

Research Article

A Cross-sectional Observational Study to Assess Clinical Characteristics, Prescription Patterns and Health-related Quality of Life in Patients with Migraine at a Tertiary Care Teaching Hospital

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A B S T R A C T

Introduction: Many people around the world suffer greatly from migraine. It is critical to comprehend the clinical nuances, therapeutic approaches, and wider quality-of-life concerns that affect these patients.

Objectives: The present study was focused on assessing the clinical characteristics which include the symptom profile, triggering factors, prescription pattern, headache-related disability, and its impact on patients' health-related quality of life (HRQoL).

Methods: A cross-sectional observational study was conducted from October 2019 to March 2020 at the Department of Neurology, Dhiraj General Hospital, Vadodara. The data were collected from patients' medical records and through counselling the patients who visited the Out-Patient Department (OPD) or In-Patient Department (IPD). All patients who met the inclusion criteria were enrolled in the study.

Results: The incidence of migraine was found to be higher in females (78%) as compared to males (22%). The majority of patients had a severe disability and severe impact on HRQoL with high MIDAS (Migraine Disability Assessment Scale) and HIT-6 (Headache Impact Test-6) scores. A majority of patients gained less score showing poor quality of life with MSQoL v2.1 [Migraine Specific Quality of Life (version 2.1)]. A higher MIDAS score was observed in chronic migraineurs than episodic migraineurs while HIT-6 showed a comparable score. Unlike MIDAS and HIT-6, MSQoL v2.1 showed lower scores in chronic migraineurs than episodic migraineurs which depicts that chronic migraineurs had a poor health-related quality of life than episodic migraineurs.

Conclusion: Healthcare professionals should routinely evaluate the quality of life and related disability to determine whether patients are receiving effective treatment and if any additional treatment strategies are warranted to enhance QOL.

Keywords: Migraine, Health-related Quality of Life, MIDAS, HIT-6, MSQoL v2.1

Introduction

According to the World Health Organization records, about half of the adults in the whole world experience a headache in any given year.¹ Approximately 90% of people with headaches have decreased capacity to function during headaches and 33% require bed rest during headache attacks.² Migraine is characterised by repetitive episodes of headache.³ Findings from the Global Burden of Disease Study found migraine to be the second-highest cause of years lost due to disability, interfering significantly with occupational, educational, household, family, and social responsibilities and the second-highest contributor to neurological disease burden, after stroke.^{4,5} Migraine is more prevalent in women as compared to men.⁶

Defining Quality of life (QoL) and Health-related Quality of life (HRQoL) are a bit confusing. QoL is a broader term that is defined in many ways and covers broader aspects of life. It implies the general well-being of individuals and societies, delineating the negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, and security to freedom, religious beliefs, and the environment.⁷ In healthcare, HRQoL is an assessment of how the individual's well-being may be affected over time by a disease, disability, or disorder.⁸ The impact of migraine extends beyond the physical pain of a migraine attack and can have substantial effects on multiple aspects of an individual's life, including day-to-day functioning.⁹⁻¹² In 2009, a study by Bagley et al. reported that higher levels of disability, burden, and reduction in HRQoL were observed in chronic migraine (CM) as compared to episodic migraine (EM).¹³ It has been recognised that headache-related disability is an important factor in the treatment of headache disorders and can aid in devising a better-tailored treatment plan.¹⁴ Numerous measures exist to measure headache-related disability and impact. Such measures include HIT-6 (Headache Impact Test),¹² MIDAS (Migraine Disability Assessment), WHODAS (World Health Organization Disability Assessment Schedule), MSQOL (Migraine Specific Quality of Life) (version 1.0, version 2.1), etc.¹³ In this study, we have used three tools to assess the disability and HRQoL in patients with migraine.

Need of the Study

Migraine is an extraordinarily prevalent neurological disease that is globally affecting a very large part of the population. Most people don't realise how serious and incapacitating migraine can be and how it can be prevented by proper management, not only by medications but also by avoiding the triggering factors. Despite the severity and high prevalence and relevance of health-related problems associated with migraine, there is a lack of information about clinical patterns and management trends in India,

particularly in Gujarat state where no study has been conducted similar to the present study. The present study attempts to assess and evaluate clinical characteristics, prescription patterns and the impact of migraine on HRQoL and to help to improve patient's QOL.

Materials and Methods

This was a prospective, observational study conducted from October 2019 to March 2020 among 120 participants at the Department of Neurology, Dhiraj General Hospital, Vadodara. The study was initiated after getting approval from the Sumandeep Vidyapeeth Institutional Ethics Committee (SVIEC/ON/Phar/BNPG18/D19042). All patients with migraine of either gender and age ≥ 18 years fulfilling the ICHD-3 criteria (International Classification of Headache Disorders - 3rd edition) that visited or were admitted to the Department of Neurology were enrolled in the study. Informed consent was obtained from them after explaining the details of the study. All the relevant data were obtained from patients' medical records and through counselling the patients who visited the Out-Patient Department (OPD) or In-Patient Department (IPD). After data collection, all the data were exported to statistical software for statistical analysis.

Results

Out of 120 participants, 78% (93) were females and 22% (27) were males. In this study, the age of subjects varied from 18 to 58 years with a mean age of 35.45 ± 8.49 years. The maximum number of patients were from the age group of 29 to 38 years (38, 31%) followed by the age group 18 to 28 years (36, 30%) (Table 1). The majority of patients were married (102, 85%). Family history was present in 23% (28) of cases.

In this study, the maximum number of patients were housewives (41, 34%), followed by people doing service (job) (34, 28%), farmers (17, 14%), students (14, 12%), labourers (10, 8%) and lastly the least number of subjects were involved in business (4, 3%) (Table 2). According to the inclusion criteria, associated comorbid conditions were found in 14 patients (11.67%) which included 10 patients (8.33%) with hypertension, 3 patients (2.50%) with hypertension and diabetes mellitus II and only 1 patient (0.83%) with diabetes mellitus II. The remaining 106 participants (88.33%) did not have any comorbid condition (Table 3).

In this study, the majority (47, 39.17%) of subjects had headaches 1–4 times per month, followed by 5–9 times per month (27, 22.50%), 10–14 times per month (16, 13.33%), ≥ 15 times per month (15, 12.50%), every day (13, 10.83%), and lastly, few of them had headache < 1 time per month (2, 1.67%) (Figure 1).

According to the ICHD-2 criteria, patients with 0–14

headache days per month were considered in the group of episodic migraine and patients with 15 or more headache days per month were included in the group of chronic migraine. It was found in this study that the majority of patients suffered from episodic migraine (92, 77%), and the remaining (28, 23%) had chronic migraine. Based on the intake of medications, the duration and intensity of headaches are divided into 2 classes: duration and intensity of headache with medication, and duration and intensity of headache without medication. For patients who had taken medication for the headache, it was found that the symptoms lasted for less than 60 min for most of the patients (67, 55.83%), followed by 1–6 hours (47, 39.17%), 6–12 hours and 12–24 hours (3, 2.50%). If the same patients didn't take headache-relieving medications, headache lasted for 12–24 hours for most of the patients (58.33%), followed by more than 24 hours (18.33%), 1–6 hours (17.50%), 6–12 hours (5.00%), and lastly, only 1 patient (0.83%) had the duration of headache lasting for less than 60 min. In terms of the intensity of headache, the majority of patients who had taken medications for headache had moderate intensity (59, 49.17%), followed by mild (48, 40.00%), severe (11, 9.17%) and lastly, only 2 of them had a very severe type of headache which was unbearable. If these patients didn't take their headache-relieving medications, the headache in the majority of patients was unbearable (54, 45.00%), followed by 51 patients (42.50%) with a severe headache and lastly, 15 patients (12.50%) with a moderate headache with none of them with a mild headache (Table 4). Most of the patients had a unilateral type of headache (47.50%), followed by a combination of both (sometimes bilateral and sometimes unilateral) (21.67%), side shifting unilateral (20.00%), and lastly bilateral headache (10.83%) (Table 5). Most patients had a pulsatile type of headache (86.67%), and a few of them had non-pulsatile type of headache (13.33%) (Table 6). In this study, we found that all individuals had more than 1 triggering factor. Most commonly identified factors were loud noise (107, 89.17%), bright light/ sun (100, 83.33%), lack of sleep (93, 77.50%), stress (82, 68.33%), skipping meals (62, 51.67%), physical exertion (48, 40.00%), weather changes (47, 39.17%), odours (43, 35.83%), fasting (19, 15.83%), and menstruation (12, 10.00%). The least identified triggers were riding in cars (9, 7.50%), foods like pickled foods (8, 6.67%), caffeinated foods (6, 5.00%), sweetened foods (4, 3.33%), and lastly, too much sleep (4, 3.33%) (Figure 2).

The subjects were asked if they had experienced any kind of disturbance before the migraine attack i.e., aura symptoms. In this study, the majority (88, 73.33%) had no aura preceding the headache. Only a few, about 32 patients (26.67%) had an aura. Among those 32 patients, 23 (19.17%) had a combination of visual aura and physical sensations,

and the remaining 9 patients (7.50%) had single aura symptoms. All the individuals had more than 1 associated symptom. The majority had nausea (114, 95.00%), followed by both noise and light sensitivity (108, 90.00%), mood changes/ irritability (95.00, 79.17%), worsening of pain with movement (82, 68.33%), vomiting (71, 59.17%), and strong smell bothering them (41, 34.17%). Neck pain and numbness were observed in 26 patients (21.67%) and 2 patients (1.67%), respectively (Figure 3).

A total of 468 medications were prescribed among 120 patients with migraine and the drug used per patient was 3.89 ± 0.71 . The majority of patients were prescribed 4 drugs (42.50%), followed by 3 and 5 prescribed to an equal percentage of patients (21.67%), 2 prescribed to 10.00% of patients, and 6 prescribed to the least number of patients (4.17%). Out of 468 prescribed drugs, 147 drugs were prescribed for acute pain relief (acute therapy), 171 drugs were prescribed for prophylaxis (prophylactic therapy), and the remaining 150 drugs included pantoprazole and vitamin complex. Amongst all patients, 113 patients (94.16%) received a combination of both acute and prophylactic therapy whereas, the remaining (7, 5.83%) were prescribed only acute therapy. Among acute therapy, dual therapy of a combination of a fixed dose of naproxen (NSAIDs) and domperidone (antiemetic) was prescribed to 94 patients (78.33%), followed by polytherapy prescribed to the remaining 26 patients (21.67%) which included naproxen + domperidone with rizatriptan (21, 80.77%), naproxen + domperidone with prednisolone (3, 11.54%), indomethacin with rizatriptan and naproxen + domperidone with rizatriptan and prednisolone (1, 3.85% in both cases) (Table 7). Amongst prophylactic therapy, overall 56 patients (49.56%) received monotherapy of dosulepin (30, 53.57%), flunarizine (16, 28.57%), propranolol (5, 8.93%), cyproheptadine (3, 5.36%) and sodium valproate (2, 3.57%). Other 56 patients received dual therapy of dosulepin and flunarizine (48, 85.71%), dosulepin with sodium valproate/ propranolol/ cyproheptadine (2, 3.57% in each case) and clonazepam with dosulepin/ flunarizine (1, 1.79% in each case). Only one patient received polytherapy of flunarizine + dosulepin + cyproheptadine. In this study, a combination of naproxen and domperidone (119, 99.17%) was found to be the most common in dual as well as polytherapy, followed by dosulepin (86, 71.67%), flunarizine (66, 55%), rizatriptan (23, 19.17%), propranolol (7, 5.83%), and the two least prescribed were clonazepam (2, 1.67%) and indomethacin (1, 0.83%) (Figure 4).

Disability due to Migraine - MIDAS (Disability Scale)

The MIDAS (Migraine Disability Assessment) classification of overall patients indicated that slightly more than half met MIDAS grade IV i.e., severe disability (69, 57.50%), with those classified as grade III i.e., moderate disability (32,

26.67%), being the next highest. The remaining patients were classified as grade II i.e., mild disability (10, 8.33%), and grade I i.e., little or no disability (9, 7.50%). The distribution across the MIDAS quintiles varied considerably depending on the number of headache days. As mentioned in Table 8, more than half of the CM patients (22, 78.57%) and slightly over half of the EM patients (47, 51.09%) indicated that because of headaches they had a severe disability (Grade IV), whereas only 1 patient (3.57%) among CM and 8 patients (8.70%) among EM indicated less or no disability (Grade I).

In this study, it was found that patients with CM (32.42 ± 18.65) had more disability compared to patients with EM (30.15 ± 18.93).

Health-related Quality of Life - HIT-6 (HRQoL Scale)

The HIT-6 classification of overall patients indicated that about 99 patients (82.5%) met HIT-6 grade IV i.e., severe impact, with those classified as grade III i.e., substantial impact (11, 9.17%) being the next highest. The remaining patients were classified as grade I i.e., little to no impact (6, 5.00%), and grade II i.e., moderate impact (4, 3.33%). The distribution across the HIT-6 quintiles as mentioned in Table 9 varied considerably depending on the number of headache days. Most of the CM patients (26, 92.86%) and more than half of EM patients (73, 79.35%) indicated that their headaches had a severe adverse impact on their daily lives. In contrast, none of the CM patients and about 6 EM patients (6.53%) indicated that their headaches had little or no impact on their daily lives. In this study, using HIT-6 for assessing the impact of migraine headache on HRQoL, it was found that there was a slight difference observed between chronic migraineurs and episodic migraineurs.

Health-related Quality of Life - MSQoL v2.1 (HRQoL Scale): Comparison of Mean Scores among the Subscales

The total score as well as the scores for the three domains of restrictive functioning, preventative functioning, and emotional functioning were used to evaluate the values as per the MSQoL v2.1 scale. From the HRQoL survey of the MSQoL v2.1 scale, the mean score was found to be 48.82 ± 4.04 . According to MSQoL v2.1, it was found that patients' mean scores for HRQoL were higher for emotional functioning (59.11 ± 14.14) and preventative functioning (49.71 ± 3.54), whereas the mean score was lower for HRQoL in restrictive functioning (43.90 ± 4.04) as mentioned in Table 10. From this study, it was found that the patients were suffering more physically than emotionally. Their HRQoL decreased as a result of their limits in social and work-related activities, i.e., RR with the highest possible domain. Additionally, individuals were avoiding these RP activities, which turned into the second possible domain

and decreased their HRQoL. The least probable domain of emotions related to a migraine, ER, came next. They were having limitations in social and work-related activities i.e., RR with the highest possible domain which led to a decrease in their HRQoL. Also, they were preventing these activities that are RP that became the second possible domain which led to a decrease in their HRQoL which was followed by the least possible domain of emotions associated with migraine, i.e. ER.

Through this study, it was found that limitations in daily social and work-related activities had more impact on HRQoL and the emotions associated with migraines had the least impact as higher scores indicate a better quality of life. In this study, a comparison was done between chronicity i.e., chronic and episodic regarding the quality of life. A significant difference was observed between the HRQoL of patients with CM and EM. The comparison as mentioned in Table 11 showed that the overall HRQoL of patients with EM (48.82 ± 23.77) was better than that of the patients with CM (45.66 ± 22.59). The patients with CM scored significantly lower than the patients with EM in every domain. In both the abovementioned conditions, the score was higher for the emotional component than the physical one, which indicated that the physical component had a greater impact on HRQoL than the emotional component in both types of patients (CM and EM). The mean score of patients with EM was better in emotional function (59.11 ± 27.76), followed by role function - preventative (49.71 ± 24.54), and lastly in role function - restrictive (43.90 ± 24.70) than the mean score of patients with CM in emotional function (56.10 ± 27.34), followed by role function - preventative (46.79 ± 23.71), and lastly in role function - restrictive (40.54 ± 23.37) as mentioned in Table 11. In both types of patients (CM and EM), the highest mean score was observed in emotional function and the lowest score was observed in role function - restrictive. By this comparison, it was found that in both types of patients (CM and EM), the HRQoL was mainly affected by limitations in social and work-related activities and was least affected by emotions associated with migraine.

Correlation Analysis among the Three Scales

The correlation between MIDAS and HIT-6 was found to be $r(120) = 0.61365$ and $p \text{ value} \leq 0.0001$, which was greater than 0.50. The correlation was statistically significant and strongly positive between the two scales which means that if the mean of MIDAS increases, it will ultimately lead to an increase in the mean of HIT-6 and vice versa. The correlation values between MIDAS and MSQoL (v2.1) and that between HIT-6 and MSQoL (v2.1) were found to be $r(120) = -0.79333$ and $r(120) = -0.73982$, respectively. These were less than -0.50. The correlations were statistically significant and strongly negative between the two scales

which means that if the mean values of MIDAS or HIT-6 increase, it will ultimately lead to a decrease in the mean values of MSQoL v2.1 (Tables 12 and 13).

Table 1. Distribution of Participants According to Age Groups

Age Range (Years)	Total Number of Patients	Percentage
18–28	36	30.00
29–38	38	31.67
39–48	28	23.33
49–58	18	15.00
Total	120	100.00
Mean \pm SD	35.45 \pm 8.49	

Table 2. Distribution of Participants Based on Occupation

Occupation	Total Number of Patients	Percentage
Housewife	41	34
Service	34	28
Farmer	17	14
Student	14	12
Labourer	10	8
Business	4	3
Total	120	100

Table 3. Distribution of Participants Based on Comorbid Conditions

Comorbidities	Total Number of Patients	Percentage
Hypertension	10	8.33
Diabetes mellitus II	1	0.83
Hypertension and diabetes mellitus II	3	2.50
None	106	88.33

Table 4. Pattern of Duration and Intensity

Duration	With Medication (N = 120) n (%)	Without Medication (N = 120) n (%)
< 60 min	67 (55.83)	1 (0.83)
1–6 hours	47 (39.17)	21 (17.50)
6–12 hours	3 (2.50)	6 (5.00)
12–24 hours	3 (2.50)	70 (58.33)
> 24 hours	0 (0.00)	22 (18.33)
Intensity		
Mild	48 (40.00)	0 (0.00)

Moderate	59 (49.17)	15 (12.50)
Severe	11 (9.17)	51 (42.50)
Unbearable	2 (1.67)	54 (45.00)

Table 5. Distribution Based on Type of Headache

Type	Total Number of Patients (N = 120)	Percentage
Unilateral	57	47.50
Bilateral	13	10.83
Side shifting unilateral	24	20.00
Sometimes bilateral and sometimes unilateral	26	21.67
Total	120	100.00

Table 6. Distribution Based on Character of Headache

Character	Total Number of Patients (N = 120)	Percentage
Pulsatile (throbbing)	104	86.67
Non-pulsatile	16	13.33
Total	120	100.00

Table 7. Types of Therapy Given to the Migraine Population

Therapy Type	n (%)	Migraine Specific Drugs	n (%)
Acute therapy			
Dual therapy	94 (78.33)	A fixed dose of naproxen + domperidone	94 (100)
Polytherapy	26 (21.67)	Naproxen + domperidone + rizatriptan	21 (80.77)
		Naproxen + domperidone + prednisolone	3 (11.54)
		Indomethacin + rizatriptan	1 (3.85)
		Naproxen + domperidone + rizatriptan + prednisolone	1 (3.85)

Prophylactic therapy			
Monotherapy	56 (49.56)	Dosulepin	30 (53.57)
		Flunarizine	16 (28.57)
		Propranolol	5 (8.93)
		Cyproheptadine	3 (5.36)
		Sodium valproate	2 (3.57)
Dual therapy	56 (49.56)	Dosulepin + flunarizine	48 (85.71)
		Dosulepin + sodium valproate	2 (3.57)
		Dosulepin + propranolol	2 (3.57)
		Dosulepin + cyproheptadine	2 (3.57)
		Dosulepin + clonazepam	1 (1.79)
		Flunarizine + clonazepam	1 (1.79)
Polytherapy	1 (0.88)	Dosulepin + flunarizine + cyproheptadine	1 (100.00)

Table 8. Frequencies and Percentages of Migraine Staging as per MIDAS

Chronic Migraine		Episodic Migraine
Mean (SD)	32.42 (18.65)	30.15 (18.93)
Grade I, n (%)	1 (3.57)	8 (8.70)
Grade II, n (%)	0 (0.00)	10 (10.87)
Grade III, n (%)	5 (17.86)	27 (29.35)
Grade IV, n (%)	22 (78.57)	47 (51.09)

Table 9. Frequencies and Percentages of Migraine Staging as per HIT-6

Chronic Migraine		Episodic Migraine
Mean (SD)	63.98 (6.00)	63.58 (6.29)
Grade I, n (%)	0 (0.00)	6 (6.52)
Grade II, n (%)	0 (0.00)	4 (4.35)
Grade III, n (%)	2 (7.19)	9 (9.78)
Grade IV, n (%)	26 (92.86)	73 (79.35)

Table 10. Descriptive Statistics for MSQoL v2.1

Domain	Mean (SD)
Overall	48.82 (4.04)
Role function - restrictive (RR)	43.90 (4.04)
Role function - preventive (RP)	49.71 (3.54)
Emotional function (EF)	59.11 (14.14)

Table 11. Comparison of the MSQoL v2.1 Based on Chronicity

Domain	Chronic Migraine Mean (SD)	Episodic Migraine Mean (SD)	P Value
Overall	45.66 (22.59)	48.82 (23.77)	0.000269
Role function - restrictive (RR)	40.54 (23.37)	43.9 (24.70)	0.000475
Role function - preventive (RP)	46.79 (23.71)	49.71 (24.54)	0.000625
Emotional function (EF)	56.10 (27.34)	59.11 (27.76)	0.001259

Table 12. Overall p Values of all the Abovementioned 3 Scales Based on Chronicity

Scale	Chronic Migraine Mean (SD)	Episodic Migraine Mean (SD)	p Value
MIDAS	32.42 (18.65)	30.00 (18.93)	< 0.00001
HIT-6	63.98 (6.00)	63.38 (6.29)	0.002713
MSQoL v2.1	45.66 (22.59)	48.82 (23.77)	0.000269

Table 13. Correlation Analysis of 3 Scales (MIDAS, HIT-6, and MSQoL v2.1)

Parameter	Mean (SD)	Pearson's Correlation
Correlation between MIDAS and HIT-6		
MIDAS	30.15 (18.93)	0.61365
HIT-6	63.38 (6.29)	
Correlation between MIDAS and MSQOL v2.1		
MIDAS	30.15 (18.93)	-0.79333
MSQoL v2.1	42.82 (23.77)	
Correlation between HIT-6 and MSQOL v2.1		
HIT-6	63.38 (6.29)	-0.73982
MSQoL v2.1	42.82 (23.77)	

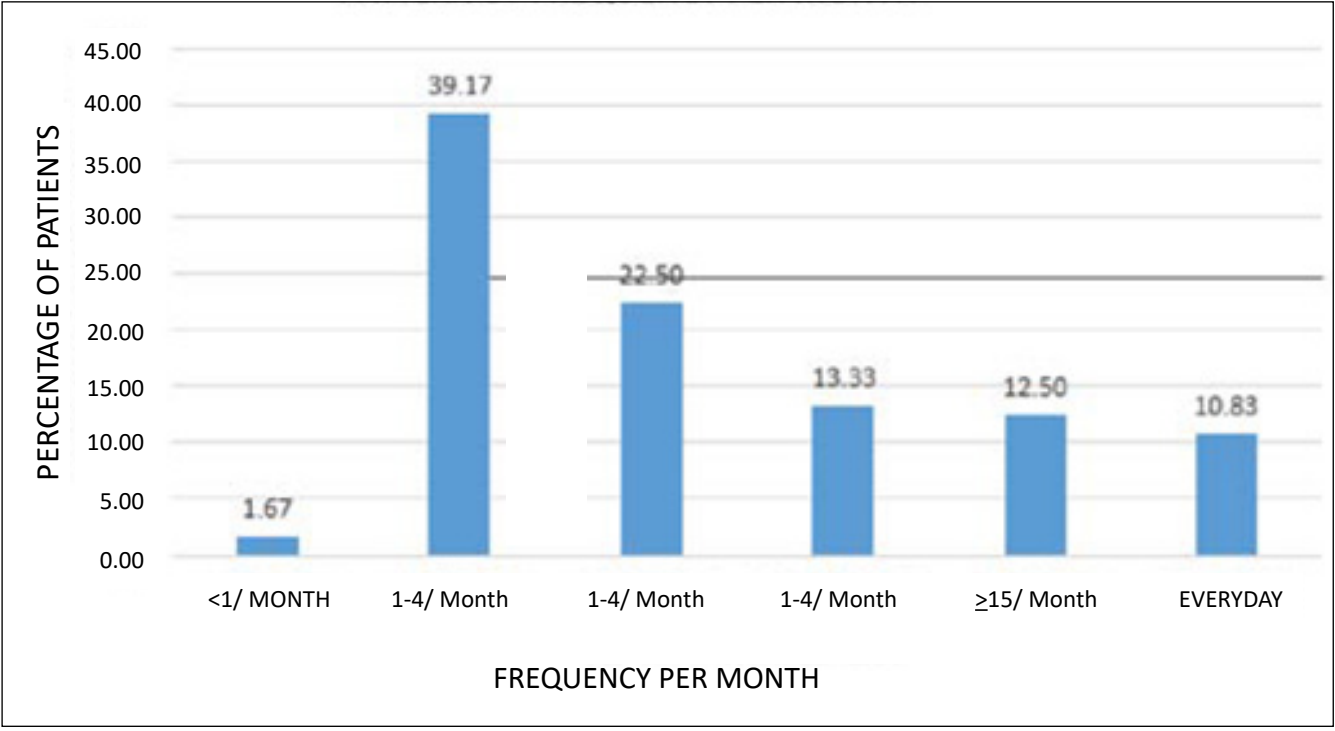


Figure 1. Pattern of Frequency Per Month

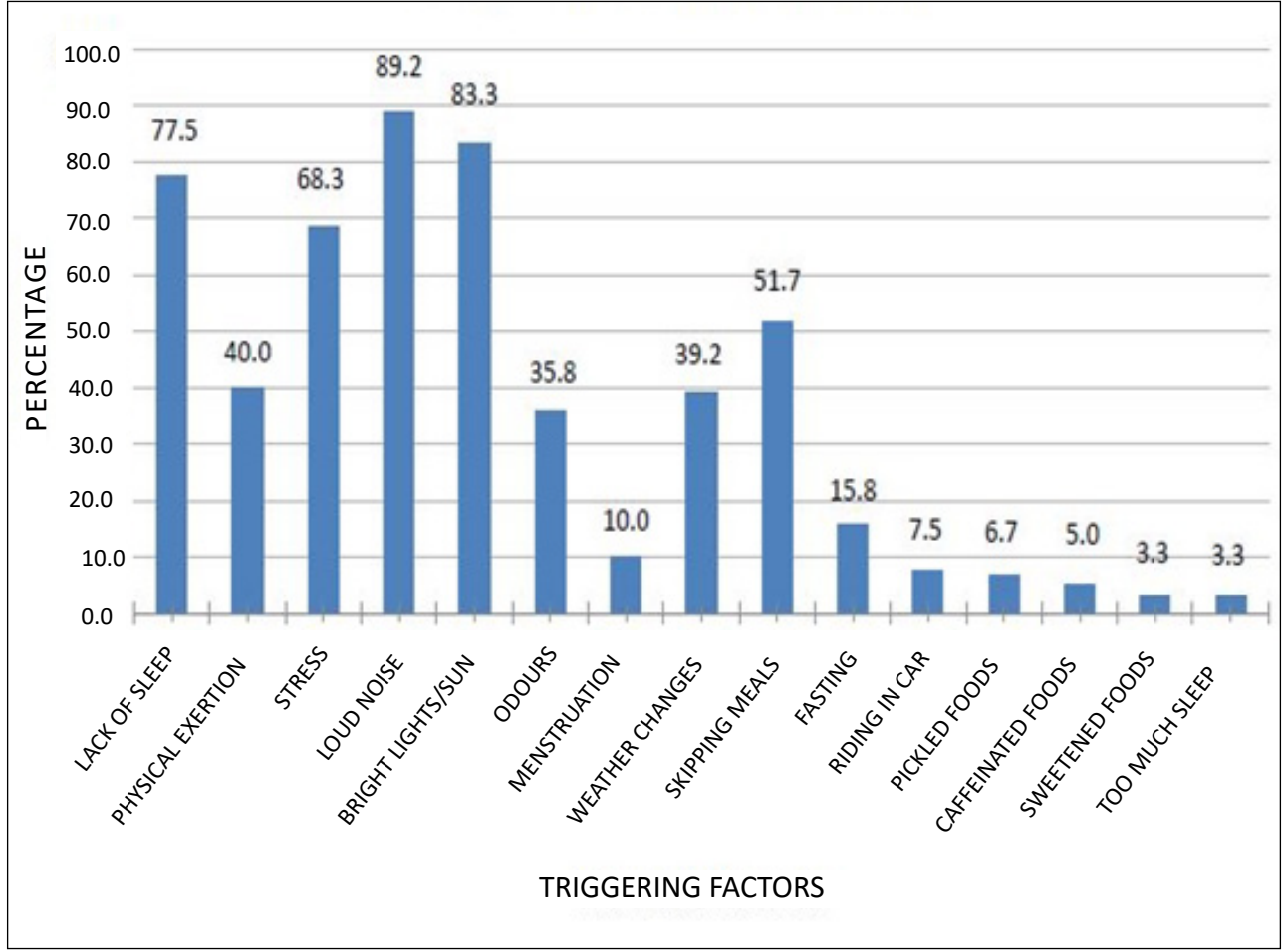


Figure 2. Prevalence of Triggers of Migraine in the Study Population

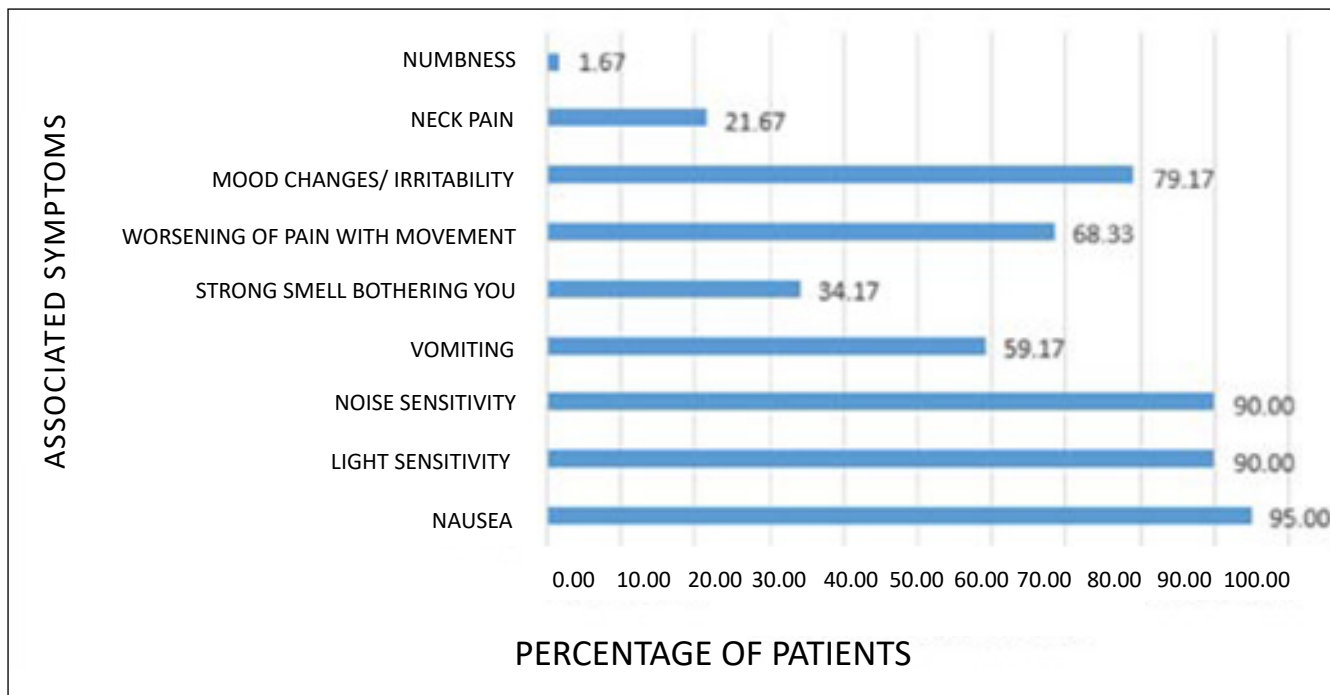


Figure 3. Percentage of Associated Symptoms in the Migraineurs in the Study Population

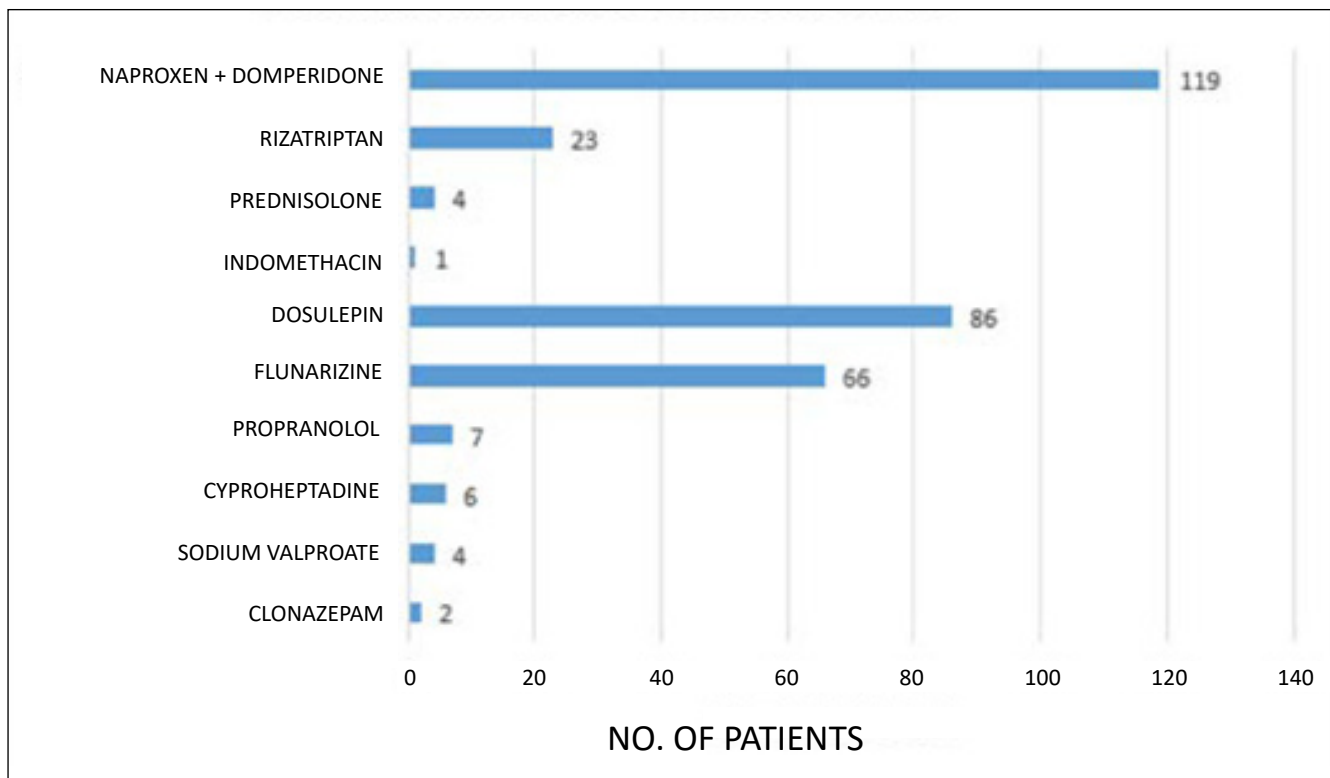


Figure 4. Number of Prescribed Migraine-specific Drugs

Discussion

Migraine is a neurological disease that causes severe disability by interfering significantly with occupational, educational, household, family, and social responsibilities which ultimately results in poor QOL. The present study showed that the prevalence of migraine was higher in

females (78%) than in males (22%) which was consistent with the findings of Ramasamy et al.¹⁵ Other studies in India,¹⁶⁻¹⁸ US,¹⁹ and Japan²⁰ also showed a higher prevalence of migraine in females than in males. Migraine is found to be more prevalent between the ages of 35 and 45 years.⁶ In the current study too, the mean age of the migraine

population was found to be 35.45 years. It was more common in the age group of 29 to 38 years (31%), followed by 18 to 28 years (30%), which was consistent with the study done by Singh et al. in which the majority of patients were in the age group of 18–40 years.¹⁶ It was found that 23% of patients had a positive family history which was found to be consistent with the study done by Agrawal et al. in India, in which 26% of patients were found to have a family history of migraine.²¹ This study suggested that the majority of patients (54%) were employed which was found to be in discordance with the study done by Singh et al.¹⁶ Unlike other studies, this study was found to be more focused on patients with migraine who didn't have other comorbid conditions except for hypertension and diabetes mellitus II. The frequency of migraine most commonly reported in this study was 1–4/month (39.2%), followed by 5–9/month (22.5%), which was following a study done by Bhatia and Gupta which reported 1–2 migraine attacks/week.²² In the present study, the majority of the patients showed a duration of headache lasting for less than 60 min (55.83%) in case they took medication and if they didn't take the medication, their headache lasted for 13–24 hours (58.3%). Concerning intensity, most patients who took medications were found to have a moderate type of pain (49.2%) and if they didn't take the medication, the pain was unbearable (45%). Notably, nearly half of the patients (47.5%) in our study had unilateral type of headache, and the least had bilateral type (10.8%) with the remaining belonging to the category of sometimes unilateral sometimes bilateral, and side shifting unilateral. Additionally, the majority (86.7%) of the patients had a pulsatile (throbbing) type of headache which was consistent with the study done by Jena et al.¹⁷ Triggers are important to be identified as they act as an indicator to treat the cause and the severity of a migraine attack. In the present study, there was more than one triggering factor in each patient. The commonly identified triggers were loud noise, bright light/ sun exposure, lack of sleep, stress, skipping meals, etc. Some of the less identified triggers were riding in the car, foods like pickled foods, sweetened foods, caffeinated foods, and too much sleep. Other Indian studies found that stress, missed meals, and sleep deprivation were the primary factors triggering migraine attacks.^{15,23} The present study showed migraine without aura was more prevalent than migraine with aura. About three-fourths of patients had migraines without aura with a prevalence of 73.33%. Many previous studies found migraine without aura to be the most common type of migraine. A review article by Ashina et al. also showed the prevalence of visual aura to be the most common aura symptom followed by sensory aura, speech and language disturbances and lastly, motor aura (rare).²⁴ The current study was concurrent with the abovementioned review article with the presence of

a combination of aura symptoms involving many visual auras followed by physical sensations with none of the patients with speech and language disturbances or motor aura.⁹ It also suggested nausea (95%), photophobia (90%), and phonophobia (90%) to be the commonest types of associated symptoms which was found to be consistent with the study done by Jena et al.¹⁷ In the current study, for acute attacks, most of the patients (99.17%) were prescribed a combination of naproxen (NSAID) and domperidone (antiemetic) and in precisely one patient, an NSAID, indomethacin alone was prescribed. Both oral NSAIDs and triptans are recommended for treating migraine attacks as suggested by the European Federation of Neurological Societies (EFNS).²⁵ The following treatments were deemed to be effective acute therapies for migraines based on evidence from the American Headache Society (AHS): triptans, NSAIDs, ergotamine derivatives, opioids, and other combinational medications.²⁶ As per the American Association of Neurology recommendations, sumatriptan, ergotamine, and its derivatives are more practical than NSAIDs for an acute attack,²⁷ but a few RCTs comparing the efficacy between sumatriptan and rizatriptan showed rizatriptan to be a better choice as compared to sumatriptan.²⁸ For acute therapy, rizatriptan (19.17%) alone was the most generally used triptans in our study. There were 4 patients (3.33%) who were prescribed prednisolone in our study acting as an adjunctive therapy. In the current study, for prophylactic therapy, the majority of the patients were prescribed dosulepin (71.67%), followed by flunarizine (55%), propranolol (5.83%), cyproheptadine (5%), sodium valproate (3.33%), and clonazepam (1.67%). Studies have shown that blockers (60–80%) were effective in reducing attack frequency by about 50%. Among antidepressants, amitriptyline is the most generally used drug. Limited clinical trials reviews suggest that amitriptyline is sort of pretty much as good as propranolol, if not better, in reducing headache frequency.²⁹ The utilisation of other agents like dosulepin, nortriptyline, and imipramine mainly depends on the anecdotal results. A Cochrane Review of AEDs like topiramate, sodium valproate, and gabapentin in migraine prophylaxis found that patients were about twice as likely to have a 50% reduction in their headache frequency on AED treatment than with placebo.³⁰ There was a form of study involving calcium channel blockers in migraine prevention. A recent study showed that flunarizine was the third most typically prescribed drug for the prevention of migraine in adult patients after propranolol and pizotifen in European nations.³¹ An RCT conducted by Rao et al. showed that cyproheptadine was as effective as propranolol in reducing migraine severity and frequency. It also showed the efficacy of the combination of cyproheptadine and propranolol.³² MIDAS questionnaire was used to measure disability or limitations in one's life

which occur because of headaches in three domains (paid work, household work, and non-work or social activities). It not only captures the number of missed days but also the days when productivity is substantially reduced in the form of readily interpretable units (lost days). A study done by Lipton et al. indicated how MIDAS scores are correlated with physician judgment of pain, disability, and medical care.³³ In this study, the MIDAS questionnaire classified a significant proportion of patients into severe disability (57.5%), followed by moderate disability (26.67%), mild disability (8.33%), and little or no disability (7.5%). The group with severe disability reported a significantly higher MIDAS score which depicts a higher number of days with less than 50% productivity at work, school, home, or social gatherings. The overall mean MIDAS score was comparable between chronic and episodic migraineurs. However, in our study, it was found that patients with CM (32.42) showed a higher mean MIDAS score than the patients with EM (30.15). This result was consistent with the studies conducted in Malaysia,³⁴ Taiwan,³⁵ the USA,³⁶ and Italy³⁷. The HIT-6 questionnaire was used to measure the impact of a headache on a person's HRQoL in aspects of pain, social functioning, cognitive functioning, and psychological distress. In this study, the HIT-6 questionnaire classified a significant proportion of subjects into very severe impact (82.5%), followed by substantial impact (9.17%), little or no impact (5%), and lastly moderate impact in 3.33% of the total population. The group with very severe impact reported a significantly higher HIT-6 score which shows that their HRQoL was severely affected due to headache. The mean score for HIT-6 was more than 60 in both chronic and episodic migraineurs which showed that most patients had a very severe impact on HRQoL due to headache. This study was consistent with the study done by Magnoux et al. where a large number of migraineurs, either chronic or episodic, had a very severe impact on HRQoL.³⁸ MSQOL v2.1 questionnaire was used to measure HRQoL which measures the impact of headache in three domains including role function - restrictive (RR), role function - preventive (RP), and emotional function (EF). In the current study, it was found that the patients were suffering more physically than emotionally. The mean score for the emotional function was higher than the other two domains which indicates that patients are suffering more physically than emotionally because a higher score determines better HRQoL. Comparing the overall mean score in migraineurs based on the frequency of headache days, it was seen that patients with CM (45.66) had a lower mean score than the patients with EM (48.82) which indicates that chronic migraineurs have poor HRQoL than episodic migraineurs. This study was consistent with the study done by Blumenfeld et al. and Kim and Park which showed that CM is more disabled and has poor HRQoL than the EM.^{36,39} The present

study found that MIDAS total scores and HIT-6 total scores are positively correlated (Pearson's correlation coefficient = 0.61365). In contrast, both MIDAS and HIT-6 scales are negatively correlated to MSQoL v2.1 (Pearson's correlation coefficient = -0.79333 and -0.73982 respectively). Ultimately, this showed that MIDAS and HIT-6 were somewhat similar with some undetermined differences and a higher score in both of them depicts severe disability. This result was under a study done by Sauro et al. where HIT-6 and MIDAS were compared to determine the disability due to headache.⁴⁰ However, the MSQoL v2.1 scale depicted higher scores which were better than the HRQoL. So, it means that higher scores in disability scales like MIDAS and HIT-6 and lower scores in MSQoL v2.1 lead to poor HRQoL and hence chronic migraineurs have a higher disability and poor HRQoL than episodic migraineurs.

Conclusion

Migraine is the most common primary headache with a high prevalence in females and younger age groups. Early detection of migraine and its effective treatment is important to help reduce the disability suffered from it and to improve the quality of life of migraineurs. It is important that healthcare professionals routinely evaluate the quality of life and related disability to determine whether patients are receiving effective treatment and whether any additional treatment strategies are warranted to improve HRQoL.

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