

Migraine prevalence, disability, and sociodemographic properties in the eastern region of Turkey: a population-based door-to-door survey

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Background/aim: To determine the frequency of migraine in the eastern part of Turkey and its sociodemographic characteristics, impact on disability, and clinical aspects.

Materials and methods: The study was conducted door-to-door in the eastern part of Turkey. Those who suffered from headaches were diagnosed with migraine as per the 2004 diagnosis criteria of the International Headache Society and its frequency was determined. Demographic data and Migraine Disability Assessment Scale (MIDAS) scores were recorded.

Results: Of the individuals evaluated, 60.4% (883) suffered from headaches, of which 43.6% (637) were evaluated as nonmigraine and 16.8% (246) as migraine headaches. Migraine prevalence was detected to be 10.3% (75) in men and 23.1% (171) in women. When the MIDAS scale was considered, 7.3% of the patients were classified with mild pain, 36.9% with mild to moderate pain, 41% with moderate pain, and 14.6% with severe pain.

Conclusion: Migraine headache has a wide and complex range of symptoms and is frequently observed in women and young adults. The prevalence of migraine among the general population of eastern Turkey was found to be similar to the averages in the rest of the country, as well to the averages of studies in Europe.

Key words: Migraine, prevalence, disability, sociodemographic properties

1. Introduction

Migraine is a significant public health issue in regard to its impact on both the individual's life and on the public. Migraine negatively affects society and impacts quality of life. Many studies have been conducted about the incidence of migraine, with significant differences obtained from the prevalence data. Prevalence changes according to age, with studies indicating a peak between the ages of 20 and 40 years old. Lifetime prevalence is 10% in men and 25% in women (1-3). Headache diagnosis criteria were established by the International Headache Society (IHS) in 2004 (4).

Despite the fact that many tools have been developed to evaluate disability, one of the most widely used scales for this purpose is the Migraine Disability Assessment Scale (MIDAS) (5). The ratio of the cases in which migraine leads to average and severe levels of functionality loss have been found not to be relative to sex, age, income, urban/rural settlement, or region of residence (6).

In this study, we aimed to determine the level of prevalence, clinical aspects of migraine headache, demographic particulars of the cases, and the loss of work-activity resulting from the disease.

2. Materials and methods

This study was performed within the Atatürk University Medical Faculty in eastern Turkey. In headache epidemiology studies conducted in Turkey, the migraine prevalence was previously based on the 18- to 55-year-old age group, and it was calculated that any study needs to be performed on 527 people in order to reach a confidence interval of 99%. In our study, the number of people required to be reached in relation to the general population of the city was determined from data provided by every family physician department located within the bounds of the city. For the physicians participating in this study, training was provided by lecturers experienced in the headache field in order to ensure standardization of the headache diagnoses. In total, 6 physicians were commissioned for the study. This study was performed by door-to-door house visits and face-to-face interviews.

In our study, a systematic sampling method was used. The province was split into quarters as a starting point, and, through a random draw, the right side and number 4 were selected. Starting from each quarter of the area, the survey was conducted by advancing on the right side of the

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fourth street beginning with the fourth building. Before the interview, the purpose of the study was explained to each person on an individual basis, and the survey was completed by the individuals who volunteered to participate in the study.

The study was performed in 2 phases. In the first phase, a preliminary scan form was applied and a total of 1461 individuals were evaluated. On the preliminary scan form, sociodemographic particulars (age, marital status, educational status, economic status, past medical history, occupation) were determined and those who suffered from headaches were identified.

In the second phase, for the cases meeting the IHS migraine diagnosis criteria using a standardized survey form related to headache, the clinical aspects of the headaches were determined. The interview questions included the following: frequency of headaches; characteristics and features; relation to menstruation; level of intensity; existence of an aura accompanying the headache (complaints or symptoms); timing of the aura, its duration, and characteristics; presence of nausea, vomiting; sensitivity to light, sound, or odor; loss of appetite; impact on physical activities; the location of the pain; the time of day that onset occurs; factors that stop or trigger the headache; sleeping routine; and if follow-up or treatment was being sought.

In order to determine the decreased efficiency in home and work life of those patients experiencing migraine attacks, and the restrictions on their normal activities, the MIDAS survey was applied, the validity of which is proven in Turkish society. The MIDAS survey consists of 5 questions, and the first, third, and fifth determine the days lost at school, work, and home or during spare time over the previous 3 months. The second and the fourth questions evaluate the number of additional days where there was a loss of efficiency due to migraines, where efficiency is identified as a decrease by at least 50% compared to the previous 3 months. There were 2 additional questions — “How many days did you have a headache during the last 3 months?” and “What is the average intensity of your headaches on a scale between 0 and 10?” — that evaluated the frequency and the intensity of the headaches but were not added to the total MIDAS value. The MIDAS score was obtained by adding the scores of the first 5 questions. From this, the MIDAS restriction degree was calculated. A score between 0 and 5 represented degree I (no restrictions or very low); a score between 6 and 10 represented degree II (moderate or few restrictions), a score between 11 and 20 represented degree III (average level of restriction); and a score of 21 or higher represented degree IV (heavy restrictions).

2.1. Statistical evaluation

Statistical evaluations were done using SPSS 20.0 (SPSS Inc., Chicago, IL, USA). The comparison of the data was done by chi-square test. Statistical hypotheses were tested using $P < 0.05$ as the level of statistical significance.

3. Results

Of the people taking part in the study, 60.4% (883) suffered from headaches. Of these, 43.6% (637) were evaluated as nonmigraine headaches. According to the IHS diagnosis criteria, without discriminating by sex, 246 (16.8%) of the patients were diagnosed with migraine. Migraine was detected in 171 women (23.1%) and 75 men (10.3%). Furthermore, 69.5% of those with migraines were women and 30.5% were men. The ratio of women to men was 2.3. The migraine frequency between the sexes was statistically meaningful (Table 1).

After the age of 40, there was an apparent decrease in the frequency of migraine. It was most frequently observed among the group aged 30–39 (35.3%) (Figure 1). Aura was present in 30% (74) of the migraine cases, and 70% (172) were without aura (Figure 2). Phonophobia was identified as one of the frequent symptoms accompanying migraine headache (91.5%). While problems with bright light (15.9%) and moderate (19.5%) and intense (17.1%) levels of nausea were observed, nausea was not present in 47.6% of the patients. Photophobia was identified in 76.8% of the patients, sensitivity to odor was determined in 52.4%, and vomiting was found in 29.3%. It was determined that physical activity during the attack made the headache worse for 67.1% and did not have any impact for 32.9% of the migraine sufferers.

The headache was detected to be pulsating in 216 individuals (87.8%) and had other characteristics in 18 individuals (12.2%).

In 58.5% of the cases, the headache was one-sided, and in 41.5% it was diffused. A slight to moderate level of headache was found in 24.4% of the cases, and 35.4% suffered an intense headache. In 40.2% of the cases, the intensity of the headache caused function loss and presented a necessity for bed rest. The frequency of the attacks was once or less than once a month in 20% of the migraine cases, between 1 and 4 times per month in 38%, and 4 or more times in 42% of the cases.

Among the triggering factors, the most frequent cause identified was emotional stress (85.4%). Other triggers included noise (69.5%), irregular sleep (67.9%), bright light (45.9%), hunger and skipping meals (38.6%), heat (33.7%), and smoking (31.7%). In women with migraine, migraine attacks were worse during menstruation (Table 2).

In this study, it was found that 12.2% of the patients had not been taking medications during the attacks and 74.4% were using analgesics. Among the latter group,

Table 1. Distribution of sociodemographic characteristic frequencies and percentages as per the sex of patients with migraine.

	Total (%)	Women (%)	Men (%)	P
Number of the individuals participating in the study (%)	1461 (100%)	738 (50.5%)	723 (49.5%)	
Average age of the participants of the study (years)	36.5 ± 14.45	35.8 ± 13.9	37.3 ± 14.9	
Number of patients with headache	883 (60.4%)	544 (73.1%)	339 (46.9%)	
Number of patients with migraine	246 (16.8%)	171 (23.1%)	75 (10.3%)	<0.0001
Number of patients with nonmigraine headache	637 (43.6%)	373 (50.5%)	264 (36.5%)	
Average age of those with migraine (years)	35.87 ± 11.9	34.5 ± 11.1	39.8 ± 13.4	
Number of migraine cases with aura	74 (5.1%)	55 (7.4%)	19 (2.6%)	0.010
Number of migraine cases without aura	172 (11.8%)	116 (15.7%)	56 (7.7%)	
Education (%)				
1. None	24 (9.8%)	20 (11.7%)	4 (5.3%)	
2. Primary school	78 (31.7%)	64 (37.4%)	14 (18.6%)	
3. Secondary school	27 (11.0%)	17 (9.9%)	10 (13.3%)	<0.0001
4. High school	51 (20.7%)	37 (21.6%)	14 (18.6%)	
5. Higher education	66 (26.8%)	33 (19.2%)	33 (44.0%)	
Economic status				
1. Low	180 (73.1%)	124 (72.5%)	56 (74.6%)	
2. Medium	57 (23.1%)	43 (25.1%)	14 (18.7%)	<0.0001
3. Good or high	9 (3.7%)	4 (2.3%)	5 (6.7%)	
Age intervals (years)				
1. Between ages of 15 and 29	79 (31.7%)	58 (33.9%)	21 (28.0%)	
2. Between ages of 30 and 39	87 (35.3%)	69 (40.3%)	18 (24.0%)	
3. Between ages of 40 and 49	38 (15.8%)	22 (12.8%)	16 (21.3%)	0.015
4. Age 50 or over	42 (17.1%)	22 (12.8%)	20 (26.6%)	
Occupation				
1. Housewife	114 (46.3%)	114 (66.7%)	-	
2. Student	24 (9.8%)	14 (8.2%)	10 (13.3%)	
3. Employee	66 (26.9%)	20 (11.7%)	46 (61.3%)	<0.0001
4. Other	42 (17.0%)	23 (13.5%)	19 (25.4%)	
Family history of migraine				
1. Present	106 (43.1%)	79 (46.2%)	27 (36.0%)	
2. None	140 (56.9%)	92 (53.8%)	48 (64.0%)	<0.0001

73.2% expressed that the medications were effective. We found that 45.1% of the migraine patients had previously seen a neurological specialist and 11% of these patients also saw other specialists, while 7.3% had seen a practicing physician and 36.6% had not consulted with any physicians.

Generally, in the MIDAS survey evaluation, 37.8% scored degree I, 20.7% scored degree II, 23.2% scored degree III, and 18.3% scored degree IV. When we consider the MIDAS headache intensity detection scale, 7.3% of the patients expressed that their headaches had been at level 4 or lower. The headache intensity was detected to be between 5 and 6 for 36.9% of the patients, 7 and 8 for 41% of the patients, and 9 and 10 for 14.6% of the patients according to the MIDAS visual analog scale (Table 3).

4. Discussion

In our study, the frequency of migraine in individuals of 18 years of age or older living in the east of Turkey was determined as 16.8%. In men the percentage was 10.3% and in women the percentage was 23.1%. Of those patients with migraine, 69.5% were women and 30.5% were men. Migraine prevalence studies generally suggest that the frequency among the population is 3%–28%, with the prevalence in women at 4%–33% and in men at 2%–22% (2,7). In the multicenter Headache Epidemiology Study in Turkey, the migraine prevalence was 16.4% between the ages of 15 and 55 without discriminating between sexes, with 21.8% of the women and 10.9% of the men reported to be suffering from migraines. On a regional basis, in addition to the fact that

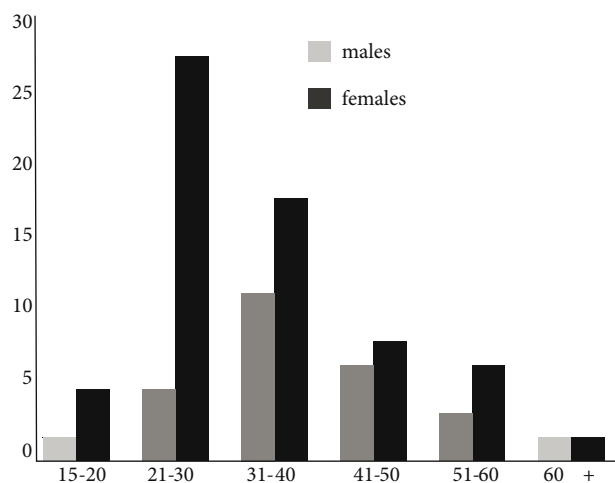


Figure 1. Age groups.

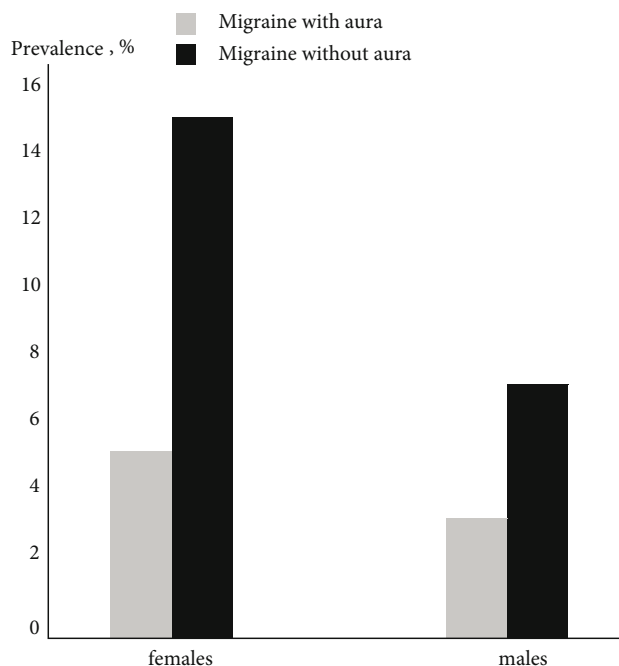


Figure 2. Prevalence of migraine types.

Table 2. Migraine frequency and percentage distributions associated with precipitation factors.

Precipitation factors	General (%)	Without aura (%)	With aura (%)	P ≤ 0.05
Mental tension and stress	85.4	83.7	89.2	<0.0001
Sleep disorder	67.9	70.3	62.2	<0.0001
Noise	69.5	66.9	75.7	<0.0001
Hunger	38.6	41.9	31.1	<0.0001
Bright light	45.9	48.3	40.5	<0.0001
Menstruation	36.6	35.3	40.0	<0.0001
Weather changes (hot-cold)	33.7	34.3	32.4	<0.0001
Cigarette	31.7	35.5	25.7	<0.0001

the prevalence changes to 11.4%–14.7% in the Marmara, Central Anatolia, and Black Sea regions, this value reaches 20.6%–24% in the Aegean, Mediterranean, East Anatolia, and Southeast Anatolia regions (8). We obtained results similar to the average of Turkey as a whole. However, according to the data for the southeastern region alone, we had a lower detection rate in eastern Turkey (16.8% against 24%).

Boru et al. (7) detected migraine prevalence as 15.8% in women between the ages of 15 and 45 having fertility capability and living in İstanbul. Çelik et al. (9) reported the general prevalence of migraine over the age of 14 as 19.9%, and as 9.3% in men and 29.3% in women. Migraine preva-

lence was reported to be 14.7% in a sample of more than 170,000 adult individuals (8% in men, 17.6% in women) (10). In another study, prevalence was reported between 6% and 8% in men and between 12% and 14% in women (11). Global migraine prevalence was determined as 15%, with 10% in men and 22% in women. Regionally, the prevalence was found to be 9% in Africa, 15% in Australia, 13% in Europe, and 9% in North America (12). According to our studies, in addition to reporting a similar frequency, we see a higher prevalence in women. These differences may be caused by cultural, climatic, and geographic differences between Thrace and eastern Anatolia.

Table 3. MIDAS scores of migraine patients and some general characteristics.

MIDAS scores	General (%)	Women (%)	Men (%)	P ≤ 0.05
1. Degree I (0–5)	37.8%	36.8%	40.0%	<0.0001
2. Degree II (6–10)	20.7%	15.8%	32.0%	
3. Degree III (11–20)	23.2%	26.3%	16.0%	
4. Degree IV (≥21 and higher)	18.3%	21.1%	12.0%	
Attack medication administered by the individual				
1. No medication	12.2%	12.3%	12.0%	<0.0001
2. Pain killers	74.4%	71.9%	80.0%	
3. Other medications	13.4%	15.8%	8.0%	
Visit to a physician by the individual				
1. No visit	36.6%	33.3%	44.0%	<0.0001
2. Practitioner physician	7.3%	7.0%	8.0%	
3. Neurology specialist	45.1%	49.1%	36.0%	
4. Other specialist physicians	11.0%	10.5%	12.0%	
Effectiveness of the attack medication				
1. Effective	73.2%	70.2%	0.0%	<0.0001
2. Ineffective	26.8%	29.8%	20.0%	

The possible reasons why migraine increases in women after the first menstruation is that migraine is related to menstruation, the impacts caused by the use of birth control medications, and the effects of changes in the sex hormones of women (13).

Steiner et al. (14) found the highest prevalence in the age group of 30–39 years (25.9%) and lowest in those aged 60 and older (12.1%). Lipton et al. (15) detected the values as 18.6% for the 30–39 age group and 19.0% for the group aged between 40 and 49. However, Rasmussen et al. (16) reported that the prevalence does not change between different age groups. In our study, when the frequency of migraine was evaluated per age group, it was detected to be highest for those aged between 30 and 39 (35.3%) and lowest for those over 50 (17.1%).

In studies performed in Turkey, it is seen that migraine prevalence is high among housewives and higher education graduates (17). Aygul et al. (18), in their hospital-based migraine study performed in Erzurum, detected the ratio of men to women as 1:3.2, and more than half of the women were housewives (61.4%). At the same time, 70.8% were married. The majority of the patients (75.7%) suffered from intense headache attacks. Most (79.5%) had low or average income levels and half had graduated after 11 years of school education. In our study, attention was drawn to the fact that migraines were most frequent in housewives (46.3%), and in men they were more prevalent in those who were graduates of higher education (44%). A reasonable

explanation for this is the greater health awareness among higher education graduates who, therefore, may have been attending related polyclinics at a higher rate.

Migraine is a disease with a high family prevalence, representing a genetic predisposition. Patients with migraine who presented with a past family history range between 45% and 70% (19). In our studies, a past history of migraine in first-degree family members was found to have a high correlation at 43.1%.

In the Headache Epidemiology Study of Turkey, during 1 year, it is estimated that the labor lost due to migraine is approximately 5.4 days (7). According to the MIDAS, Boru et al. reported 44.5% of migraine cases as degree I, 37.3% as degree II, 11.7% as degree III, and only 6.5% as degree IV (7). In our study, 93 individuals (37.8%) were detected at MIDAS degree I, 51 individuals (20.7%) at MIDAS degree II, 57 (23.2%) at MIDAS degree III, and 45 individuals (18.3%) at MIDAS degree IV. Even though there are differences between the results, migraine causes labor loss by leading to significant restrictions and economic burdens.

In our study, migraine headache prevalence in the eastern Anatolian region was low when compared to the averages in Turkey but was similar to those in Europe.

In conclusion, migraine is the most frequent primary episodic headache disease. Migraine is more frequent among women, among those who have low economic levels, and among graduates of higher education. The majority of migraine patients have a past migraine history in

their first-degree relatives. Migraine causes labor loss leading to significant restrictions, introduces economic losses,

and may significantly decrease the productivity of individuals by causing disturbances in life quality.

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