

ORIGINAL ARTICLE

Impact of COVID-19 Pandemic on Patients with Tension-Type Headache

Bastawy M. Al Fawal¹, Eman M. Khedr², Nourelhoda A. Haridy², Abdelrahman S. Elsoghier^{1*}, Mohamed Nemr Othman¹, Ahmed Abdelwarith¹

¹Department of Neurology and Psychiatry, Faculty of Medicine, Aswan University

²Department of Neurology and Psychiatry, Faculty of Medicine, Assiut University

ABSTRACT

Keywords: Acute kidney injury, Cirrhosis and Hepatorenal syndrome.

***Corresponding author: Abdelrahman S. Elsoghier**

Email:
egyabdelrahmansalah@gmail.com
Tel: : 01129469496

Background: Headaches were overlooked in treatment during the coronavirus "COVID-19" pandemic. This study aimed to assess the impact of COVID-19 on patients with tension headache (TH) and identify predictors of headache worsening. **Methods:** This cross-sectional study compared TH patients (PwTH) (n=157) to controls without TH (PwoTH) (n=151) during the pandemic. Sociodemographic, clinical, COVID-19-related, depression, and anxiety data were contrasted between groups pre-pandemic and during-pandemic. PwTH was categorized into worsening (WPwTH) and non-worsening (NWPwTH) groups to identify worsening predictors. **Results:** 66.2% of PwTH were females versus 49.7% of PwoTH (p=0.004). Both groups exhibited significantly increased depression and anxiety levels during versus pre-pandemic, with no intergroup differences. Of 157 PwTH, 125 (79.6%) had WPwTH versus 32 (20.4%) had NWPwTH during pandemic. WPwTH had significantly increased headache frequency versus NWPwTH during the pandemic (P=0.001). Both subgroups had increased anxiety and depression, but WPwTH had significantly higher increase in anxiety (P=0.03). Regression analysis revealed that family COVID-19 exposure, healthcare visits, and increased anxiety significantly predicted TTH worsening. **Conclusions:** This study revealed that a substantial percentage of TTH patients worsened during the COVID-19 pandemic. Family COVID-19 exposure, healthcare visits, and increased anxiety predicted worsening TTH. Managing these factors during stress may avoid TTH worsening.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has spread globally after first emerging in Wuhan, China, in December 2019. By December 2020, over 79 million cases and 1.7 million deaths were reported worldwide, prompting the WHO to declare a pandemic in March 2020 (1). This public health crisis has overwhelmed healthcare systems, posing challenges for neurologists to provide quality care for chronic neurological conditions like tension-type headaches (TTH). They likely experience psychological distress that could worsen patient outcomes (2-4).

As the most prevalent primary headache disorder globally, TH affects approximately 20 percent of the world's population (5). It is also the most common pediatric headache (6) and more prevalent

among women (5). TTH episodes range from 30 minutes to 7 days, with a bilateral, band-like quality and mild to moderate intensity unaffected by minor physical activity (7). TTH occurs repetitively and is categorized as frequent episodic, infrequent episodic, or chronic, depending on attack frequency (7). Contributing factors involve nutritional, muscular, environmental, and genetic influences, though pathogenesis remains unclear (6, 8, 9).

As a highly disabling neurological condition, TTH patients are vulnerable to pandemic-related lifestyle changes like psychosocial stress, isolation, and sleep/diet disruption that could exacerbate headaches. Mobility restrictions and home confinement enacted due to rising COVID-19 cases further alter everyday routines (10), which resulted in a negative impact on the worsening of headaches. This study intended to assess the impact of COVID-19 on tension headache patients and identify predictors of headache worsening.

SUBJECT AND METHODS

Study setting, duration, and population: The Neurology department, Faculty of Medicine, Aswan University in Egypt, accomplished the study from June 2021 to June 2022. Patients eligible for the study were recruited from the neuropsychiatric clinic at Aswan University Hospital.

This study included two groups: a) Patients with tension headache according to ICHD-3 and b) Age and sex-matched healthy volunteers served as controls".

The Inclusion criteria were: 1) Age of 18 or older, 2) Both sexes. The exclusion criteria were: 1) Age below 18 years. 2) Patient with a history of cerebrovascular stroke, TIA, or addiction; 3) Severe medical illness and inability to respond to questionnaires. 4) Patient with other primary headache as migraine or cluster headache.

Methods:

All participants answered questionnaires related to sociodemographics, COVID-19-related questionnaires, and psychological scales (Hamilton Depression and Anxiety Scales, Arabic version) (HAM-D, HAM-A). Additionally, the patients with TTH were classified into worsening (WpwTH) and non-worsening groups (NWpwTH) depending on the headache frequency, which means any rise in the attack frequency during the pandemic compared to before it. Depression and anxiety were also assessed before and during the COVID-19 pandemic.

Hamilton Depression Scale (HAM-D)(11) is a 17-item scale designed to diagnose depression and estimate its severity. The degree of depression severity is extracted according to the following criteria: (0 to 7 no depression), (8 to 13 mild depression), (14 to 18 moderate depression), (19 to 22 severe depression), (23 and above very severe depression). Arabic version is used, as it was reliable and valid (12).

Hamilton Anxiety Scale (HAM-A) (13) is a 14-item scale designed to measure the severity of psychological and physical symptoms of anxiety. Arabic version is used, as it was reliable and valid (14).

Ethical consideration: The approval of the local ethical committee of Aswan University ethical committee was recorded, the Institutional Review Board (IRB) was obtained with ID: 547/7/21, written informed consent from patients or their close relatives was accepted, and the confidentiality of patients was guaranteed. Registry at clinical trials.gov ID: NCT05205590.

Statistical analysis:

Data were processed using IBM SPSS Statistics (Version 26). Data was tested for normality using Shapiro-Wilk. Frequency and percentage analysis were used for qualitative data and the median for quantitative data because the data were non-normally distributed. The chi-square test was used to compare categorical data, and a Mann-Whitney U test compared mean values between groups. Before and after COVID-19 measurements in the same group were compared using the Wilcoxon signed-rank test. Group-time interactions were determined using repeated measure analysis. P-values under 0.05 were statistically significant.

RESULTS

Table 1 shows the sociodemographic characteristics of the patients with tension headache (PwTH) and those without tension headache (PwoTH). There were significant differences between the groups in gender distribution (more females in the PwTH group) but not in other sociodemographics like age, marital status, and occupation.

Table 2 illustrates the COVID-19-related characteristics of the studied groups. There were no significant differences between the two groups regarding COVID-19 infection, symptoms, infected family members, symptomatic family members, and health center attendance.

Table 3 shows the psychological profile (depression and anxiety scores on the Hamilton scales) of the PwTH and PwoTH groups before and during COVID-19. Both groups had significantly higher depression and anxiety scores during COVID-19 compared to before. A significant time x group interaction effect showed different change trends over time between the groups.

Table 4 shows the sociodemographic and headache-related characteristics between PwTH with worsening (WPwTH) and non-worsening (NWPwTH) headache during the COVID-19 pandemic. There were no significant sociodemographic differences between the worsening and non-worsening groups. Regarding headache-related characteristics, there was no significant difference in the duration of years between the groups. Both groups had significantly higher headache frequency during COVID-19 compared to before. However, the WPwTH group had significantly increased headache frequency during COVID-19 compared to the NWPwTH group (Two-way ANOVA repeated measure analysis with the main effect of time , pre and during pandemic "x group interaction "WPwTH and NWPwTH ") with p-value = 0.001.

Table 5 compares the psychological scores of depression and anxiety in the WPwTH and NWPwTH groups. Both groups showed increased depression and anxiety from pre-COVID to during COVID periods. However, there was no significant difference between groups before or during the pandemic. Both groups showed increased depression and anxiety from pre-COVID to during COVID periods. However, there was a higher worsening of anxiety among the worsening group than the non-worsening during the pandemic (Time, pre-, and during a pandemic) X group (WPwTH and NWPwTH) (interaction) P=0.03).

Table 6 shows no significant differences in COVID-19-related characteristics between the WPwTH and NWPwTH groups. Also, there were no significant differences between the WPwTH and NWPwTH groups in health care attendance and confinement issues during COVID-19.

Table 7 shows a multivariable logistic regression analysis evaluating the independent predictors for worsening tension headache. Several predictors were analyzed, including age, sex, COVID-19 infection, COVID-19 symptoms, family member's COVID-19 infection, family member's COVID-19 symptoms, health center/hospital visits, changes in HAM-D scores, and HAM-A scores. The model identified certain COVID-19-related factors independently associated with increased odds of worsening TTH, including family exposure to COVID-19 symptoms, healthcare visits, and increased anxiety, which emerged as significant predictive factors of worsening TH during the COVID-19 pandemic.

DISCUSSION

Our study assesses the impact of the COVID pandemic on patients with TH (PwTH) and healthy controls without TH concerning changes in frequency, severity, adherence to treatment, and difficulty in obtaining medications or neurological consultation. It also investigates the prevalence of psychological effects of the pandemic, namely depression and anxiety, on TH patients and normals, as well as to predict factors related to worsening TH.

The main findings in the present study are: 1- Both TH and normal controls had significantly increased depression and anxiety scores during the pandemic versus pre-pandemic, with no significant differences between groups. 2- A high percentage of patients with TH developed worsening symptoms during the pandemic (79.6%). 3- The WPwTH subgroup had significantly increased headache frequency during COVID-19 compared to the NWPwTH group (Time X Group interaction) ($P=0.001$). 4-Both groups showed increased depression and anxiety from pre-COVID to during COVID periods. However, there was a higher worsening of anxiety among the worsening group than non-worsening during the pandemic. 5-Rregression analysis showed that family exposure to COVID-19 symptoms, healthcare visits, and increased anxiety emerged as significant predictive factors of worsening TTH during the COVID-19 pandemic.

Comparison between tension type headache and normal controls

The present study showed no significant differences between people with and without TH regarding age, marital and occupational state. However, we found that TH was more common in female than male patients. Females represent 66.2% in PwTH. This high prevalence of TTH in females was similar to other studies (17) (18). Regarding the COVID-19-related characteristics of the studied groups, in this research, we found not much of a distinction between the incidence of COVID-19 in patients with tension headache (PwTH) and healthy controls. The prevalence of COVID-19 was 36.3% in PwTH and 36.4% in controls. Respecting the attendance of health center/hospital ER between PwTH (31.8%) and case-control (26.5%), there was no difference. However, (10) reported adverse effects of the COVID-19 pandemic on in-person health care, worries about losing medical professionals, hesitation to visit emergency rooms or urgent care centres, and trouble getting specific prescriptions because of shortages.

In the current study, the psychological profile of these studied groups revealed that there was an increase in the rate of depression and anxiety among both patients with tension headache and controls during the pandemic ($p<0.0001$). A cross-sectional study in Japan carried out by (21) found that increased stress, substantial concern about COVID-19, and negative impacts of the first wave of the COVID-19 pandemic on daily life were reported in 56.8 %, 55.1 and 45.0 % of participants, respectively. Having coronavirus (COVID-19) is a stressful event, mainly staying in the hospital due to it, which can be a very traumatic experience. Also, worry about contracting coronavirus again, having another stay in the hospital, worry about family members and friends falling ill, anxieties about one's own health and recuperation, and tension over missing work and the financial consequences. All these factors predispose to increased anxiety and depression (22, 23).

As regards the headache-related characteristics and psychological profile differences according to disease worsening among the studied groups, for disease duration, in the recent study, there was an increase in anxiety and depression in both groups during the pandemic ($p <0.001$).

According to health care attendance and confinement issues of the patient with tension type, there was no difference in different issues like neurology consultation, strict respect of the confinement, avoidance of going to the emergency room, and a problem with going to the pharmacy or finding drugs at the pharmacy. So, there was a bidirectional correlation between their headache worsening and their going to the hospital as they might go to the hospital due to the severity of the headache or worsening of their headache due to their presence in the locations of the infection that is the source of stress.

Comparison between Worsening and non-worsening tension headache

The current study showed no significant difference among WPwTH and NWPwTH according to age, sex distribution, occupational state, disease duration, and marital state. A web-based survey study was carried out by Al-Hashel and Ismail 2019 (20) to detect the impact of the COVID-19 pandemic on patients with headache; they discovered no significant relationship between worsening of headache frequency and intensity with age, occupation, and marital status. However, there was a significant relationship between increased TH frequency and female gender ($p = 0.004$).

There was no discernible change between WPwTH and NWPwTH in the present study in relation to COVID-19-related characteristics. This finding could be explained by stress related to the COVID-19 pandemic on all patients. Al-Hashel and Ismail 2019 (20) reported that patients with headache are more susceptible to the severe negative effects of the pandemic, such as elevated levels of psychological stress, social isolation, disturbed sleep patterns, and altered eating habits.

Regarding the potential predictors of headache worsening, this study found that familial exposure to COVID-19 Symptoms, attending Health centers/Hospitals, and an increase in HAM-A Scores and HAM-D Scores were associated with the worsening of TTH. Addressing these factors, including infection control and treatment of anxiety and depression, will help in improving the headache.

STUDY STRENGTHS AND LIMITATIONS:

This study's strength was the patient evaluation conducted via in-person hospital interviews. Nevertheless, it had certain constraints, such as a limited sample size.

CONCLUSION:

The COVID-19 pandemic negatively impacted the psychological health of TH patients. Family exposure to COVID-19 symptoms, healthcare visits, and increased anxiety emerged as significant predictive factors of TH during the pandemic. Mitigating these factors during periods of stress and uncertainty to prevent TH worsening.

STATEMENT AND DECLARATIONS:

Declaration of competing interest

All authors disclose no conflict of interest related to this study.

ACKNOWLEDGMENTS

Not applicable

FUNDING:

There was no funding for this study

DATA AVAILABILITY STATEMENT

All data generated or analyzed during this study are available from the corresponding author upon request.

REFERENCES

1. Cascella M, Rajnik M, Aleem A, Dulebohn SC, Di Napoli R. Features, Evaluation, and Treatment of Coronavirus (COVID-19). StatPearls. Treasure Island (FL): StatPearls Publishing Copyright © 2022, StatPearls Publishing LLC.; 2022.
2. Nakamura ZM, Nash RP, Laughon SL, Rosenstein DL. Neuropsychiatric Complications of COVID-19. *Curr Psychiatry Rep.* 2021;23(5):25.
3. Zhang Y, Geng X, Tan Y, Li Q, Xu C, Xu J, et al. New understanding of the damage of SARS-CoV-2 infection outside the respiratory system. *Biomed Pharmacother.* 2020;127:110195.
4. Athamneh M, Sa'di Q, Aldabbour B, Khader Y, Batayha W. Knowledge, attitudes, and impact of COVID-19 pandemic among neurology patients in Jordan: a cross-sectional study. *Egypt J Neurol Psychiatr Neurosurg.* 2021;57(1):104.
5. Chowdhury D. Tension type headache. *Ann Indian Acad Neurol.* 2012;15(Suppl 1):S83-8.
6. Calik M, Aktas MS, Cecen E, Piskin IE, Ayaydin H, Ornek Z, et al. The association between serum vitamin B(12) deficiency and tension-type headache in Turkish children. *Neurol Sci.* 2018;39(6):1009-14.
7. Stephens G, Derry S, Moore RA. Paracetamol (acetaminophen) for acute treatment of episodic tension-type headache in adults. *Cochrane Database Syst Rev.* 2016;2016(6):Cd011889.
8. Kratenová J, Zejglicová K, Malý M, Filipová V. Prevalence and risk factors of poor posture in school children in the Czech Republic. *J Sch Health.* 2007;77(3):131-7.
9. Prakash S, Rathore C, Makwana P, Dave A, Joshi H, Parekh H. Vitamin D Deficiency in Patients With Chronic Tension-Type Headache: A Case-Control Study. *Headache.* 2017;57(7):1096-108.
10. Buse DC, Gerstein MT, Houts CR, McGinley JS, Uzumcu AA, McCarrier KP, et al. Impact of the COVID-19 pandemic on people living with Migraine: Results of the MiCOAS qualitative study. *Headache.* 2022;62(3):284-93.
11. Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry.* 1960;23(1):56-62.
12. Alhadi AN, Alarabi MA, Alshomrani AT, Shuqdar RM, Alsuwaidan MT, McIntyre RS. Arabic Translation, Validation and Cultural Adaptation of the 7-Item Hamilton Depression Rating Scale in Two Community Samples. *Sultan Qaboos University medical journal.* 2018;18(2):e167-e72.
13. Hamilton M. The assessment of anxiety states by rating. *The British journal of medical psychology.* 1959;32(1):50-5.
14. Hallit S, Haddad C, Hallit R, Akel M, Obeid S, Haddad G, et al. Validation of the Hamilton Anxiety Rating Scale and State Trait Anxiety Inventory A and B in Arabic among the Lebanese population. *Clinical Epidemiology and Global Health.* 2020;8(4):1104-9.
15. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges. *Int J Antimicrob Agents.* 2020;55(3):105924.

16. Azim D, Nasim S, Kumar S, Hussain A, Patel S. Neurological Consequences of 2019-nCoV Infection: A Comprehensive Literature Review. *Cureus*. 2020;12(6):e8790.
17. Allais G, Chiarle G, Sinigaglia S, Airola G, Schiapparelli P, Benedetto C. Gender-related differences in Migraine. *Neurol Sci*. 2020;41(Suppl 2):429-36.
18. Lebedeva ER, Kobzeva NR, Gilev DV, Olesen J. Factors Associated with Primary Headache According to Diagnosis, Sex, and Social Group. *Headache*. 2016;56(2):341-56.
19. Ahmad SR, Rosendale N. Sex and Gender Considerations in Episodic Migraine. *Curr Pain Headache Rep*. 2022;26(7):505-16.
20. Al-Hashel JY, Ismail, II. Impact of coronavirus disease 2019 (COVID-19) pandemic on patients with migraine: a web-based survey study. *J Headache Pain*. 2020;21(1):115.
21. Suzuki K, Takeshima T, Igarashi H, Imai N, Danno D, Yamamoto T, et al. Impact of the COVID-19 pandemic on Migraine in Japan: a multicentre cross-sectional study. *J Headache Pain*. 2021;22(1):53.
22. Alkhamees AA, Alrashed SA, Alzunaydi AA, Almohimeed AS, Aljohani MS. The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. *Compr Psychiatry*. 2020;102:152192.
23. Feter N, Caputo EL, Doring IR, Leite JS, Cassuriaga J, Reichert FF, et al. Sharp increase in depression and anxiety among Brazilian adults during the COVID-19 pandemic: findings from the PAMPA cohort. *Public Health*. 2021;190:101-7.

Table 1. Sociodemographic characteristics of patients with tension headache and healthy controls included in the study

	PwTH (n=157)	PwoTH (n= 151)	P-value
Age in years (Mean±SD)	29.95 ± 7.94	29.27 ± 7.41	0.616
Gender M/F	53/104 (33.8%/66.2%)	76/75 (50.3%/49.7%)	0.004
Marital Status			
Single	78 (49.7%)	80 (53%)	0.763
Married	75 (47.8%)	69 (45.7%)	
Divorced	1(0.6%)	1(0.7%)	
Widow	3(1.9%)	1(0.7%)	
Occupation			
Unemployed	91 (58%)	85 (56.3%)	0.818
Employed	66(42%)	66 (43.7%)	

Independent t-test was used to compare differences in means between groups.

The chi-square test was used to compare differences in frequency between groups.

Table 2: COVID-19-related Characteristics of the studied groups

	PwTH (n=157)	PwoTH (n= 151)	P-value
COVID-19 Infection			
Yes	57 (36.3%)	55 (36.4%)	0.539
No	100 (63.7%)	96 (63.6%)	
COVID-19 Symptoms			
Yes	79 (50.3%)	77 (51%)	0.910
No	78 (49.7%)	74 (49%)	
Family Member with COVID-19 Infection			
Yes	33 (21%)	27 (17.9%)	0.565
No	124 (79%)	124 (82.1%)	
Family Member with COVID-19 Symptoms			
Yes	97 (61.8%)	96 (63.6%)	0.814
No	60 (38.2%)	55(36.4%)	
Attending Health Centre/Hospital ER			
Yes	50 (31.8%)	40 (26.5%)	0.318
No	107 (68.2%)	111 (73.5%)	

The chi-square test was used to compare differences in frequency between groups.

Table 3: Psychological Characteristics of the studied groups

	PwTH (n=157)	PwoTH (n=151)	P-value
HAMILTON RATING SCALE for depression			
6-months before COVID -19	6.05±3.83	7.03±4.20	0.028
During COVID -19	10.61±4.83	9.93±5.38	0.300
Wilcoxon Signed Ranks Test: p-value	0.0001	0.0001	
Two-way ANOVA repeated measure analysis F, Df, P value (Time X Group)	30.46, 1(306), 0.001		
HAMILTON RATING SCALE for anxiety			
6-months before COVID -19	5.55±3.84	6.93±3.97	0.001
During COVID -19	10.57±4.72	10.63±4.80	0.851
Wilcoxon Signed Ranks Test: p-value	0.0001	0.0001	
Two-way ANOVA repeated measure analysis F, Df, P value (Time X Group)	13.93, 1(306), 0.001		

Independent t-test was used to compare differences in means between groups.

Paired t-test was used to compare differences in means in the same group (before and during COVID-19).

Repeated Measure: Interaction between group and time

Table 4. Sociodemographic and tension headache-related characteristics of tension headache with patients with worsening vs. non-worsening during the COVID-19 confinement

	WPwTH (n=125)	NWPwTH (n= 32)	P value
Age/years (Mean±SD)	29.77 ± 7.98	30.66 ± 7.88	0.479
Gender M/F	42/83 (33.6%/66.4%)	11/21 (34.4%/65.6%)	0.545
Marital Status			
Single	63 (50.4%)	15 (46.9%)	0.722
Married	58(46.4%)	17 (53.1%)	
Divorced	1(0.8%)	0 (0%)	
Widow	3(2.4%)	0 (0%)	
Occupation			
Unemployed	76(60.8%)	15(46.9%)	0.166
Employed	49 (39.2%)	17 (53.1%)	
Tension headache-related characteristics			

Duration of disease in years (Mean±SD)	3.29±1.54	2.81±0.96	0.105
Headache Frequency			
6-months before COVID -19	4.26±2.27	3.48±2.57	0.832
During COVID -19	6.74±2.43	3.78±2.23	0.001
Wilcoxon Signed Ranks Test: p-value	0.0001	0.031	
Two-way ANOVA repeated measure analysis F, Df, P value (Time X Group)	134.45, 1(155), 0.001		

Independent t-test was used to compare differences in means between groups.
The chi-square test was used to compare differences in frequency between groups.

Table 5. Tension headache-related and psychological characteristics for worsening tension headache (WPwTH vs. NWPwTH)

	WPwTH (n=125)	NWPwTH (n= 32)	P value
Hamilton rating scale for depression			
6-months before COVID -19	5.86±3.93	6.78±3.33	0.168
During COVID -19	10.32±4.95	11.75±4.20	0.119
Wilcoxon Signed Ranks Test: p-value	0.0001	0.001	
Two-way ANOVA repeated measure analysis F, Df, P value (Time X Group)	0.678, 1(155),0.412		
Hamilton rating scale for anxiety			
6-months before COVID -19	5.46±3.84	5.88±3.984	0.608
During COVID -19	10.76±4.77	9.81±4.51	0.468
Wilcoxon Signed Ranks Test: p-value	0.0001	0.001	
Two-way ANOVA repeated measure analysis F, Df, P value (Time X Group)	4.56, 1(155),0.034		

Independent t-test was used to compare differences in means between groups.
Paired t-test was used to compare differences in means in the same group (before and during COVID-19). Repeated Measure: Interaction between group and time

Table 6. COVID-19-related Characteristics, health care, and confinement issues of the patient with tension headache worsening tension headache (WPwTH vs. NWPwTH)

	WPwTH (n=125)	NWPwTH (n= 32)	P value
COVID-19 Infection			
Yes	45 (36%)	12 (37.5%)	0.515
No	80 (64%)	20 (62.5%)	
COVID-19 Symptoms			
Yes	61(48.8%)	18 (56.3%)	0.553
No	64(51.2%)	14 (43.8%)	
Family Member with COVID-19 Infection			
Yes	27(21.6%)	6 (18.8%)	0.812
No	98 (78.4%)	26 (81.3%)	
Family Member with COVID-19 Symptoms			
Yes	77(61.6%)	20 (62.5%)	0.548
No	48 (38.4%)	12 (37.5%)	
Attending Health Centre/Hospital ER			
Yes	42 (33.6%)	8(25%)	0.402
No	83 (66.4%)	24(75%)	
Health care attendance:			
1-Delayed neurology consultation appointment due to COVID-19			
Yes	46(36.8%)	8(25%)	0.297
No	79(63.2%)	24(75%)	
2-Avoidance going to the emergency room, even though you needed to			
Yes	37(29.6%)	9(28.1%)	0.529
No	88(70.4%)	23(71.9%)	
Confinement issues:			
1-Strict respect of the confinement			
Yes	23(71.9%)	90(72%)	0.574
No	9(28.1%)	35(28%)	
2-Problem for going to the pharmacy			
Yes	30(24%)	7(21.9%)	0.502
No	95(76%)	25(78.1%)	

3-Problem in finding drugs at the pharmacy			
Yes	31(24.8%)	4(12.5%)	0.160
No	94(75.2%)	28(87.5%)	

The chi-square test was used to compare differences in frequency between groups

Table 7: Independent Correlation between COVID-19 and Tension Headache Disease: Multivariable Logistic Regression Model

	OR (95% CI) *	P-value
Age/years	1.012 (0.965 – 1.061)	0.625
Sex (Female)	0.930 (0.495 – 1.748)	0.822
COVID-19 Infection	1.390 (0.807 – 2.397)	0.236
COVID-19 Symptoms	1.311 (0.746 – 2.303)	0.346
Family COVID-19 Infection	1.318 (0.901 – 1.928)	0.155
Family COVID-19 Symptoms	1.974 (1.143 – 3.411)	0.015
Attending Health Centre/Hospital ER	3.023 (1.474 – 6.201)	0.003
Increase in HDS	0.785 (0.680 – 0.907)	0.001
Increase in HAS	1.268 (1.133 – 1.419)	0.011

OR=Odds Ratio; CI, Confidence Interval

ER=Emergency Room.

HDS= Hamilton Depression Scale.

HAD= Hamilton Anxiety Scale.