Cukurova Medical Journal
ÇUKUROVA ÜNİVERSİTESİ TIP FAKÜLTESİ

Cukurova Med J 2024;49(3):751-759
DOI: 10.17826/cumj.1509034

RESEARCH

Magnification of anxiety sensitivity, alexithymia, anger and bodily sensations in patients with migraine headache

Migren baş ağrısı olan hastalarda anksiyete duyarlılığı, aleksitimi, öfke ve bedensel duyumların büyümesi

Selim Polat[1], Çiçek Hocaoğlu[2], Serkan Kırbaş[3], Ahmet Tüfekçi[2]

[1]Adana City Training and Research Hospital, Adana, Türkiye
[2]Recep Tayyip Erdoğan University, Rize, Türkiye
[3]Inova Hospital, Aksaray, Türkiye

Abstract

Purpose: In this study, alexithymia, anxiety sensitivity, exaggerated physical sensations and anger expression in patients with migraine headache were compared with a healthy control group.

Material and Methods: A total of 88 migraine headache patients and 91 healthy volunteers who applied to the Neurology Clinic and met the inclusion criteria were included in the study. Sociodemographic Data Form, Anxiety Sensitivity Index (ASI), Physical Sensation Exaggeration Scale (BIDS), Toronto Alexithymia Scale (TAS) and Spielberger Trait Anger Expression Scale (LASP) were administered to all subjects included in the study.

Results: In our study, 59 (67%) of the patients with migraine were female and 29 (33%) were male, while 59 (64.8%) of the control group were female and 32 (35.2%) were male. The mean age of the patient group was 39.07 ± 7.5 (25-55) years, while the mean age of the control group was 37.30 ± 8.2 (25-55) years. When compared according to the mean scores of ASI, BIDS and TAS, it was determined that the scores of the patient group were significantly higher than those of the control group. Anger expression style was higher in the patient group compared to the control group. There was a significant difference between the two groups in terms of anger expression and anger control. A significant relationship was found between TAS and trait anger, anger-in and anger-out scores.

Conclusion: In this study, many patients with migraine headache were associated with a psychiatric symptom. These psychiatric symptoms, which affect the current treatment of patients and the course of the disease, are often overlooked or misdiagnosed by clinicians. Our study

Öz

Amaç Bu çalışmada migren baş ağrısı olan hastalarda aleksitimi, anksiyete duyarlılığı, abartılı fiziksel duyumlar ve öfke dışa vurumu sağlıklı kontrol grubu ile karşılaştırıldı.

Gereç ve Yöntem: Nöroloji kliniğine başvuran ve çalışmaya dahil edilme kriterlerini karşılayan 88 migren baş ağrısı hastası ve 91 sağlıklı gönüllü çalışmaya dahil edildi. Çalışmaya dahil edilen tüm olgulara Sosyodemografik Veri Formu, Anksiyete Duyarlılık İndeksi (ASI), Fiziksel Duyum Abartma Ölçeği (BIDS), Toronto Aleksitimi Ölçeği (TAS) ve Spielberger Sürekli Öfke İfade Ölçeği (LASP) uygulandı.

Bulgular: Çalışmamızda migrenli hastaların 59'u (%67) kadın, 29'u (%33) erkek iken, kontrol grubunun 59'u (%64,8) kadın, 32'si (%35,2) erkekti. Hasta grubunun yaş ortalaması 39,07 ± 7,5 (25-55) yıl iken, kontrol grubunun yaş ortalaması 37,30 ± 8,2 (25-55) yıl idi. ASI, BIDS ve TAS puan ortalamalarına göre karşılaştırıldığında, hasta grubunun puanlarının kontrol grubunun puanlarından anlamlı derecede yüksek olduğu belirlenmiştir. Hasta grubunda öfke ifade tarzı kontrol grubuna göre daha yüksekti. İki grup arasında öfke ifadesi ve öfke kontrolü açısından anlamlı bir fark vardı. TÖAÖ ile sürekli öfke, öfke içe ve öfke dışa puanları arasında anlamlı bir ilişki bulunmuştur.

Sonuç: Bu çalışmada, migren baş ağrısı olan birçok hastada psikiyatrik bir belirti tespit edilmiştir. Hastaların mevcut tedavisini ve hastalığın seyrini etkileyen bu psikiyatrik semptomlar, klinisyenler tarafından sıklıkla göz ardı edilmekte veya yanlış teşhis edilmektedir. Çalışmamız klinikler arası konsültasyon ve irtibat ihtiyacını ortaya koymaktadır.

Address for Correspondence: Selim Polat, Department of Mental Health and Diseases Adana Training & Research Hospital, Adana, Türkiye E-mail: selim.md.polat@gmail.com
Received: 02.07.2024 Accepted: 08.09.2024

demonstrates the need for inter-clinical consultation and liaison.
Keywords:. Alexithymia, anger, anxiety sensitivity, migraine type headache, physical sensations exaggeration.

Anahtar kelimeler: Aleksitimi, öfke, anksiyete duyarlılığı, migren tipi baş ağrısı, fiziksel duyumların abartılması

INTRODUCTION

Migraine headache, regardless of ethnicity, age and gender, directly affects the quality of life and functionality of the person and is one of the 10 diseases that cause the most disability in the world[1,2]. Affecting an average of 1.5% to 2.5% of the global population, the incidence of migraine increases and peaks especially during the most productive period of life. The incidence is 2-3 times higher in women than in men[3-5]. In 2019, Italy (1.528.4 cases (1.345.4-1.709.3)) and Norway [1.515.7 (1.333.8-1.693.4)] had the highest rates of migraine per 100 000 people. In contrast, the lowest rates were observed for Ethiopia (692.6 (605.2-776.7)) and Djibouti (737.2 (623.5-848.9))[6].

Although its pathophysiology is not fully understood, in addition to vascular and neurogenic theories, migraine is classified as a psychosomatic disorder with recurrent and chronic symptoms, in which the pain symptom is at the forefront. For researchers, the relationship between psychosomatic disorders and mental symptoms has been examined in many studies, and it has been suggested that pain is an unconscious form of defense against feelings of anger and hostility and is closely related to feelings of guilt and regret.

Recent studies suggest that individuals with migraine may experience high levels of alexithymia, anxiety sensitivity, exaggerated physical sensations and anger expression compared to healthy individuals. This study aims to investigate these relationships in depth. Primary Hypothesis of this study: "Patients with migraine will exhibit significantly higher levels of alexithymia, anxiety sensitivity, exaggerated physical sensations and anger expression compared to the healthy control group."

Migraine is a prevalent and debilitating condition that is often associated with various psychological symptoms. Recent research suggests that individuals with migraine may experience elevated levels of alexithymia, anxiety sensitivity, exaggerated physical sensations, and anger expression compared to healthy individuals. This study aims to explore these associations in depth. Patients with migraine will exhibit significantly higher levels of alexithymia, anxiety sensitivity, exaggerated physical sensations, and anger expression compared to a healthy control group.

The literature indicates that individuals with migraine often report higher levels of depression, anxiety, and somatic symptoms. Those with migraine may physicalize emotions they cannot verbalize, using bodily symptoms to express feelings they find difficult to articulate. Anger, ranging from mild irritation to extreme hostility, is considered a negative affect with both emotional and cognitive components. Additionally, somatic symptoms, as expressions of mental distress, can lead to unnecessary investigations and misdiagnosis by clinicians.[7-10].

Individuals explains emotions by somatising, which they cannot verbalize. Another important issue that should be taken into consideration in research in the field of anxiety and physicalization is the expression of anger. Anger is considered to be a negative affection, which is a behavioral style of emotional, cognitive symptoms and experiences, ranging from mild irritation to hatred and violence. On the other hand, somatic symptoms, which can be considered as an expression of mental distress, may lead to unnecessary investigations and mis- treatment when misinterpreted by the clinicians. The relationship between psychosomatic disorders and psychological symptoms has been studied in many studies. Psychosomatic disorder, such as migraine, with recurrent and chronic symptoms of pain, may present a characteristic that adversely affects quality of life. It is argued that pain is an unconscious defense against feelings of anger and hostility, and has a close relationship with feelings of guilt and regret. The researchers reported that patients with migraine headache complain more anxious, depressive, and somatic sensations more. Rather than verbal language, they used more bodily language and were more hostile and resentful[9-11]. Anticipatory anxiety, which can be specifically defined as expectation sensitivity, is seen as fear of headache in patients with migraine headache. Pain, situational anger, severity of pain, unintentional observable and undiagnosed emotions can be seen. In this context, patients with

migraine headache and control group were compared with anxiety sensitivity, alexithymia, anger and physical sensations in terms of enlargement. It was tried to contribute to the literature[12].

Anxiety sensitivity is characterized as an excessive fear of anxiety-related sensations and symptoms that are believed to have harmful physical physiological and/or social consequences. Fear of bodily symptoms remains largely unexplored in migraine sufferers, in part because of beliefs that fear of fear is harmful. In this context, we want to investigate how anxiety sensitivity, alexithymia, anger and bodily sensations are evaluated in patients with migraine headache.

MATERIALS AND METHODS

Sample and procedure

The study involved 88 consecutive patients who visited the neurology clinic and met the diagnostic criteria for migraine as defined by the ICHD-2004 (International Classification of Headache Disorders, 2004). Participants who consented to the study were aged between 25 and 55 years, had at least a primary school education, and had not used psychotropic medications in the past six months. The control group consisted of 91 healthy volunteers who were matched with the patient group in terms of age, gender, and marital status. Controls had no history of psychiatric illness or treatment, were not hospital staff or patient companions, and did not have any additional medical conditions (e.g., cancer, diabetes, liver failure, renal failure, hypertension, endocrine disorders), mental retardation, severe psychotic disorders, or organic mental disorders.

A power analysis was conducted to ensure the adequacy of the statistical analyses. Using G*Power software, the analysis was based on a large effect size with Cohen's d = 1.15. The parameters for the analysis were set as follows: α (significance level) = 0.05 and power = 0.80. The results indicated that the sample sizes for both groups were sufficient to detect statistically significant differences.

The study was conducted at Recep Tayyip Erdoğan University Training and Research Hospital (RTEU) Psychiatry clinic. The institution follows strict procedures for data collection and file security to ensure the integrity and confidentiality of research data.

Data collection and evaluation procedures were carried out by the education officer and medical specialists with expertise in Psychiatry and Neurology. The institution adheres to strict protocols for data management, ensuring that all data is stored securely and accessible only to authorized personnel.

Prior to the study, the necessary permission was obtained from the Ethics Committee of RTEU Faculty of Medicine (Protocol no. 177). All participants were informed about the study and written informed consent was obtained. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and the 1964 Declaration of Helsinki and its subsequent amendments or similar ethical standards. This study is derived from a medical speciality thesis.

Patients with migraine headache followed in the neurology outpatient clinic of Recep Tayip Erdoğan University Medical Faculty Education and Research Hospital.were informed about the purpose and method of the study. in Sociodemographic data collection form, Anxiety Sensitivity Index (ADI), Physical Sensation Exaggeration Scale (BIDS), Toronto Alexithymia Scale (TAS), Spielberger Trait Anger and test battery containing Anger Expression Style Scale (LAS) were given to them. All forms in the battery were self-assessment forms. We made sure that patients completed the scales independently. The test battery was applied to the volunteers in the control group in the same way. The process took 30 minutes.

Measures

Sociodemographic data form

To obtain information about the sociodemographic characteristics of patients and healthy volunteers, the clinical features of the disease (whether the patient uses the drug, or uses them regularly, not being monitored regularly by a specific physician or institution, etc.) a questionnaire form prepared by the researchers was used.

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)

First et al. by DSM-IV in 1997, structured clinical interview for Axis I disorders[9]. It has been developed to systematically investigate the symptoms, facilitating the standardization of diagnostic assessment and facilitating screening of the

diagnostic criteria of DSM-IV and enhancing the validity of the diagnoses. The validity and reliability studies of SCID-I for Turkey were carried out by Çorapçıoğlu et al. in 1999.

Anxiety Sensitivity Index (ASI)

It was the first questioner done by Reiss et al.,1986[10] to diagnose ASI. This scale, which consists of sixteen items, provides a five-point Likert type measurement. Each substance determines the individual's beliefs about both anxiety symptoms and outcomes. There are no substances, and 4 is evaluated as too much. There are 8 items for Physical sub-dimension; four items in cognitive and social sub-dimensions. The internal consistency coefficient of ASI ranged between 0.80 - 0.90 and test-retest reliability coefficients ranged between 0.71-0.75. Turkish validity and reliability study was performed[11]. In this study, it was used to determine the correlation with ASI-3.

Medical Emotional Amplification Scale (MEAS)

This is a 10-item self-assessment scale[12] which includes a series of disturbing physical sensations that are developed to measure the magnification / exaggeration used by individuals while somatizing complaints. Turkish validity and reliability study was performed[13,14]. 1 to 5 points are awarded for each item. By collecting the points from the items, a total overcharge / magnification score is obtained. It has been used to evaluate the validity of overlap.

Toronto Alexithymia Scale (TAS)

This scale is the scale that evaluates alexithymia, which is defined as the lack of self-emotion and excitement. It is a Likert-type self-assessment scale, which consists of 20 items. Difficulties in recognizing emotions (TAS-1), difficulty in stating emotions (TAS-2), and outward-oriented thinking (TAS-3) are sub-scales. For each item, the individual is asked to mark the "Never", "Rarely", "Sometimes", "Frequently" and "Always" options. High scores indicate a high alexithymic level. Validity and reliability in Turkey were carried out by Sayar et al.[15]. This scale was measured by Bagby et al.[16].

Spielberger Trait Anger and Anger Expression Scale

It measures the anger emotion and its expression. It is a self-evaluation scale consisting of 34 items. There are anger-in (8 items), anger out (8 items) and anger-controlled (8 items) sub-scales. Studies on the sub-test that evaluates state anger (10 items) have not yet been completed. The individual is asked to mark the most appropriate expression from himself, in terms of "None", "Some", "Quite", and "All". It was developed by Spielberger (1983) and its reliability and validity study was conducted by Özer (1994)[17].

Statistical analysis

The data obtained in this study were evaluated by transferring to SSPS with Windows 21.0 database program. The conformity of the data obtained by measurement with normal distribution was examined with Kolmogorov Smirnov test in each group. The comparison of age between the control group and the patient group, which followed a normal distribution, was performed using the Student's t-test.; The Mann-Whitney U test was used to compare the education levels between the two groups as it did not conform to a normal distribution. The Chi-Square test was used to analyze the differences in gender and marital status between the control group and the patient group. The data obtained by measurement are shown as arithmetic mean ± standard deviation, and the data obtained by counting as number (%). The significance level was taken as $p < 0.05$. Clinical variables and demographic data were analyzed by Pearsen Correlation Analysis. The degree of relationship is between $-1 \leq p \leq +1$. -1 is the perfect negative relationship, +1 indicates positive relationship. 0 indicates that there is no linear relationship between the variables.

RESULTS

The study included 179 cases with ages ranging from 25 to 55 years. The mean age of the control group was 37.30 ± 8.229, 39.07 ± 7.564, and no significant difference was found between the two groups ($p = 0{,}136$). Of the control group, 59 (64.8%) were female, 32 (35.2%) were male, 59 (67%) were female and 29 (33%) were male. There was no significant difference ($p = 0{,}755$). When the marital status was examined, 79 (82.3%) of the cases in the control group were married, 17 (17.7%) were single, 74 (78.7%) of the patients were married, 20 (21.3%) were single in patients group. and there was no significant difference between the two groups ($p = 0.183$). (Table.1)

Sociodemographic characteristics of the patient and control groups and the significance of the scores obtained from the scales were calculated by using the

Independent-Samples T test and Chi-Square analysis technique. The anxiety sensitivity index was 25.85 ± 13.367 and the control group mean score was 18.20 ± 14,037 and p value was found as 0.000. This value shows that the difference is quite meaningful. The mean score of the patient group for the TAO scale was 46.68 ± 6.276 and the mean of the control group .was 46.21 ± 8.516. The mean score of the control .group alexithymia scale was lower than the patient group, but it was not significant (p = 0.674). The mean score of anger expression was 39,42 ± 3,473 in the patient group and 31,66 ± 6,709 in the control group. p value was found to be 0.000, and p <0.05 was a significant result for anger expression values. The mean score of the patient group was 32.83 ± 6.788 and the mean of the control group was 39.19 ± 4.392. p value was determined as 0.001 and it was found to be significant. The mean of the patient group was 39.42 ± 3,473 and p value of 31.66 ± 6.709 was found to be 0.000. The mean score of the patient group was 21.74 ± 7.029 and the mean score of the control group was 26.84 ± 7.191 (p = 0.000). The mean scores of the patient and control groups from the scales are given in Table 2.

When the relationship between sociodemographic characteristics and the scores obtained from the scales was examined, a positively weak relationship was found between sex and education time, a positive relationship was found between age and marital status and education period. A strong negative correlation was found between the duration of education and permanent anger scale. There was a weak positive correlation between TAS and anxiety sensitivity and exaggeration scale of bodily sensations. There was a strong positive correlation between permanent anger and physical sensation exaggeration scale, and a positive relationship between permanent anger and physical sensation exaggeration scale (Table 3).

Table 1. Sociodemographic characteristics of groups

Characteristics	Control Group	Patient Group	Test Statistics	p
Age (year)	37.30 ±8.229	39.07 ±7.564	t=1.498	0.136
Sex				
Female s(%)	59 (64.8%)	59 (67%)	X2=0.097	0.755
Male s(%)	32 (35.2%)	29 (33%)		
Marital status				
Married	70 (76.9%)	76 (86.4%)	X2 =2.652	0.103
Single	21 (23.1%)	12 (13.6%)		
Education (min-max)	11.34±2.222	8.18±3.193	t=-7.703	<0.001
	(5-13)	(5-13)		

t: t test.

Table-2. Mean scale scores of the groups

Scales	Patient Group (N:88)	Control Group N:91	df	p
Anxiety Sensitivity(ASI)	25.85±13.367	18.20±14.037	13.941	<0.001
Alexithymia Scale	46.68±6.276	46.21±8.516	0.178	0.674
Anger-Out	39.42±3.473	31.66±6.709	93.526	<0.001
Permanent Anger	32.83±6.788	39.19±4.392	55.712	<0.001
Exaggeration of Emotional Sensations	21.74±7.029	26.84±7.191	22.972	<0.001

Table-3. Correlations between scores obtained from the scales used in the study and sociodemographic data

		Gender	Age	MarStat	Education	TAO	Anxiety	SOOT permanent anger	SOOT Anger out	EES
Gender	r	1	0.111	0.032	.250**	0.115	-0.017	0.082	0.047	-0.138
Age	r	0.111	1	.162*	-.215**	-0.032	-0.034	-0.142	0.002	0.003
MarStat	r	0.032	.162*	1	-0.129	-0.02	0.046	0.037	0.133	0.021
Education	r	.250**	-.215**	-0.129	1	0.079	-0.133	.256**	-.346**	0.081
TAO	r	0.115	-0.032	-0.02	0.079	1	.167*	0.13	0.139	.157*
ASI	r	-0.017	-0.034	0.046	-0.133	.167*	1	0.14	.280**	.276**
SOOTpermanent anger	r	0.082	-0.142	0.037	.256**	0.13	0.14	1	0.031	.403**
SOOTAnger out	r	0.047	0.002	0.133	-.346**	0.139	.280**	0.031	1	-0.123
EES	r	-0.138	0.003	0.021	0.081	.157*	.276**	.403**	-0.123	1

r: correlation coefficient *p<0.05, *p<0.001 EES: Exaggeration of Emotional Sensations, TAO: Toronta Alexithymia Scale, MarStat: SOOTpermanent anger: Spielberger Trait Anger Expression Scale Permanent Anger, SOOTAnger out: Spielberger Trait Anger Expression Scale Anger-Out, ASI: Anxiety Sensitivity Scale

DISCUSSION

It is a known fact and confirmed in all publications that migraine headache is common in women in the adult population and this was also the case in our study; 65% of our patients were women. Approximately 18% of American and European women are affected by migraine[18]. The higher prevalence of migraines in women could be related to several biological and psychological differences between men and women, such as sex hormones, genetic factors, exposure to environmental stressors, as well as the level and response to stress and pain[19,20].

In all studies conducted on migraine in our country, women constitute the majority of the sample group[21]. When we evaluate the rates of migraine frequency in age groups; Rasmussen stated in his study that migraine is most commonly seen in the 3rd and 4th decade in adults and the frequency gradually decreases after the age of 40 (104). In this study, the mean age of the patients was found to be 37.87 ± 7.8 years. In our country, the mean age of 34.98 ± 8.44 years and 36.4 years supports the findings of our study[21]. In this study, the mean score of migraine patients with anxiety sensitivity index was significantly higher than the statistical control group. The P value was determined as ,000, making our result highly significant. Studies have shown that the frequency of psychiatric disorders such as anxiety and depression accompanying primary headache is higher than in the normal population[22]. In some adult studies, it has been reported that headache may be associated with anxiety sensitivity (AS) and headache patients with high AS may be more afraid of pain as in other chronic pain[21,22]. In the literature, the number of studies conducted by applying the scale of exaggeration of bodily sensations in migraine patients is limited. It has been found that patients with high AS are afraid of pain and their anxiety levels increase with the feeling that they will experience pain and they increase their bodily sensations.

In this study, the scores of the scale of exaggeration of bodily sensations were found to be higher in the patient group than in the control group and the p value showed a significant result with .000. Starner and Peters found a significant positive relationship between trait anger and anger arousal, anger expression and anger control in their study. As trait anger increased, anger control levels also increased[23]. In our study, it was found that there was a positive and moderate correlation in the control group and a positive correlation in the patient group. Although there are many studies showing the relationship between chronic pain and alexithymia, there are few studies investigating the prevalence of alexithymia in migraine[24,25]. In a study by Lumney et al, alexithymic personality traits were reported to have a negative effect on the pain severity of chronic pain patients, including migraine headaches[22] . Okasha et al. compared 100 chronic, non-organic headache patients with 50 healthy controls and 50 organic headache patients and found that chronic headache patients were more alexithymic than the other two groups[26,27].

There are also studies available in the literature in which a relationship has been demonstrated between chronic pain and depression[28] Bahadır et al. In a study, Health Anxiety Scale scale scores of patients with chronic pain were found to be higher than normal patients[29]. In another study conducted by Yalug et al. a significant difference was found between chronic migraine and episodic migraine in terms of depression, whereas no significant difference was found in terms of alexithymia and anxiety[30]. Our study showed a similar result and did not show a significant difference in terms of anxiety and alexithymia. In contrast, there are studies showing that alexithymia is strongly associated with anxiety[31,32].

Gürkan investigated the prevalence of alexithymia in psychiatric, psychosomatic and normal individuals and its relationship with some sociodemographic characteristics and depression. As a result of the study conducted on 234 subjects, it was found that alexithymia was most common in the psychiatric group (67.9%), and there was a significant relationship between depression and alexithymia in the psychosomatic (57.7%) and control group (38.5%). However, when socio-demographic characteristics were analyzed, it was observed that there was no relationship between alexithymia and gender in all three groups, but it was associated with socioeconomic status[33,34]. In our study, it was determined that there was no relationship between sociodemographic characteristics such as age, gender, occupation and alexithymia, while there was a positive relationship between education and marital status. Based on these results, the fact that alexithymia is observed at rates up to 38% in healthy individuals indicates that more serious and comprehensive research should be conducted.

When sociodemographic data were analyzed, some significant differences were found for the sample. The educational level and economic status of the patient group were lower than the control group. Anxiety levels, anger levels and anger expression styles of migraine patients were found to be higher than the control group. Although there are some literature studies in which the results for the diagnosis of alexithymia in migraine patients are not significant, the alexithymia scale scores of our patient group were found to be higher than the control group, but the level of significance supports the literature. Although there are many patients presenting to the neurology clinic with headache complaints, very few of these patients can be evaluated in terms of psychiatric evaluation, so our study reveals the need for inter-clinical consultation and liaison.

Strengths of the study include comprehensive psychological assessments and a robust data collection process. The sample size used in the study may be adequate for statistical analyses, but there may be limitations regarding whether the sample is representative of the general population. If the study is limited to a specific cultural or demographic group, the findings may not apply to other cultural or demographic groups. The fact that the study was limited to a specific geographical region is an important limitation.

Other factors that may influence the associations between migraine and psychological variables (e.g., life events, personal history) may not have been controlled for, which could affect the validity of the results. The association between migraine and psychological variables may also be influenced by genetic predispositions, and not controlling for genetic factors may affect the validity of the results.

Participants' tendency to give socially desirable responses or their inability to accurately express their emotional state may also affect the validity of the results. Additionally, the validity and reliability of the scales used may impact the study's findings. Especially for psychological variables associated with migraine, the adequacy of measurement tools in this context is crucial.

Increasing the generalizability of the findings to the general population by using larger and more diverse samples, conducting studies involving different cultural and demographic groups, replicating studies in different geographical regions and examining how geographical differences affect the results will be important factors for future studies. Controlling for additional variables such as life events, personal history and genetic factors to provide a more robust understanding of the relationships between psychological variables and migraine. Evaluating the validity and reliability of the psychological measurement tools used and developing more appropriate and sensitive measurement tools for psychological variables associated with migraine will benefit us researchers to obtain stronger results. Despite the large number of patients presenting to the neurology clinic with headache, very few of these patients can be evaluated psychiatrically. Therefore, our study demonstrates the need for inter-clinical

consultation and liaison and provides results to encourage inter-clinical consultation and collaboration.

Author Contributions: Concept/Design : SP, CH; Data acquisition: SP, SK, AT; Data analysis and interpretation: SP, CH; Drafting manuscript: SP, CH, SK, AT; Critical revision of manuscript: CH, SP; Final approval and accountability: SP, CH, SK, AT; Technical or material support: SP, SK; Supervision: SP; Securing funding (if available): n/a.
Ethical Approval: Ethical approval was obtained by the decision of the Research Ethics Committee of Recep Tayyip Erdogan University Faculty of Medicine dated 21.12.2012 and numbered 2012/151.
Peer-review: Externally peer-reviewed.
Conflict of Interest: Authors declared no conflict of interest.
Financial Disclosure: The authors stated that they did not receive financial support.

REFERENCES

1. Milde-Busch A, Heinrich S, Thomas S, Kühnlein A, Radon K, Straube A et al. Quality of life in adolescents with headache: results from a population-based survey. Cephalalgia. 2010;30:713–21.
2. Stovner L, Hagen K, Jensen RH, Katsarava Z, Lipton R, Scher A et al., The global burden of headache: a documentation of headache prevalence and disability worldwide. Cephalalgia. 2007;27:193–210.
3. Natoli JL, Manack A, Dean B, Butler Q, Turkel CC, Stovner L et al. Global prevalence of chronic migraine: a systematic review. Cephalalgia. 2010;30:599–609.
4. Lipton RB, Silberstein SD. Episodic and chronic migraine headache: breaking down barriers to optimal treatment and prevention. Headache. 2015;55:103–22.
5. Messali A, Sanderson JC, Blumenfeld AM, Goadsby PJ, Buse DC, Varon SF et al. Direct and indirect costs of chronic and episodic migraine in the United States: a web-based survey. Headache. 2016;56:306–22.
6. Safiri S, Pourfathi H, Eagan A, Mansournia MA, Khodayari MT, Sullman MJM et al. Global, regional, and national burden of migraine in 204 countries and territories, 1990 to 2019. PAIN. 2022;163:e293–309.
7. Recober A. Pathophysiology of migraine. CONTINUUM: Lifelong Learning in Neurology. 2021;27:586-96.
8. Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd edition. Cephalalgia. 2018;38:1-211.
9. First MB, Spitzer RL, Gibbon M. Structured Clinical Interview for DSM-IV Clinical Version (SCID-I/CV). Washington, American Psychiatric Press, 1997
10. Reiss S, Peterson RA, Gursky DM, McNally RJ. Anxiety sesitivity, anxiety frequency and the prediction of fearfulness. Behav Res Ther. 1986;24:1-8.
11. Ayvaşık HB. Kaygı duyarlığı indeksi: Geçerlik ve güvenirlik çalışması. Türk Psikoloji Dergisi. 2000;15:43-57.
12. Yaşar H, Balıbey H, Alay S, Tekeli H, Türker T, Bayar N. Migren hastalarında anksiyete, depresyon ve obsesif-kompulsif belirti düzeyleri. Journal of Mood Disorders. 2013;3:156-61.
13. Barsky AJ, Wyshak G, Klerman GL. The Somatosensory Amplification Scale and its relationship to hypochondriasis. J Psychiatry Res. 1990;24:323-34.
14. Güleç H, Köse S, Topbaş M. Yirmi soruluk Toronto Aleksitimi Ölçeği'nin Türkçe formunun faktöryapısı, geçerlik ve güvenirliği. Türkiye'de Psikiyatri Dergisi. 2005;8:31-36.
15. Güleç H, Sayar K. Reliability and validity of the Turkish form of the Somatosensory Amplification Scale. Psychiatry Clin Neurosci. 2007;61:25-30.
16. Bagby RM, Parker JD, Taylor GJ. The twenty-item Toronto Alexithymia Scale-I Item selection and crossvalidationof the factor structure. J Psychosom Res. 1994;38:23-32.
17. Özer AK. Sürekli Öfke (SL-ÖFKE) ve Öfke İfade Tarzı (ÖFKE-TARZ) ölçekleri ön çalışması. Türk Psikoloji Dergisi. 1994;31:26-35.
18. Nimnuan C, Asawavichienjinda T, Srikiatkhachorn A. Potential risk factors for psychiatric disorders in patients with headache. Headache. 2012;52:90-8.
19. Peterlin BL, Gupta S, Ward TN, MacGregor A. Sex matters: evaluating sex and gender in migraine and headache research. Headache. 2011;51:839-42.
20. Buse DC, Silberstein SD, Manack AN, Papapetropoulos S, Lipton RB. Psychiatric comorbidities of episodic and chronic migraine. J Neurol. 2013;260:1960–9.
21. Norton PJ, Asmundson GJG. Anxiety sensitivity, fear, and avoidance behavior in headache pain. Pain. 2004;111:218-23.
22. Rosen N. L. Psychological issues in the evaluation and treatment of tension-type headache. Curr Pain Headache Rep. 2012;16:545–53.
23. Starner TM, Peters RM. Anger expression and blood pressure in adolescents. J Sch Nurs. 2004;6:335-42.
24. Sayar K, Gulec H, Topbas M. Alexithymia and anger in patients withfibromyalgia. Clin Rheumatol. 2004;23:441-48.
25. Silberstein SD, Lipton RB, Goadsby PJ. (1998) Headache in clinical practice. Isis Medical Media. 1998;3:1–7.
26. Lumley MA, Radcliffe AM, Macklem DJ, Mosley-Williams A, Leisen JC, Huffman JL et al. Alexithymia and pain in three chronic pain samples: comparing Caucasians and African Americans. Pain Med. 2005;6:251–61.
27. Okasha A, Ismail MK, Khalil AH, el Fiki R, Soliman A, Okasha T. A psychiatric study of nonorganic chronic headache patients. Psychosomatics. 2001;40:233-8.
28. Radat F, Margot-Duclot A, Attal N. Psychiatric co-morbidities in patients with chronic peripheral

neuropathic pain: A multicentre cohort study. Eur J Pain. 2013;17:1547-57.
29. Demir B, Akaltun MS, Altındağ Ö, Karaoglan H, Altındağ A, Gürsoy S et al. Anxiety, health anxiety and somatosensory amplification levels in individuals with carpal tunnel syndrome with normal electromyography. Cukurova Medical Journal. 2021;46:982-9.
30. Yalug I, Selekler M, Erdogan A, Kutlu A, Dundar G, Ankarali H et al. Correlations between alexithymia and pain severity, depression, and anxiety among patients with chronic and episodic migraine. Psychiatry Clin Neurosci. 2010;64:231–8.
31. Sagar R, Talwar S, Desai G, Chaturvedi S. Relationship between alexithymia and depression: A narrative review. Indian J Psychiatry. 2021;63:127–33.
32. Radetzki P, Wrath A, Le T, Adams G. Alexithymia is a mediating factor in the relationship between adult attachment and severity of depression and social anxiety. J Affect Disord. 2021;295:846–55.
33. Patterson SM, Silberstein SD. Sometimes Jello helps:perceptions of headache etiology, triggers and treatment in literature.Hedache. 1993;33:76-81.
34. Gürkan SB. Aleksitimi. Çukurova Üniversitesi Eğitim Fakültesi Dergisi. 1996;2:99-103.
35. Headache Classification Subcommittee of the International Headache Society. The International Classification of Headache Disorders. 2nd edition. Cephalalgia. 2004;24:16-151.