irritable and angry in COVID-19 lockdown, 8th item: I stayed away from reminders about COVID-19.*p<0.05

Table 5: Headache features following vaccination (%)

After Vaccination	Did not change	Increased	Decreased
<i>Headache intensity</i>	73%	23%	4%
<i>Headache duration</i>	81%	16%	3%
<i>Headache frequency</i>	76%	20%	4%

Table 6: Correlation between age, IES-R, and WHOQOL-Bref scores

		<i>Age</i>	<i>GI</i>	<i>G-QoL</i>	<i>G-Health</i>	<i>IES-R</i>	<i>1st item</i>	<i>4th item</i>	<i>8th item</i>
<i>Age</i>	r	1							
<i>GI</i>	r	-0.066*	1						
<i>G-QoL</i>	r	-0.03	0.840*	1					
<i>G-Health</i>	r	-0.073*	0.883*	0.488*	1				
<i>IES-R</i>	r	0.03	-0.367*	-0.363*	-0.274*	1			
<i>1st item</i>	r	-0.068*	-0.251*	-0.265*	-0.174*	0.827*	1		
<i>4th item</i>	r	-0.071*	-0.451*	-0.415*	-0.362*	0.777*	0.502*	1	
<i>8th item</i>	r	0.127*	-0.188*	-0.197*	-0.135*	0.792*	0.493*	0.376*	1

GI: WHOQOL-Bref global index, G-QoL: Global quality of life: How would you rate your quality of life in the COVID-19 lockdown? G-Health (Global health): How satisfied are you with your health in the COVID-19 lockdown? IES-R: Impact of event scale-revised *1st item*: Any reminder brought back feelings about COVID-19, *4th item*: I felt irritable and angry in COVID-19 lockdown, *8th item*: I stayed away from reminders about COVID-19.*p<0.05

were especially affected by emotional factors.¹⁹ Many studies have demonstrated that the pandemic has a negative impact on quality of life.^{7,20-24} This negative influence during the pandemic might be due to various factors. The economic problems caused by the COVID-19 pandemic worldwide²⁵, the anxiety associated with economic losses, as well as other fears can disrupt the perception of QoL. The measures taken to prevent the spread of the COVID-19 infection have led to a decrease in the activities of the service sector. Accordingly, unemployment rates have increased. In our study group, 53% of women and 31% of men stated that they were unemployed, which may be a factor in the negative perception of QoL. On the other hand, TTH itself

can adversely impact the perception of QoL.²⁶ The increase in headache severity and frequency of our participants during the pandemic may also have played a role in this perception.

Studies have suggested that difficulty in accessing health services during the pandemic may also affect the QoL.^{24,27} A study evaluating the hospital admissions due to headaches during the pandemic determined that hospital admissions decreased by 60% for acute headache, 68% for migraine, and 54% for cluster headache.²⁸ In our study group, the low perception of QoL in those who could not easily access health services for headaches may be related to the fact that they could not obtain the treatment they needed. Chronic diseases are known to worsen the QoL

Table 7: Summary of regression analysis for variables predicting quality of life general health score

	B	SD	β
WHOQOL-Bref-(GI)			
<i>Total score</i>	6.21	0.44	
Gender	0.12	0.11	0.03
COVID-19 contact history	0.27	0.10	0.08*
Chronic disease	-0.50	0.11	-0.14*
Applying to a health institution	0.11	0.07	0.052
Lost productive time due to headache during the pandemic	-0.39	0.10	-0.13*
Headache intensity during the pandemic	-0.26	0.13	0.082
Headache frequency during the pandemic	-0.11	0.13	-0.039
Headache duration during the pandemic	-0.18	0.13	-0.061
Analgesic use during the pandemic	0.035	0.05	0.02

WHOQOL-Bref-(GI): WHOOL-BREF global index Dependent variable: WHOQOL-Bref-(GI) R²=0.11 *p<0.05

Table 8: Summary of regression analysis for variables predicting the effect of events stress score

	B	SD	β
IES-R-(1st-4th-8th items) total score	8.44	0.77	
Gender	-0.60	0.20	-0.09*
COVID-19 contact history	0.038	0.18	0.007
Chronic disease	0.51	0.19	0.08*
Applying to a health institution	-0.27	0.12	-0.07*
Lost productive time due to headache during the pandemic	0.70	0.18	0.14*
Headache intensity during the pandemic	0.33	0.23	0.06
Headache frequency during the pandemic	-0.09	0.23	-0.018
Headache duration during the pandemic	0.34	0.23	0.06
Analgesic use during the pandemic	-0.047	0.09	-0.01

Dependent variable: IES-R-(1st-4th-8th items) R²=0.08 IES-R-(1st-4th-8th items): Impact of event scale-revised 1st-4th-8th items *p<0.05

as well.²⁹ Low scores in QoL perception in those with chronic diseases may be due to patient anxiety regarding co-existing diseases and increased difficulty accessing health services.

Half of our study population reported that their sleep became disturbed during the pandemic. The prevalence of sleep disturbance in the general population was found to be 18.2% during the pandemic.³⁰ A study including migraine patients reported that sleep disturbance developed in 78.1% of the patients during the pandemic.¹⁸ Sleep disturbance is among the known triggering factors of TTH³¹ and negatively affects the QoL.³² Therefore, sleep disturbance, deterioration in the perception of QoL, and increased headache during the pandemic period may have interacted so as to increase the impact of individual factors. Correction of at least one of these factors may lead to an improvement in the others.

Our study revealed that the intensity of headache and lost productivity due to headache were significantly higher in those with a history of COVID-19 contact. In this group, the perception of QoL was worse, and the impact of COVID-19 infection was higher. These findings may be related to the fear of getting infected, stigmatization, the fear of infecting loved ones, and the fear of death.³³ The fact that these respondents were placed under quarantine may also have caused additional psychological burdens.⁸

More than two-thirds of our study group had been vaccinated at least once. 81% of those vaccinated reported no change in the severity of their TTH post-vaccination. These results suggest that vaccination against COVID-19 did not result

in a noticeable difference in TTH severity.

Our study has some limitations. One of them was that we did not use the entire WHOQOL-Bref and Impact of Events scale to facilitate the administration of the questionnaire. Besides, the lack of a depression and anxiety scale and a scale to evaluate sleep quality in more detail were the other limitations. The strength of our study was that it included a large number of people in different age groups living in different regions of Turkey.

Our study results conclude that the ongoing pandemic situation severely affected the TTH patients. The risks of TTH becoming chronic, medication overuse, and lost productive time may therefore increase as the pandemic persists. More extensive studies are required to clarify the changing characteristics of attacks and their interrelationships.

DISCLOSURE

Conflict of interest: None

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