



Demographic and Clinical Features of Migrain Headache of Women in Relation to Functional Disability

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Abstract

Objective: Migraine headache affects daily activities, causes important loss of functions in working and social life. In this study, we have analysed the factors influencing disability rates of the patients diagnosed with migraine in Develi region.

Material and Methods: 101 migraine patients between the ages of 16 and 48 who have applied to our neurology polyclinic with complaints of headache have been included in the study. We have recorded the demographic and clinical features of the patients along with Visual Pain Scale (VPS) and "Migraine Disability Assessment Scale" (MIDAS) scores and migraine types. The relationship between patients' demographic and clinical features and disability scores, which were determined by using MIDAS, was assessed statistically.

Results: The mean age of the patients in the study was 31,8±8,7. %75,2 of our patients were housewives and %59,4 were primary school graduates. MIDAS scores of the illiterate group were significantly higher than high school graduates (p=0,033). The average VPS score was 9,1±0,7. It was also observed that the patients with higher scores applied to emergency services more frequently (p<0,0001). The patients were mostly using non-steroidal anti-inflammatory drugs (NSAIDs) (%49,5) to relieve their pain. Headaches were mostly triggered by stress (%46,5) and hormones (%23).

Conclusion: It was determined that education level and work life were the most important factors defining disability level, that pain frequency was higher in women, and that many of our patients had applied to emergency services for their headaches.

Key Words: Migraine; Woman; Disability.

Migrenli Kadınlardaki Baş Ağrısının Demografik Ve Klinik Özellikleri İle Neden Olduğu Fonksiyonel Yeti Kaybı

Özet

Amaç: Migren baş ağrısı günlük aktiviteleri etkilemekte, iş ve sosyal yaşamda önemli fonksiyon kayıplarına yol açabilmektedir. Biz bu çalışmada Develi yöresindeki migren tanısı alan hastaların özürüllük oranları üzerine etkili olan faktörleri inceledik.

Gereç ve Yöntemler: Çalışmaya nöroloji polikliniğine baş ağrısı nedeni ile başvuran 16-48 yaş aralığındaki 101 migren hastası alındı. Migren tipleri belirlenen hastaların demografik, klinik özellikleri, Vizüel Analog Skala (VAS) ve "Migraine Disability Assessment Scale" (MIDAS) sonuçları kaydedildi. Demografik ve klinik özelliklerle MIDAS ile tespit edilen özürüllük skoru arasındaki ilişki istatistiksel olarak değerlendirildi. Sonuçlar Kruskal Wallis, Fisher kesin test, Spearmankorelasyon ve Mann-Whitney U Testi kullanılarak MIDAS skoru ile kıyaslandı.

Bulgular: Çalışmaya alınan hastaların yaş ortalaması 31,8±8,7 idi. Hastalarımızın %75,2'si ev hanımı, %59,4'ü ilkököl mezunuydu. MIDAS skoru ile eğitim düzeyleri korele edildiğinde; okur-yazar olmayan grupta lise mezunlarına göre puanlar istatistiksel olarak anlamlı derecede yüksekti (p=0,033). VAS skoru ortalaması (9,1±0,7) yüksek olanların daha sık acile başvurduğu bulundu (p<0,0001). Hastalar ağrılarını dindirmek için ilaç olarak en çok nonsteroid antienflamatuvar (NSAI) (%49,5) kullanıyordu. Baş ağrısını en çok stres (%46,5) ve hormon (%23) tetikliyordu.

Sonuç: Araştırmada eğitim düzeyi ve çalışma hayatının özürüllük derecesini belirleyen en önemli etken olduğu, ev hanımlarında ağrı şiddetinin daha fazla olduğu ve bu nedenle acil başvurularının daha sık olduğu belirlendi.

Anahtar Kelimeler: Migren; Kadın; Özürüllük.

INTRODUCTION

Headache is the most common neurological condition all over the world while it is also the most commonly encountered health problem by physicians (1, 2). Affecting about 10% of the adult population, migraine headaches are the most common unilateral headaches. World Health Organisation (WHO) has placed migraine 19th (12th among women) among the diseases that lead to obstruction in business life (3). Lifetime prevalence of migraine in the literature is 15-25% for women and 6-9% for men. In Turkey, it is 16% for the general population,

25% for women and 9% for men (4,5). Nevertheless, migraine is not seen as a public health problem; most of the time, it is neither diagnosed nor treated for children and men. It is assumed that nearly two-thirds of migraine sufferers in England and the United States do not consult a doctor or get a correct diagnosis and that they look for treatment in non-prescribed medications (6).

It is reported that migraine headaches affect performance at work or school in addition to the fact that they also have negative influence on patients' quality of life by causing a reduction in family and social activities (7). The American Migraine Study proclaims

that in 81% of migraine patients, headaches cause functional disability, while in 53%, headache is severe enough to require bed rest (8). By evaluating pain frequency and propagation along with various factors like age, gender, race, and socioeconomic status, community-based research for headaches helps us improve our understanding of migraine's properties, pain mechanism, and treatment options (9). In this way, researchers aim at overcoming the problems to control these headaches.

Inadequate treatment leads to more frequent migraine attacks while it also causes loss of labor, and eventually economic loss. Developed to measure disability in patients with migraine, Migraine Disability Scale (MIDAS) is a widely used assessment method that is used to determine the disability associated with migraines in the last 3 months (10). In studies in Turkey, too, MIDAS is regarded as a reliable scale to measure migraine's severity and to determine treatment strategies (11,12). Considering migraine as a public health problem, identifying risk factors, and informing patients about migraine will undoubtedly reduce loss of labour force and improve quality of life. In this study, we aim to evaluate the demographic and clinical characteristics of patients who were admitted to the neurology outpatient clinic with headache complaints and diagnosed with migraine. More to the point, we also intend to investigate the effects of such characteristics on disability.

MATERIAL AND METHODS

101 patients, who were admitted to our neurology clinic and diagnosed with migraine according to the International Headache Society (IHS) criteria, enrolled in the study. We recorded patients' ages, ages at the start of migraine headaches, education levels, migraine types, attack frequencies, attack durations, medication histories, severity of attacks, and the measures they take to overcome the headaches. The answers to the questions concerning the presence of numerous possible complaints and/or conditions were recorded as "Yes" or "No;" some of these complaints and/or conditions are as follows: whether any imaging has been performed earlier, the presence of migraine diagnosis, whether they presented with migraine-related headaches at emergency clinics during the attacks, photophobia, phonophobia, nausea, and vomiting. Headache severity was evaluated according to Visual Analogue Scale (VAS) by the patients themselves by scaling from 1, the lightest, to 10, the most severe.

Through MIDAS test, the patients' disability rates were determined. MIDAS test consists of 5 questions related to workplace or school lives as well as domestic errands. The days away from work due to pain and times when there is at least 50% decrease in work performance are assessed and graded according to the MIDAS scoring. Patients were divided into 4 groups according to their MIDAS scores. Groups were evaluated as follows: Group I: very little disability or none at all (0-5 days lost), Group II: mild disability (6-10 days lost), Group III:

moderate disability (11-20 days lost), and Group IV: severe disability (21 + days lost).

The patients with the following conditions were excluded from the study: those outside the 16-48 age limit; those who suffer from a secondary headache; those who have another primary headache along with migraine; those with chronic diseases (chronic kidney disease, congestive heart failure); those who have uncontrolled hypertension (HT), diabetes mellitus (DM), signs of infection (sinusitis, upper respiratory tract infection), head trauma history, epilepsy; and those who have been diagnosed with depression.

For statistical analysis, we used IBM SPSS for Windows Version 21.0. Quantitative variables were given in mean \pm standard deviation and medians [min-max] while categorical variables were assessed in numbers and percentages. Before the groups were compared in terms of numeric variables, parametric assumptions (normality and homogeneity of variances) were tested. Whether there were differences between the two independent groups in terms of numeric variables through assumptions of parametric tests was ensured by conducting t test on independent samples. In cases when we failed to provide parametric test assumptions, we used the Mann Whitney U and chi-square independence tests. We adapted Kruskal-Wallis test while comparing more than two groups. To find out about the differences between the groups in terms of categorical variables, we relied on the chi-square test or Fisher's exact test. The relationship between the quantitative variables was given by using Spearman correlation coefficient. The level of significance was designated as $p < 0.05$.

RESULTS

The 101 female patients enrolled in the study ranged between 16 and 46 years of age. The average age of patients was 31.8 ± 8.7 years and the average age of migraine onset was 22.5 ± 6.1 years. The mean duration of attacks was 28.2 ± 20.0 hours while the mean total duration of headaches was 9.3 ± 5.6 years. 81.2% of our patients (82 patients) were married and 17.8% of these patients (18 patients) were using oral contraceptives (OC); the average number of children of these patients was 1.98 ± 1.41 . Evaluated in terms of occupational groups, 75.2% (76 patients) of our patients were housewives; the rest either had full-time regular jobs or part-time jobs, or were students. The degree of disability was statistically higher among housewives compared to working women and students ($p = 0.001$) (Table 1).

Table 1. Occupational distribution of the patients and their relationship to MIDAS scores.

Occupation	Median \pm SD	Median [Min-Max]	p
Part-time	11,0 \pm 5,7	11 [11-11]	0,001
Full-time	7,7 \pm 3,4	6 [5-16]	
Housewife	13,3 \pm 8,7	11 [3-43]	
Student	6,6 \pm 3,0	6 [2-12]	

Table 2 illustrates the relationship between the degree of disability and level of education. It has been observed that, as patients' level of education increases, their degree of disability decreases. The difference between

the illiterate patients and high school graduates was statistically and significantly higher as far as their MIDAS scores were concerned ($p=0.033$).

Table 2. The relationship between educational level and MIDAS scores.

Educational level	Median.±SD	Median [Min-Max]	p
Illiterate	17,3±11,0]	14 [6 – 43]	0,033
Primary School	12,7±8,5	10 [4 – 40]	
High School	8,9±5,0	8 [2 – 22]	
College	7,6±3,0	8 [4 – 12]	

72.3% of our patients told us that they had been using drugs to kill headaches while 21.8% shared a habit of applying to the emergency. It has been observed that older the patients get, the more they tend to apply to the emergency ($p = 0.008$). A similar correlation is also found between the number of emergency admissions and the age of onset of migraine as well as the duration of the attacks. In addition and in likewise manner, it has

been found out that those patients who did not have any brain imaging and those who were not informed about headaches prior to our screening are more likely to apply to the emergency. However, these differences were not statistically significant ($p=0.215$), ($p=0.011$), ($p=0.351$), ($p=0.577$), respectively) (Table 3).

Table 3. The profile of the patients who had applied to the emergency clinic with headache complaints.

Variable	Without Emergency Admission	With Emergency Admission	p
Age	30,0±8,9	34,6±7,7	0,008
Age at the onset of headaches	21,9±5,8	23,4±6,6	0,215
For how long they have had the headaches	8 [1 – 24]	10 [3 – 20]	0,011
Patients without any brain imaging history	36 (%65,5)	19 (%34,5)	0,351
Patients who are not knowledgeable about the reasons behind their headaches	26 (%65)	14 (%35)	0,577

The most commonly used medications for headaches were found to be non-steroidal anti-inflammatory drugs (NSAIDs) with 49.5% (50 patients). The relationship between the drug type and MIDAS scores was statistically similar ($p=0.111$) (Table 4). Analysing the factors that influence drug use, it has been noticed that proposed drug use decreases in patients with lower education levels ($p<0.001$). Parallel to this, patients who did not have any insightful information about headaches and those who simply applied to the emergency or a GP for their headaches had a tendency to discard the

regular use of the proposed drugs ($p<0.001$), ($p<0.001$, respectively) (Table 5).

Throughout the assessment of classified MIDAS scores of the patients, we noted that having diagnosed with migraine in the past does not affect the scoring ($p=0.189$). In addition, undergoing imaging, injection, and other ways of treatment upon admission do not influence the MIDAS score either ($p=0.015$). We saw a parallel rise between VAS scores and MIDAS scores though this increase was not statistically significant ($p=0.015$) (Table 6).

Table 4: The relationship between the drugs that have been used and MIDAS scores.

Drug	Median.±SD	Median [Min-Max]	p
Antidepressants	25,0±1,1	25 [25 – 25]	0,111
*CCBs/BBs	15,4±5,5	19 [6 – 20]	
**NSAIDs	11,6±9,0	8 [4 – 43]	
Parasetamol	7,5±2,1	8 [6 – 9]	
Triptans/ergotamines	11,0±7,3	9 [2 – 40]	

*Calcium Channel Blockers/ Beta blockers (CCBs/BBs)

**Non-steroidal anti-inflammatory drugs (NSAIDs)

Table 5. Variables concerning drug use.

Variables	Drug Use				p	
	I used the drugs	I did not use the drugs	I used the drugs but discontinued using them when the pain was over	I used the drugs but discontinued using them when they did not help		
Educational level	Illeterate	3 (%33,3)	1 (%11,1)	2 (%22,2)	3 (%33,3)	<0,001
	Primary	16 (%26,7)	24 (%40)	3 (%5)	17 (%28,3)	
	High School	7 (%25,9)	9 (%33,3)	4 (%14,8)	7 (%25,9)	
	College	0 (%0)	1 (%20)	4 (%80)	0 (%0)	
The department applied	Nöroloji	0 (%0)	35 (%56,5)	11 (%17,7)	16 (%25,8)	<0,001
	Internal Diseases	1 (%20)	0 (%0)	1 (%20)	3 (%60)	
	Neurosurgery	1 (%25)	0 (%0)	0 (%0)	3 (%75)	
	Family practitioner	13 (%68,4)	0 (%0)	1 (%5,3)	5 (%26,3)	
If the patient has any information about the headaches	Emergency clinic	11 (%100)	0 (%0)	0 (%0)	0 (%0)	<0,001
	NO	15 (%55,6)	0 (%0)	2 (%7,4)	10 (%37)	
	YES	11 (%14,9)	35 (%47,3)	11 (%14,9)	17 (%23)	

Table 6. Factors that affect MIDAS (catagorised) scores.

Variables	MIDAS score				p	
	0-5	6-10	11-20	>20		
Have they been diagnosed with migraine before?	No	8 (%24,2)	15 (%45,5)	7 (%21,2)	3 (%9,1)	0,189
	Yes	7 (%10,3)	28 (%41,2)	25 (%36,8)	8 (%11,8)	
Did they get any (drugs) treatment?	No	7 (%24,1)	14 (%48,3)	7 (%24,1)	1 (%3,4)	0,015
	Yes	8 (%11,1)	29 (%40,3)	25 (%34,7)	10 (%13,9)	
Have they ever applied to the emergency clinic for their pain?	No	11 (%18)	27 (%44,3)	16 (%26,2)	7 (%11,5)	0,449
	Yes	4 (%10)	16 (%40)	16 (%40)	4 (%10)	
Have they ever undergone brain imaging for their headaches?	No	8 (%14,5)	31 (%56,4)	11 (%20)	5 (%9,1)	0,012
	Yes	7 (%15,2)	12 (%26,1)	21 (%45,7)	6 (%13)	
VAS score		8 [6 – 10]	9 [7 – 10]	9 [6 – 10]	9 [7 – 10]	0,052

Table 7 gives the relationship between with the frequency of headaches and MIDAS scores. We have noticed that as the headache frequency increased, the

degree of disability also increased; this was statistically lower in the once-per-month group (p<0.001) (Table 7).

Table 7. The relationship between pain frequency and MIDAS scores.

Headache frequency	Median.±SD	Median [Min-Max]	p
Once a month	7,3±4,2	6 [3 – 16]	<0,001*
Once in 2-4 weeks	9,3±5,2	7 [2 – 24]	
Once to three time a week	13,4±5,5	12 [6 – 22]	
Four-six times a week	16,8±9,5	19 [6 – 40]	
Everyday	28,7±10,6	29 [12 – 43]	

DISCUSSION

Obstructing social activity and working life, migraine headaches often lead to disability, and therefore, migraine is an important public health issue (13). The scope of disability varies between individuals and even from attack to attack in the same person. High levels of disability result in labor loss, decrease in production, and increase in treatment expenses (14). In contrast to long-term disability seen in other neurological diseases such

as stroke or multiple sclerosis, the disability associated with migraine may be resolved with successful treatment (15)

Sara S. et al.'s epidemiological study shows migraine incidence to be 34.2% in patients with college level education and 63.6% in patients with primary level of education (16). Our study supports these data. It was found out that all of our patients consulted to doctors with headache complaints prior to the study, however only 67,3% (68 patients) of these patients received a

diagnosis of migraine. Most of our patients, 61.4% (62 patients), first consulted to neurologists. GPs were the first choice of 18.8% (19 patients) while the remaining 10.9% (11 patients) related that they first applied to emergency physicians. Although 71.3% of the patients were recommended medical treatment, 25.7% of these patients did not use the medication at all and 26.7% dropped using the drug in time. It has been noted that as the educational level gets lower, the number of patients who do not use the drugs also increases lower the rate of those drugs has increased and this relationship was found to be statistically significant.

Researchers studying the relationship between education level, duration of attacks, pain frequency, occupational groups, and disability investigating the authors have reported different results (17). In our study, the degree of disability, being a housewife, and having lower levels of education shared a meaningful correlation. It has also been observed that disability increases parallel to headache frequency. A community-based study conducted in the USA on patients' MIDAS degrees has determined that 18.2% patients had grade 1, 16.5% had grade 2, 27.3% had grade 3, and 38.1% had grade 4 disabilities (17). In F. Domaç et al.'s study, the average MIDAS value was 3.3 ± 0.9 (18). In our study, the mean MIDAS score was 5.8 ± 3.1 , which shows that the degree of disability in our study was higher compared to other studies. This may be a result of the facts that our patients had lower level of education, they did not take active part in business life, and that our research was carried out in a rural area. Another point to keep in mind concerning the results of our study is about some of our patients with shorter attack durations. In some of these patients, it is possible that they may have had medical certificates for the whole day and/or considered the day a lost day in their accounts although their migraine attacks was limited to a couple of hours. This situation may have influenced the statistical results related to headache durations and MIDAS scores.

In order to take migraine pain under control, and as far as mechanisms to cope with pain (such as ascribing meanings to the pain, believes related to pain, and interpreting their experiences with pain) are concerned, patients' age, gender, educational level, socio-cultural and economic factors all play an effective role (19). We have mentioned that 72.3% of the individuals included in our study take medication to alleviate pain while 21.8% of them tend to apply to the emergency. At this point, it should be mentioned that patients give importance to medical treatments and often they use medical resources. However, the reason why they end up at emergency could be explained both by patients' assumptions that the severe pain they suffer from could be a result of a symptom of a disease and by the easier and faster services patients receive in Turkey. In the literature, pain frequency is proportional to age while it is in inverse proportion to level of education (20). Besides patients whose pain behaviours are encouraged by their spouses have a tendency to relate their pain and pain intensity higher than others. Similarly, in our study,

81.2% of our patients were married women and we have observed that they made more emergency applications. All prevalence studies and clinical experiences have shown that migraine is more common in women (male-female ratio being 1:2-3) (21). The reason why women experience migraine headaches more than men do has been explained by their high migraine prevalence after puberty. In many women, menstruation is associated with migraine while it is also thought to be the stimulator behind OC-related migraine. In an extensive literature review, this situation was associated with disparate factors like women's ability to express pain better along with physiological, anatomical, fertility characteristics, lifestyle, and socio-cultural characteristics (22). In our study, 17.8% of the patients were using OCs. 22.8% of these patients stated that the headaches were caused by hormones whereas 4% stated that OC use triggered the headaches.

In almost 90% of our patients, we have observed that at least one of phonophobia, photophobia, nausea, and vomiting accompanied headache attacks. However, it has been noticed that the presence of these symptoms did not affect MIDAS degrees.

Inquiring into workplace disabilities of migraine sufferers, Von Korff et al. draw attention to their observation that pain intensity and frequency are regarded as the two most important factors affecting migraine-related disabilities (23). Disability is generally assumed to start at the point when pain intensity reaches 5 out of a scale of 0-10 (12). In our study, as VAS scores increased, so did MIDAS scores. However, this increase was not statistically significant. Meanwhile, VAS scores increased parallel to the number of patients admitted to emergency (9.1 ± 0.7), which was a statistically notable correlation.

In Turkey, analgesics are the second most widely used drugs by 12.0% while they are the fifth most common drug type in the world (24). 72.3% (73 patients) of our patients received medication to kill the pain; 49.5% (50 patients) of these individuals were using NSAIDs. It is safe to say that Turkish people are quite liberal in using painkillers. When we consider the current problems in Turkey, we can mention the high unnecessary and improper prescribing rates during the delivery of health services, insufficient knowledge and education among individuals, and the habit of excessive drug use and possession.

Many studies propose that the following factors either trigger or worsen migraine headaches: mental and endogenous factors (stress, menstruation), dietary habits (foods like chocolate and cheese, skipping meals, alcohol and oestrogen, and drugs like ergotamine and indomethacin), sleep irregularities, environmental factors (smell, light, noise, changes in the weather), various activities (physical, sexual), head and neck movements (to lean forward, head trauma) (25). In our study, too, the factors that initiated headaches were stress (47%), hormones (23%), and insomnia (7%) in migraine patients with and without aura in our region.

Regarding migraine as a public health problem, we tried to draw attention to patients' headache perceptions, their attitudes and behaviours towards headaches, regional factors that may lead to disability in line with demographic and clinical characteristics, the importance of education to prevent disability, and the significance of correct and appropriate dose intake in reducing pain frequency.

To conclude it can be stated that migraine headaches lead to significant economic, social, and personal losses. The headache-related severity of disability is an important factor in planning the treatment. To have better treatment planning and patient compliance as well as to assess patients' responses to treatments and to measure quality of life and headache-related disability, there is need for further research that reflect characteristics of that particular society. To reduce disability, physicians and migraine patients should be provided with necessary education and training. Last of all, we would like to reemphasise that there is need for more community-based studies that cover larger numbers of patients with broader demographic and clinical features to achieve more accurate results.

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