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MIGRAINE AMONG PATIENTS AND PATIENT'S QUALITY OF LIFE: A CROSS-SECTIONAL STUY

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Abstract

Introduction: Migraine is ranked the second leading cause of years lived with disability (YLD). It negatively affects multiple aspects of life which include family relationships, career/financial achievement, stability and overall health. This study aimed to assess the quality of life of migraine and its determinants among patients in clinics.

Methods: This study was a cross sectional study included a convenient sample of migraine patients (15-60 years), followed in 7 clinics at Riyadh, Saudi Arabia. A valid self-assessment questionnaire was utilized for collecting data. It has three parts; sociodemographic data, migraine history and the Arabic version of Migraine-Specific QOL Questionnaire, version 2.1 (MSQ 2.1) to assess quality of life.

Results: A total of 339 migraine patients participated in the study. Majority of them (87.6%) were females and Saudi nationals (92.9%). Their age ranged between 15 and 60 years, with arithmetic mean (±SD) of 36.31±12.56 years. On a scale ranged between 0 and 100, the mean score (±SD) for the restrictive role, preventive role, emotional function domains and the overall QOL were 70.42±22.89, 73.97±22.27, 77.73±21.32 and 73.0±20.78, respectively. Total migraine specific QOL score was highest among patients with intermediate school education (81.2±14.0), $p<0.001$, retired patients (81.7±18.2), $p=0.001$. It was significantly higher among never smokers than daily smokers (77.7±20.7 vs. 57.4±29.9), $p=0.024$ and among those without history of co-morbid chronic diseases compared to those with such history (76.4±21.3 vs.70.5±20.1), $p=0.010$. It was also highest among patients diagnoses in the past 1-3 years (79.4±16.3), $p<0.001$, those with less than 12 attacks/year (85.8±20.0), $p<0.001$, patients who reported no medication intake during migraine attacks

(84.4±18.5), p<0.001, patients who reported current intake of prophylactic medication (76.9±19.3), p<0.001, those who took Propranolol (Inderal) as a prophylactic drug (79.2±6.3), p=0.002 and those with no family history of migraine (76.7±21.2), p<0.001.

Conclusions: Migraine impacts the QOL of affected patients in many aspects. Therefore, assessing QOL by treating physicians is very essential to help them in making more suitable prescribing medications.

Keywords: Migraine, Pain-killer, Quality of Life, , Saudi

Introduction

Migraine is classified as neurological disease and a primary type of headache which has two major types migraine without aura and migraine with aura. Migraine is represented as attacks of pulsatile unilateral or bilateral moderated to sever localized headache which worsened with activity, associated with photophobia, phonophobia and nausea or vomiting [1]. It is commonest in ages of 30 up to 40 years old groups, and ameliorated as migraineurs reaches to their 50s to 60s [2].

Worldwide prevalence rate of migraine ranged between 2.6 and 21.7% which represent 12% in average [3]. Migraine among male and female ranked as the third most common disease (behind tension type headache and caries) [4]. American Migraine Prevalence and Prevention (AMPP) Study state the migraine is significantly more common in female and shows a difference between female to male as ratios range from 2:1 to 3:1 [5]. Prevalence of migraine in Saudi Arabia according to a study done 2018 in a large sample by Almalki et al. is 26.97% with female predominance (ratio of 1:2.9) [6].

The World Health Organization (WHO) define the quality of life (QOL) as "individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns."[7]. Migraine was ranked the second leading cause of years lived with disability (YLD) by last report released in 2017 from the Global Burden of Disease, which has ascended the ranks to its top causes of YLDs from 19th in 2000 to the 2nd in 2016 which indicate the insufficient of progress in addressing this condition [8]. As this finding regarding migraine, its support its negatively effects on multiple aspects of life which include family relationships, career/financial achievement and stability and overall health [9]. There are a few studies in Saudi Arabia regarding the effect of migraine on the quality of life. AlHarbi FG et al. conduct one study on migraine patients followed in clinics reported a low quality of life scores were associated with young ages, long disease

duration, frequent migraine attacks, and presence of chronic diseases [10].

In 2018, there was a cohort study done by Muayqil et al. about migraine and headache prevalence and associated co-morbidities in a large Saudi sample. They found the prevalence of migraine was 26.97% in 1,333 out of 4,943with female predominance (ratio of 1: 2.9) [6].

In 2021, there was across sectional study done by Fatima G AlHarbi et al. about quality of life of migraine patients followed in clinics in Riyadh, Saudi Arabia. They found low quality of life scores were associated with young ages, long disease duration, frequent migraine attacks, and presence of chronic diseases [10]. Significant decrease in physical and psychological QOL was associated with migraine [11]. A negative effect of migraine regarding many aspects of life including marital, parenting, romantic and family relationships, career/financial achievement and stability, and overall health [9].

As the migraine can affect the quality of life and ranked the second leading cause of years lived with disability, the author finds that there is a limited number of studies regarding the quality of life of migraine patients in Saudi Arabia in general and Riyadh in specific, the author conducted this study to address the potential disabilities in migraineurs and to encourage applying the effective quality of life measurement in the management of migraine patient. This study aimed to assess the quality of life of migraine patients in clinics at clinics, Riyadh city-2022.

Methods

This study was a cross sectional study and done in Riyadh city by inclusion of migraine patients who have been followed in 7 clinics at Riyadh. Study aimed to include all male and female patients who is knowing case of migraine, including age of 15 – 60 years old, Saudi and non-Saudi and who were diagnosed with migraine and followed with clinics for 6 months and more to ensure right diagnosis and to explore the effect of chronicity on the quality of life. Any patient with cognitive impairment was excluded from the study.

The represented sample sized was calculated using 50% prevalence of poor quality of life with a desired accuracy of 0.05 at 0.95 confidence level. The minimal sample size was 384 and to compensate for non-response and missing data 10 % was added; hence 423 questionnaires were distributed.

There are 8 clinics one of them was excluded as it is for new cases. The sampling was a convenient sampling among migraines patients whose followed in the full day clinics. The researcher started after obtaining the approval letter from the research committee in Riyadh city. After obtaining the approval letter from out-patients clinics director in King Fahad Hospital in Riyadh, the researcher distributed a valid self-assessment questionnaire for migraine patients who is followed at clinics after taking consent.

The study was conducted through three-part questionnaire consisted of 32 questions. The first part was on sociodemographic data included questions related to the (age, gender, nationality, marital status, educational level, job, income, history of chronic illness, smoking). The second part regarding migraine history (duration, frequency of attacks , medications used for abortive and preventive therapy , family history), and the third part is to assess the quality of life through Arabic version of Migraine-Specific QOL Questionnaire, version 2.1 (MSQ 2.1) which consists of 14 questions to measures the effect of migraine in a three important domains over the past 4 weeks: (1) restrictive role a cross seven items on how migraine limits one's daily social and work-related activity (2) preventive role a cross four items on how migraine prevents these activities and (3) emotional function a cross three items on migraine-associated emotions. The answers for each domain's question is scaled for 6 point: "none of the time," "a little bit of the time," "some of the time," "a good bit of the time," "most of the time," and "all of the time," which are scored of 1–6, respectively. Total score was rescaled from a 0 to 100 scale. Higher scores indicate better quality of life. MSQ 2.1 questioner is validated and was obtained from the Mapi Research Trust website, which had permission from the developer for the translation and use of the questionnaire.[13, 14]

The pilot study was conducted before starting the study to test the applicability, feasibility, time taking to finish one questionnaire and the process of conduction of the study. The questionnaire was distributed for 10 subject. All the data collected from those subjects will not be included in this study. The results revealed that the questionnaire was clear and understandable, thus, no modifications were carried out and it took approximately on average 12 minutes to be filled.

The data were coded and entered through SPSS software, version 26. Data analysis included descriptive statistics using frequency and percentage for categorical variables and mean and standard deviation for numerical continuous variables. Then, data were analyzed by using T-test and ANOVA to compare the mean of QOL scores between teo and more than two groups, respectively. Pearson`s correlation coefficient was used to correlated between two continuous variables (age and QOL score) in the same group. The results were considered statically significant if the P-value is < 0.05.

The proposal was submitted to get the ethical approval by research ethical committee in Riyadh . All participants were participated voluntary and informed regarding their right to not participate and their data would be kept confidential, anonymous and for study purpose only. A letter from general supervisor of training program was issued to the outpatient clinics director in King Fahad Hospital in Riyadh.

Results

Three hundred and 339 migraine patients participated in the study. Table 1 presents their sociodemographic characteristics. Majority of them (87.6%) were females and Saudi nationals

(92.9%). Their age ranged between 15 and 60 years, with arithmetic mean (±SD) of 36.31±12.56 years. More than half of patients (55.7%) were married and 44.3% were Bachelor holders. Not working/house wives represented 43.3% of the participants and the income

Table 1: Sociodemographic characteristics of migraine patients, clinics

Characteristics	*Frequency*	*Percentage*
Gender		
Male	42	12.4
Female	297	87.6
Age (years		
Range	15-60	
Mean±SD	36.31±12.56	
Nationality		
Saudi	315	92.9
Non-Saudi	24	7.1
Marital status		
Single	126	37.2
Married	189	55.7
Divorced	15	4.4
Widowed	9	2.7
Educational level		
Illiterate	12	3.5
Primary school	30	8.85
Intermediate school	42	12.4
Secondary school	75	22.1
Bachelor	150	44.3
Master/PhD	30	8.85
Job status		
Not working	147	43.3
Student	93	27.4
Private sector	21	6.2
Governmental	69	20.4
Retired	9	2.7
Family income (SR/month)		
<4000	243	71.7
4000-7999	18	5.3
8000-11999	18	5.3
12000-15999	30	8.8
16000-19999	24	7.1
≥20000	6	1.8

of most of them (71.7%) was below 4000 Saudi Riyals/month (table 1).

Time since diagnosis of migraine exceeded 5 years among almost one-third of patients (32.8%). The frequency of migraine attacks ranged between 2 and 3 times/week among 29.2% of patients whereas it was less than12 times/year among 22.1% of them. The most frequent medication taken taken during migraine attack was Panadol/Fevadol (68.1%). Prophylactic medication intake was reported by only 221% of patients; the most frequently reported was Topiramate (Topamax) (24%). Family history of migraine was reported by 41.6% of patients; particularly mothers (46.8%) and sisters (34%) as shown in table 2.

The prevalence of smoking was 7% (3.5% daily and 3.5% less than daily. History of chronic diseases was observed among 41.6% of migraine patients. Regarding the individual chronic co-morbid diseases, the commonest reported were anemia (21.3%), Diabetes II (19.1%), thyroid disorders (19.1%) and hypertension (17%).

Almost half of the patients (50.4%) have mentioned that because of migraines, they have been afraid all the time of letting others down (52.2%), not able to go to social activities and felt all the time fed up or frustrated (44.2%). More than one-third of them (34.5%) needed all the time help in handling routine tasks. Table 4 summarizes the QOL score of migraine patients. On a scale ranged between 0

and 100, the mean score (±SD) for the restrictive role, preventive role, emotional function domains and the overall QOL were 70.42±22.89, 73.97±22.27, 77.73±21.32 and 73.0±20.78, respectively.
Table 5 shows score of restrictive role domain of Migraine-Specific Quality of Life scale was highest among patients with intermediate school education (81.3±16.0) and lowest among those with postgraduate degree (53.6±19.5), p<0.001. Concerning job status, it was highest among retired patients (79.4±22.6) and lowest among private sector employees (57.1±19.6), p=0.031. It was significantly higher among non-smokers than daily smokers (76.2±26.0 vs. 55.4±28.5), p=0.049 and among those without history of co-morbid chronic diseases compared to those with such history (74.7±23.4 vs. 67.4±22.1), p=0.004. Table 6 shows that the score of the restrictive role domain of migraine QOL scale was highest among patients diagnoses for 1-3 years (78.2±18.1) and lowest among those diagnosed since less than 6 months (61.2±26.5), p=0.001. Regarding frequency of attacks, it was highest among patients with less than 12 attacks/year (83.0±22.7) and lowest among those who reported daily migraine attacks (55.8±22.1), p<0.001. The score was highest among patients who reported no medication intake during migraine attacks (85.5±16.7) while it was lowest

Table 2: Migraine-related characteristics of migraine patients, clinics

Characteristics	*Frequency*	*Percentage*
Time since diagnosis		
<6 months	63	18.6
6 months-one year	51	15.0
1-3 years	57	16.8
3-5 years	57	16.8
>5 years	111	32.8
Frequency of migraine attacks		
Daily	42	12.4
4-6 times/week	18	5.3
2-3 times/week	99	29.2
Once weekly	39	11.5
≤3 times/month	66	19.5
<12 times/year	75	22.1
Medications taken during migraine attack*		
Nothing	39	11.5
Panadol/Fevadol	231	68.1
Triptan	42	12.4
Prufin	33	9.7
Others	42	12.4
Current taking prophylactic medications		
No	225	75.2
Yes	75	22.1
Don1t know	9	2.7
If yes, which medications? (n=75)		
Propranolol (Inderal)	9	12.0
Topiramate (Topamax)	18	24.0
Don`t know	21	28.0
Others	27	36.0
Family history of migraine		
No	198	58.4
Yes	141	41.6
If yes, specify who is? (n=141)*		
Mother	66	46.8
Father	9	6.4
Sister	48	34.0
Brother	27	19.1
Others	39	27.7

among those who took medications other than Panadol/Fevadol and Triptan (51.9±24.0), p<0.001. It was higher among patients who reported current intake of prophylactic medication compared to those who did not take such medications (75.0±21.1 vs. 54.6±22.6), p<0.001. It was also significantly

higher among patients with no family history of migraine compared to those with such history (74.2±23.0 vs. 65.1±21.7), p<0.001.

Table 7 demonstrates that score of preventive role domain of Migraine-Specific Quality of Life scale was highest among patients with primary school education (82.5±20.6) and lowest among those with postgraduate degree (62.1±23.0), p=0.004. It was highest among retired patients (77.8±18.5) and lowest among private sector employees (58.3±23.5), p=0.001. It was significantly higher among less than daily smokers than daily smokers (85.4±9.0 vs. 57.3±31.9), p=0.007 and among those without history of co-morbid chronic diseases compared to those with such history (78.0±22.1 vs. 71.1±22.0), p=0.005.

The score of the preventive role domain of migraine QOL scale was highest among patients diagnoses for 1-3 years (80.3±17.7) and lowest among those diagnosed since less than 6 months (62.9±24.0), p=0.001. Regarding frequency of attacks, it was highest among patients with less than 12 attacks/year (87.5±20.8) and lowest among those who reported daily migraine attacks (61.3±22.7), p<0.001. The score was highest among patients who reported no medication intake during migraine attacks (83.7±18.8) while it was lowest among those who took medications other than Panadol/Fevadol and Triptan (55.6±25.6), p<0.001. It was higher among patients who reported current intake of prophylactic medication compared to those who did not take such medications (77.5±20.9 vs. 62.0±23.9, p<0.001). Among those who took prophylactic medications, the highest score was observed among patients taking Propranolol (Inderal) (79.2±6.3) and the lowest was observed among those taking medications other than Propranolol and Topiramate (49.1±30.2), p=0.002. It was also significantly higher among patients with no family history of migraine compared to those with such history (77.8±22.5 vs. 68.6±20.8), p<0.001 as illustrated in table 8.

Score of emotional function domain of Migraine-Specific Quality of Life scale was positively correlated significantly with participants` age (r=0.139, p=0.011. It was highest among patients with primary school education (86.1±16.0) and lowest among those with postgraduate degree (63.9±27.0), p=0.001. It was significantly higher among non-smokers than daily smokers (78.6±19.9 vs. 62.5±39.6), p=0.019 as demonstrated in table 9.Table 10 shows that the score of the emotional role domain of migraine QOL scale was highest among patients diagnoses for 3-5 years (83.9±17.9) and lowest among those diagnosed since less than 6 months (64.8±29.7), p<0.001. Regarding frequency of attacks, it was highest among patients with less than 12 attacks/year (90.0±16.3) and lowest among those who reported daily migraine attacks (59.5±29.1), p<0.001. The score was highest among patients who reported no medication intake during migraine attacks (82.9±24.5) while it was lowest among those who took medications other than Panadol/Fervidor and Triptan (69.1±19.8), p<0.001. It was higher among patients who reported current intake of prophylactic medication compared to those who did not take such medications (81.5±7.3 vs. 68.2±22.5), p<0.001. It was also significantly higher among patients with no family history of migraine compared to those with such history (81.2±21.7 vs. 72.8±19.9), p<0.001.

Table 11 demonstrates that total migraine specific QOL score was highest among patients with intermediate school education (81.2±14.0) and lowest among those with postgraduate degree (58.2±21.3), p<0.001. It was highest among retired patients (81.7±18.2) and lowest among private sector employees (57.7±20.0), p=0.001. It was significantly higher among never smokers than daily smokers (77.7±20.7 vs. 57.4±29.9), p=0.024 and among those without history of co-morbid chronic diseases compared to those with such history (76.4±21.3 vs.70.5±20.1), p=0.010.

Table 12 presents the total migraine specific QOL score was highest among patients diagnoses since 1-3 years (79.4±16.3) and lowest among those diagnosed since less than 6 months (62.5±24.2), p<0.001. Regarding frequency of attacks, it was highest among patients with less than 12 attacks/year (85.8±20.0) and lowest among those who reported daily migraine attacks (58.2±22.6), p<0.001. The score was highest among patients who reported no medication intake during migraine attacks (84.4±18.5) while it was lowest among those who took medications other than Panadol/Fevadol and Triptan (56.6±21.6), p<0.001. It was higher among patients who reported current intake of prophylactic medication compared to those who did not take such medications (76.9±19.3 vs. 59.6±21.3), p<0.001). Among those who took prophylactic medications, the highest score was

observed among patients taking Propranolol (Inderal) (79.2±6.3) and the lowest was observed among those taking medications other than Propranolol and Topiramate (49.1±30.2), p=0.002. It was also significantly higher among patients with no family history of migraine compared to those with such history (76.7±21.2 vs. 67.8±19.1), p<0.001.

Discussion

Migraine is well known to be associated with several personal as well as societal burden [15, 16]. It has also adverse impacts on family life; particularly patients` spouses and children [17-19]. Effective assessment of QOL and disability of migraine patients is considered an important component in the management of the disease as several studies documented migraine disability in the form of lost time as well reduced capability of doing daily activities [11]. The current study was conducted mainly to assess the quality of life of migraine patients in clinics city, due to limited studies concerning this issue in Saudi Arabia.

In agreement with others who stated that migraine is more prevalent among females, [10, 20-23] the majority of patients included in this study (87.6%) were females. Also, the mean age of patients was 36.31 years. This is again agreeing with previous studies which reported that migraine is a disease affecting mainly middle age population between 20 and 40 years [10, 11, 22, 24].

Regarding the migraine characteristics, almost one third of migraine patients in the present study were diagnosed with migraine since more than 5 years compared to two-thirds of patients in a similar study carried out recently in Riyadh [10]. The difference could be explained by difference in the mean age of patients in both studies, where patents were little bit younger in Riyadh`s study. It has been reported internationally that patients were diagnosed with migraine mostly below the age of 20 years [25, 26]. A considerable proportion of patients in the present study reported migraine in a frequency of 2-3 times per week in agreement with a study carried out in Riyadh,[10] where most of patients reported migraine in a rate of more than one attack per week. Despite the relatively high frequency of migraine attaches among our patients, only 22.1% reported intake of prophylactic therapy. In a study carried out in Riyadh, intake of prophylactic therapy was reported by majority of patients (85%). This finding needs further in-depth investigation. The commonly used drug during migraine attacks was Panadol/Fevadol (68.1%) in this study. The same has been reported by others [10, 30].

The most frequently reported prophylactic was Topiramate (Topamax), followed by propranolo. In Other studies, carried out locally (10) and internationally, a study carried out in Riyadh, the commonest used was amitriptyline, followed by topiramate and propranolol [27-29]. However, we cannot say that we are differ from others as 64% of patients reported either other drug of ignored the prophylactic medication used. In the present study, on a scale ranged between 0 and 100 of the migraine-specific QOL scale, the mean score (±SD) for the restrictive role, preventive role, emotional function domains and the overall QOL were 70.42±22.89, 73.97±22.27, 77.73±21.32 and 73.0±20.78, respectively. In another recent Saudi study carried out in Riyadh, using the same scale, the mean scores of restrictive role, preventive role and emotional function were 51.8 ± 19, 54 ± 18 and 46.3 ± 23.4, respectively [10]. This indicated lowed quality of life compared to our cohort. This variation could be attributed to the differences in the characteristics of the study population.

In the current study, because of migraines, between one third and one-half of patients have been" afraid all the time of letting others down" (52.2%), "not able to go to social activities" (50.4%), "felt all the time fed up or frustrated" (44.2%) and "needed help in handling routine tasks" (34.5%). In a study carried out in Riyadh (KSA), patients have reported that because of migraine, they have been "afraid of letting others down" (31.6%), and "frustrated because of my migraines" (26.3%). In Canada, three quarters of patients reported poor sleep because of migraine, more than half reported that migraine prevented them from driving and one-third reported missing one day of work due to migraine. As well as it made them feel left out of activities. Also, other studies carried out in previously in Riyadh (KSA) [32], USA [33, 34]) and Malaysia [35] reported severe functional impairment and disability and lack of school/college days (for students) due to migraine. In Jeddah (KSA), Ibrahim et al. observed that during migraine attacks among medical students and interns, the majority had diminished academic performance and frequent absence from classes [36].

The present study revealed that migraine affection of the QOL was highest among patients with lower education as well as retired patients. This could be explained by the fact that higher educated and working patients are usually more involved in many social and work-related activities than lower educated and retired patients, which in turn be more worried about their status. In accordance with others (10, 33), no gender difference was detected in this study regarding impact of migraine on QOL. QOL was less affected among never smokers than daily smokers and among those without history of co-morbid chronic diseases compared to those with such history. The same affection of chronic illness on QOL of migraine patients was observed by others [10]. In accordance with a study carried out recently in Riyadh (KSA), in the current study, longer duration of the disease and more frequent attacks of migraine were associated with poor QOL.

It has been noticed from literature that the effects of migraine on QOL of patients are not limited to the migraine attacks only but extend further to the periods in-between attacks [37] This should be taken into consideration by treating physicians during follow-up of such patients [38]. Furthermore, studies have shown that medical care given to migraine patients is suboptimal [39] In the current study, patients who reported no medication intake during migraine attacks expressed the highest QOL score. This finding could reflect their medical status as a mild case necessitating no treatment, and thus, not impacting the QOL. Also, this can be seen in the present study by finding that patients, who reported current intake of prophylactic medication; particularly Propranolol (Inderal) expressed the highest QOL score in the present study.

In the present study, we included patients followed up at clinics, rather than general population, which could affect the generalizability of findings as those patients might have more severe forms of the disease. However, we included those patients to ensure the diagnosis of migraine. Cross-sectional design adopted in this study is another limitation as it doesn`t prove causality between associated factors and the outcome. Despite those few limitations the study explored an important issue which is the importance of assessing QOL of migraine patients for making more suitable prescribing medications by treating physicians.

Conclusions

Migraine affects the quality of life of patients attending clinics at Riyadh. This affection included restriction of their physical and social activities as well as represented an emotional problem. Impact of QOl was more apparent among smokers, those with co-morbid diseases,

patients with longer duration and more frequent attacks of migraine, patients on medications during attacks, and those who reported no intake of prophylactic medication and patients with family history of migraine.

Conflict of interests

The authors declared no conflict of interests.

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Table 3: Response of the patients to different questions of the Migraine-Specific QOL Questionnaire

Items	Never N (%)	Rarely N (%)	Some of the time N (%)	A good bit of time N (%)	Most of the time N (%)	All of the time N (%)
How often have migraines interfered with how well you dealt with family, friends, and others who are close to you?	18 (5.3)	27 (8.0)	78 (23.0)	54 (15.9)	63 (19.6)	99 (29.2)
How often have migraines interfered with your leisure time activities such as reading or exercising?	33 (9.7)	9 (2.7)	87 (25.7)	51 (15.0)	60 (17.7)	99 (29.2)
How often have you had difficulty in performing work or daily activities because of migraine symptoms?	18 (5.3)	33 (9.7)	75 (22.1)	45 (13.3)	75 (22.1)	93 (27.4)
How often have migraines kept you from getting as much done at work or at home?	15 (4.4)	30 (8.8)	60 (17.7)	69 (20.4)	57 (16.8)	108 (31.9)
How often have migraines left you too tired to do work or daily activities?	15 (4.4)	33 (9.7)	63 (18.6)	48 (14.2)	72 (21.2)	108 (31.9)
6. How often have migraines limited your ability to concentrate on work or daily activities?	18 (5.3)	33 (9.7)	69 (20.4)	78 (23.0)	57 (16.8)	84 (24.8)
How often have migraines limited the number of days you have felt energetic?	12 (3.5)	27 (8.0)	60 (17.7)	90 (26.5)	69 (20.4)	81 (23.9)
How often have you had to cancel work or daily activities because of your migraines?	6 (1.8)	21 (6.2)	54 (15.9)	72 (21.2)	75 (22.1)	111 (32.7)
How often did you need help in handling routine tasks such as everyday household chores, doing necessary business, shopping, or caring for others, because of your migraines?	15 (4.4)	27 (8.0)	69 (20.4)	60 (17.7)	51 (15.0)	117 (34.5)
How often did you have to stop work or daily activities to deal with migraine symptoms?	12 (3.5)	24 (7.1)	39 (11.5)	99 (29.2)	60 (17.7)	105 (31.0)
How often have you felt fed up or frustrated because of your migraines?	24 (7.1)	30 (8.8)	51 (15.0)	54 (15.9)	30 (8.8)	150 (44.2)
How often have you felt like you were a burden on others because of your migraines?	21 (6.2)	42 (12.4)	66 (19.5)	57 (16.8)	54 (15.9)	99 (29.2)
How often have you been afraid of letting others down because of your migraines?	15 (4.4)	12 (3.5)	24 (7.1)	45 (13.3)	66 (19.5)	177 (52.2)
How often were you not able to go to social activities such as parties, dinner with friends, because of your migraines?	15 (4.4)	6 (1.8)	36 (10.6)	51 (15.0)	60 (17.7)	171 (50.4)

Table 4: Participants' mean score in each domain of the Migraine-specific Quality of Life questionnaire (n=339)

Measures	Restrictive Role	Preventive Role	Emotional function	Total
Minimum	16.67	16.67	16.67	16.67
Maximum	100	100	100	100
Mean±SD	70.42±22.89	73.97±22.27	77.73±21.32	73.00±20.78

SD: standard deviation

Table 5: Participants` sociodemographic and medical factors associated with restrictive role of Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Gender		
Male (n=42)	76.2±22.3	
Female (n=297)	69.6±22.9	0.081ǂ
Age (years		
r*	-0.02	0.662
Nationality		
Saudi (n=315)	70.7±23.2	
Non-Saudi (n=24)	66.4±18.7	0.370ǂ
Marital status		
Single (n=126)	72.3±22.3	
Married (n=189)	68.2±23.6	
Divorced (n=15)	77.6±15.2	
Widowed (n=9)	78.6±21.5	0.150‡
Educational level		
Illiterate (n=12)	60.7±25.0	
Primary school (n=30)	77.6±19.9	
Intermediate school (n=42)	81.3±16.0	

Secondary school/Diploma (n=75)	73.8±21.0	
Bachelor (n=150)	68.4±24.1	
Master/PhD (n=30)	53.6±19.5	<0.001‡
Job status		
Not working/house wife (n=147)	72.5±23.9	
Student (n=93)	68.4±24.4	
Private sector employee (n=21)	57.1±19.6	
Governmental employee (n=69)	71.5±17.9	
Retired (n=9)	79.4±22.6	0.031‡
Family income (SR/month)		
<4000 (n=243)	71.2±23.6	
4000-7999 (n=18)	77.4±23.6	
8000-11999 (n=18)	72.6±24.2	
12000-15999 (n=30)	69.0±16.2	
16000-19999 (n=24)	59.8±21.1	
≥20000 (n=6)	59.5±1.0	0.119‡
Smoking history		
Never (n=315)	76.2±26.0	
Yes, daily (n=12)	55.4±28.5	
Yes, less than daily (n=12)	70.8±22.4	0.049‡
History of chronic diseases		
No (n=198)	74.7±23.4	0.004ŧ
Yes (n=141)	67.4±22.1	

Pearson`s correlation coefficient

ŧStudent's t-test

‡Anova test*

Table 6: Participants` migraine-related factors associated with restrictive role of Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Time since diagnosis		
<6 months (n=63)	61.2±26.5	
6 months-one years (n=51)	66.9±18.5	
1-3 years (n=57)	78.2±18.1	
3-5 years (n=51)	72.2±25.7	
>5 years (n=111)	72.3±21.5	0.001
Frequency of migraine attacks		
Daily (n=42)	55.8±22.1	
4-6 times/week (n=18)	62.3±24.0	
2-3 times/week (n=99)	66.6±19.1	
Once weekly (n=39)	66.8±24.0	
≤3 times/month (n=66)	75.5±20.0	
<12 times/year (n=75)	83.0±22.7	<0.001
Medications taken during migraine attack		
Nothing (n=39)	85.5±16.7	
Panadol/Fevadol (n=198)	74.0±20.6	
Triptan (n=30)	62.4±19.4	
Others (n=27)	51.9±24.0	
To drugs or more (n=45)	57.9±24.8	<0.001
Current taking prophylactic medications		
No (n=225)	54.6±22.6	
Yes (n=75)	75.0±21.1	
Don1t know (n=9)	71.4±14.4	<0.001
If yes, which medications? (n=75)		
Propranolol (Inderal) (n=9)	51.6±11.9	
Topiramate (Topamax) (n=18)	55.2±20.0	
Don`t know (n=21)	49.7±31.6	
Others (n=27)	61.6±10.2	0.336
Family history of migraine		
No (n=198)	74.2±23.0	<0.001
Yes (n=141)	65.1±21.7	

*Pearson`s correlation coefficient

Table 7: Participants` sociodemographic and medical factors associated with preventive role of Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Gender		
Male (n=42)	77.1±25.4	
Female (n=297)	73.5±21.8	0.333ǂ
Age (years		
r*	0.010	0.858
Nationality		
Saudi (n=315)	73.9±22.6	
Non-Saudi (n=24)	75.0±17.5	0.814ǂ
Marital status		
Single (n=126)	74.6±21.8	
Married (n=189)	74.0±22.9	
Divorced (n=15)	69.2±20.3	
Widowed (n=9)	72.2±22.0	0.837‡
Educational level		
Illiterate (n=12)	77.1±19.6	
Primary school (n=30)	82.5±20.6	
Intermediate school (n=42)	79.5±16.9	
Secondary school/Diploma (n=75)	75.2±22.2	
Bachelor (n=150)	72.3±23.1	
Master/PhD (n=30)	62.1±23.0	0.004‡
Job status		
Not working/house wife (n=147)	77.6±23.2	
Student (n=93)	70.0±22.5	
Private sector employee (n=21)	58.3±23.5	
Governmental employee (n=69)	75.7±17.2	
Retired (n=9)	77.8±18.5	0.001‡
Family income (SR/month)		
<4000 (n=243)	74.3±23.0	
4000-7999 (n=18)	81.3±23.7	
8000-11999 (n=18)	79.9±20.2	
12000-15999 (n=30)	67.1±17.2	
16000-19999 (n=24)	66.7±20.7	
≥20000 (n=6)	83.3±1.0	0.081‡
Smoking history		
Never (n=315)	74.2±21.9	
Yes, daily (n=12)	57.3±31.9	
Yes, less than daily (n=12)	85.4±9.0	0.007‡
History of chronic diseases		
No (n=198)	78.0±22.1	0.005ǂ
Yes (n=141)	71.1±22.0	

Table 8: Participants` migraine-related factors associated with preventive role of Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Time since diagnosis		
<6 months (n=63)	62.9±24.0	
6 months-one year (n=51)	76.5±16.3	
1-3 years (n=57)	80.3±17.7	
3-5 years (n=51)	74.8±27.9	
>5 years (n=111)	75.5±20.7	<0.001
Frequency of migraine attacks		
Daily (n=42)	61.3±22.7	
4-6 times/week (n=18)	66.7±24.9	
2-3 times/week (n=99)	70.8±19.5	
Once weekly (n=39)	68.3±22.1	
≤3 times/month (n=66)	76.7±19.2	
<12 times/year (n=75)	87.5±20.8	<0.001
Medications taken during migraine attack		

Nothing (n=39)	83.7±18.8	
Panadol/Fevadol (n=198)	76.8±20.0	
Triptan (n=30)	71.3±18.4	
Others (n=27)	55.6±25.6	
To drugs or more (n=45)	65.8±26.6	<0.001
Current taking prophylactic medications		
No (n=225)	62.0±23.9	
Yes (n=75)	77.5±20.9	
Don1t know (n=9)	75.0±9.5	<0.001
If yes, which medications? (n=75)	79.2±6.3	
Propranolol (Inderal) (n=9)	67.4±19.6	
Topiramate (Topamax) (n=18)	66.7±13.7	
Don`t know (n=21)	49.1±30.2	0.002
Others (n=27)		
Family history of migraine	77.8±22.5	
No (n=198)	68.6±20.8	<0.001
Yes (n=141)		

Table 9: Participants` sociodemographic and medical factors associated with emotional function of Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Gender		
Male (n=42)	77.8±24.8	
Female (n=297)	77.7±20.8	0.987ǂ
Age (years		
r*	0.139	0.011*
Nationality		
Saudi (n=315)	78.2±21.2	
Non-Saudi (n=24)	70.8±22.5	0.100ǂ
Marital status		
Single (n=126)	76.5±29.8	
Married (n=189)	77.9±22.5	
Divorced (n=15)	80.0±13.4	
Widowed (n=9)	88.9±8.3	0.379‡
Educational level		
Illiterate (n=12)	75.0±19.5	
Primary school (n=30)	86.1±16.0	
Intermediate school (n=42)	83.3±14.6	
Secondary school/Diploma (n=75)	77.6±21.8	
Bachelor (n=150)	77.6±21.3	
Master/PhD (n=30)	63.9±27.0	0.001‡
Job status		
Not working/house wife (n=147)	81.7±21.1	
Student (n=93)	73.1±21.1	
Private sector employee (n=21)	57.9±25.4	
Governmental employee (n=69)	79.5±16.9	
Retired (n=9)	92.6±7.3	0.409‡
Family income (SR/month)		
<4000 (n=243)	77.8±21.7	
4000-7999 (n=18)	77.8±30.8	
8000-11999 (n=18)	86.1±13.1	
12000-15999 (n=30)	73.9±18.1	
16000-19999 (n=24)	73.6±20.0	
≥20000 (n=6)	83.3±1.0	0.409‡
Smoking history		
Never (n=315)	78.6±19.9	
Yes, daily (n=12)	62.5±39.6	
Yes, less than daily (n=12)	70.8±27.0	0.019‡
History of chronic diseases		
No (n=198)	77.2±20.5	
Yes (n=141)	78.5±22.5	0.581ǂ

Table 10: Participants` migraine-related factors associated with emotional function of Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Time since diagnosis		
<6 months (n=63)	64.8±29.7	
6 months-one year (n=51)	79.4±16.4	
1-3 years (n=57)	81.0±16.2	
3-5 years (n=51)	83.9±17.9	
>5 years (n=111)	79.4±18.9	<0.001
Frequency of migraine attacks		
Daily (n=42)	59.5±29.1	
4-6 times/week (n=18)	70.4±20.8	
2-3 times/week (n=99)	74.9±18.1	
Once weekly (n=39)	77.4±16.9	
≤3 times/month (n=66)	81.8±18.0	
<12 times/year (n=75)	90.0±16.3	<0.001
Medications taken during migraine attack		
Nothing (n=39)	82.9±24.5	
Panadol/Fevadol (n=198)	81.0±18.7	
Triptan (n=30)	70.0±17.4	
Others (n=27)	69.1±19.8	
To drugs or more (n=45)	69.3±27.4	<0.001
Current taking prophylactic medications		
No (n=225)	68.2±22.5	
Yes (n=75)	81.5±7.3	
Don1t know (n=9)	80.4±20.5	<0.001
If yes, which medications? (n=75)	83.3±1.0	
Propranolo (Inderal) (n=9)	65.7±24.1	
Topiramate (Topamax) (n=18)	65.1±16.6	
Don`t know (n=21)	67.3±27.4	0.191
Others (n=27)		
Family history of migraine	81.2±21.7	
No (n=198)	72.8±19.9	<0.001
Yes (n=141)		

Table 11: Participants` sociodemographic and medical factors associated with total Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Gender		
Male (n=42)	76.8±22.8	
Female (n=297)	72.5±20.5	0.208ǂ
Age (years		
r*	0.020	0.709*
Nationality		
Saudi (n=315)	73.2±21.0	
Non-Saudi (n=24)	69.8±17.1	0.434ǂ
Marital status		
Single (n=126)	73.9±20.4	
Married (n=189)	71.9±21.6	
Divorced (n=15)	75.7±14.3	
Widowed (n=9)	79.0±17.7	0.633‡
Educational level		
Illiterate (n=12)	68.5±20.2	
Primary school (n=30)	80.8±17.7	
Intermediate school (n=42)	81.2±14.0	
Secondary school/Diploma (n=75)	75.0±20.4	
Bachelor (n=150)	71.5±21.4	

Master/PhD (n=30)	58.2±21.3	<0.001‡
Job status		
Not working/house wife (n=147)	75.9±21.3	
Student (n=93)	69.9±21.8	
Private sector employee (n=21)	57.7±20.0	
Governmental employee (n=69)	74.4±16.2	
Retired (n=9)	81.7±18.2	0.001‡
Family income (SR/month)		
<4000 (n=243)	73.5±21.4	
4000-7999 (n=18)	78.6±24.2	
8000-11999 (n=18)	77.6±20.0	
12000-15999 (n=30)	69.5±15.1	
16000-19999 (n=24)	64.7±15.1	
≥20000 (n=6)	71.4±20.0	0.221‡
Smoking history		
Never (n=315)	77.7±20.7	
Yes, daily (n=12)	57.4±29.9	
Yes, less than daily (n=12)	73.4±20.2	0.024‡
History of chronic diseases		
No (n=198)	76.4±21.3	0.010ǂ
Yes (n=141)	70.5±20.1	

Table 12: Participants` migraine-related factors associated with total Migraine-Specific Quality of Life score.

Factors	Mean±SD	p-value
Time since diagnosis		
<6 months (n=63)	62.5±24.2	
6 months-one year (n=51)	72.3±15.9	
1-3 years (n=57)	79.4±16.3	
3-5 years (n=51)	75.4±23.4	
>5 years (n=111)	74.7±19.4	<0.001
Frequency of migraine attacks		
Daily (n=42)	58.2±22.6	
4-6 times/week (n=18)	65.3±23.3	
2-3 times/week (n=99)	69.6±16.7	
Once weekly (n=39)	69.5±19.3	
≤3 times/month (n=66)	77.2±17.4	
<12 times/year (n=75)	85.8±20.0	<0.001
Medications taken during migraine attack		
Nothing (n=39)	84.4±18.5	
Panadol/Fevadol (n=198)	76.3±18.0	
Triptan (n=30)	66.5±17.8	
Others (n=27)	56.6±21.6	
To drugs or more (n=45)	62.6±25.0	<0.001
Current taking prophylactic medications		
No (n=225)	59.6±21.3	
Yes (n=75)	76.9±19.3	
Don1t know (n=9)	74.6±8.6	<0.001
If yes, which medications? (n=75)	66.3±7.7	
Propranolo (Inderal) (n=9)	60.9±20.2	
Topiramate (Topamax) (n=18)	63.8±10.8	
Don`t know (n=21)	53.3±29.1	0.253
Others (n=27)		
Family history of migraine	76.7±21.2	
No (n=198)	67.8±19.1	<0.001
Yes (n=141)		