



Cross Sectional Study to Assess the Measures Taken To Reduce Migraine Headache and Treatment Pattern among Students

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Abstract

Migraine is a common neurological disease characterized by episodic attacks of headache and associated symptoms that are currently under diagnosed and undertreated. It is a disabling primary headache that affects people during their most productive years (the

18 to 35-year-old age group). In this study, we evaluate the measures taken by the migraineurs to reduce migraine headaches and treatment patterns. The cross-sectional data were collected through a questionnaire from students studying different courses in the southern

part of Kerala. According to our survey taking rest was found to be one of the significant non-pharmacological steps taken by students. Self-medication was more prominent among those taking medication. Considering the trend in managing migraine, most migraineurs didn't take proper treatment, which may lead to chronic migraine conditions and migraine-associated disability.

Keyword

Migraine, migraineurs, crosses sectional, disability.

Introduction

Migraine is a common and disabling primary headache disorder. Various studies have documented the high prevalence and socio-economic and personal impact of migraine, resulting in an estimated impact of £27 billion per year in the European Union itself ^[1]. According to WHO's ranking of major causes of disability, headache disorders are among the 10 most disabling conditions ^[1]. It most often begins at puberty and is more common in women by a factor of about 2:1 because of hormonal influences ^[2]. According to the WHO, migraine is recurrent, often lifelong, and characterised by recurring attacks.

The clinical presentation of migraine may vary from one individual to another and even within the same individual; it may vary from one attack to another. It may remain undiagnosed in many patients because of a wide continuum of presentation, thus resulting in an improper diagnosis of sinus or tension type headache. Such a misdiagnosis may lead to inappropriate treatment. Migraine is generally divided into three clinical phases: pre-headache, headache, and resolution (postdromal phase) ^[3]. According to ICHD 3 (International Classification of Headache Disorder, 3rd edition), migraine can be classified as migraine without aura, with aura, or chronic migraine.

Triggering factors play a major role in migraines. A study conducted by Yadhav K R, Kalita J, Misra K U (2010), A Study of Triggers of Migraine in India, pain medicine to evaluate the migraine triggers in consecutive patients and correlate them with demographic and clinical variables ^[4]. Triggers include lifestyle, environmental and food related factors. Lifestyle factors such as exposure to light, noise and climatic changes, whereas in food-related factors, it is mainly fasting, chocolate, certain beverages, cheese etc. Stress is the trigger most commonly listed by patients, Dietary factors are also reported as triggers, but only a few have scientific validation. Hormonal headaches are triggered by variations in female oestrogen levels and also due to other hormonal factors. Physical exertion can cause exercise induced migraine. Noise, bright light and fumes are commonly identified migraine triggers ^[4]. Pradeep R, Nemichandra S. C, Harsha S, Radhika K., conducted a study based on Migraine Disability, Quality of Life, and its Predictors ^[5]. The disability in migraineurs can be measured by using the Measurement of migraine specific quality of life (MSQoL) and the Migraine Disability Assessment Scale (MIDAS). Depending on the evaluation, non-pharmacological and pharmacological measures are the measures to reduce migraine attacks. On the other hand, self-medication (over the counter, OTC) is used by many subjects as acute medication. A study was conducted by Minahil T, Rafia M, and Fatima A on the Prevalence & Management of Headache & Its Associated Factors Among Female Undergraduate Pharmacy & Nonpharmacy Student Population of Lahore College for Women University, Lahore, which found that 56% of migraineurs are using self-medication ^[6]. In the article pharmacological management of migraine, part 1, the authors describe the epidemiology, pathophysiology,

co-morbidities, and risk factors associated with migraine, clinical presentations, non-pharmacological treatments, and abortive therapies used in the pharmacological treatment of migraine and conclude that patients with mild to moderate migraine attacks treated with simple analgesics, triptans, and ergots are reserved for moderate to severe pain, and prescribers must consider the severity of the pain for the abortive management of migraine [7]. Non-pharmacological treatment includes behaviour modification and psychological intervention, including relaxation, stress management, acupuncture, application of heat and cold, and physical approaches. Pharmacological treatment can be acute, preemptive, or preventive. Acute treatment is initiated during an attack to relieve pain and prevent progression. Preemptive treatment is started when a known headache trigger exists or if it is predictable, such as menstruation, whereas preventive treatment is given for months to reduce attack frequency, severity, and duration. For patients taking preventive medication, they can also take acute and preemptive medication [7].

The general principles of acute migraine care include treating the headache as soon as possible in the attack to reduce the intensity and duration of the attack. Failure to take the medication early leads to increased pain and disability. Everyone needs acute treatment in addition to non-pharmacologic intervention. For patients receiving preventive therapy, they should be provided with acute agents to treat breakthrough attacks. Acute migraine medications include nonspecific and specific treatments. The selection of drugs depends on the severity and frequency of headaches. Nonspecific treatments are those effective for any pain disorder and include nonsteroidal anti-inflammatory drugs (NSAIDs), combination analgesics,

opioids, neuroleptics/antiemetics, and corticosteroids. Specific therapies, such as ergotamine-containing compounds, dihydroergotamine (DHE), and triptans, are effective only for the treatment of migraine and related disorders [7]. The descriptive study was undertaken to reduce migraine headaches and treatment patterns among students.

Materials and Methods

A six-month community-based cross-sectional research among students was conducted from January to June 2022. The sample size is expected to be 375 people. The sample size was determined using the formula $n = z_1^2 \alpha/2 \times \sigma^2/d^2$. The research was carried out among students enrolled in various courses in Kerala's southern region. Engineering, bachelor of dental science (BDS), nursing, pharmacy, and arts and science were chosen for the study because they are more popular among students in Kerala. A custom designed questionnaire was used to collect data from 375 candidates. Google Form was used to create the data gathering form.

A community based cross-sectional study was carried out on duration of 6 months (January to June 2022) among students. The estimated sample size is 375. The sample size has be calculated by the formula $n = z_1^2 \alpha/2 \times \sigma^2/d^2$. The study was conducted among students studying different courses around southern part of Kerala. The courses selected in the study were engineering, bachelor of dental science (BDS), nursing, pharmacy and arts and science as these courses are more prominent among students in Kerala. Data from 375 candidates were collected through a specially planned questionnaire. The data collection performa was prepared using google form. Before sending the performa, telephonic conversation would be made with the subjects providing a brief description of the study

and their consent would be obtained, and then a leaflet would be provided regarding migraine followed by the google form and asked to provide the response within an hour. In case of any further clarification, they could contact us. The response was recorded in Microsoft excel and were analysed statistically using various figures and tables.

Data on non-pharmacological and pharmacological treatment was collected from subjects to determine the most common strategy utilised by candidates. Candidates were placed in Group 1 if they were between the ages of 18 and 35. 2) Students from Kerala's southern region. 3) Students pursuing degrees in engineering, dentistry (BDS), nursing, pharmacy, and arts and sciences. Pregnant women and nursing mothers were not included in the study.

Results

A study was conducted about migraine. 375 students studying different courses (BDS, nursing, pharmacy, Arts and Science, engineering) in which 75 candidates from each course were included in the study. Among them female candidates (n=283) outnumber the males (n=92). The mean age of study population was found to be between 20 to 35 years of 375 students, 161 candidates was found to have migraine Table1. Questionnaires was given to all subjects and some additional questions were asked to migraine sufferers to know about the measures taken to reduce migraine headache and the treatment they adopted to treat migraine.

Table1: Distribution of prevalence of migraine in different courses.

S. No.	Courses	Migraine Headache (161)	Non-Migraine(214)
1	Arts & Science	25	50
2	BDS	27	48
3	Engineering	39	36
4	Nursing	27	48
5	Pharmacy	43	32

By using questionnaires migraineurs were asked about the various methods that help to reduce migraine headache Table 2. Among the migraineurs 84 candidates (52%) were not using any medication. Non pharmacological therapy was used by them to reduce

the attack. The various methods used involves taking rest, quiet and dark environment, hot or cold compress, massage, warm shower, pressure over migraine headache, physiotherapy and by avoiding triggering factors.

Table 2: Distribution of pattern adopted for treatment of migraine

S. No.	Pattern	Frequency	Percentage
1	No Medication	84	52
2	OTC (Allopathy)	41	26
3	Medication Prescribed by doctor	36	22
	Total	161	100

Majority of Students who have migraine take multiple methods to reduce migraine headache Table 3.

Table3: Distribution of methods taken to reduce migraine headache

S. No	Measures	Arts & Science	BDS	Engineering	Nursing	Pharmacy
1	Rest	20(12.4%)	21(13%)	27(16.7%)	20(12.4%)	34(21.1%)
2	Quiet and darkness	4(2.4%)	9(5.5%)	4(2.4%)	12(7.4%)	16(9.9%)
4	Hot or cold compress	2(1.2%)	3(1.8%)	4(2.4%)	2(1.2%)	7(4.3%)
5	Massage	1(0.6%)	6(3.7%)	2(1.2%)	1(0.6%)	15(9.3%)
6	Warm shower	3(1.8%)	4(2.4%)	1(0.6%)	2(1.2%)	5(3.1%)
7	Pressure over migraine headache area	1(0.6%)	5(3.1%)	7(4.3%)	8(4.9%)	4(2.4%)
8	Acupuncture	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
9	Physiotherapy	1(0.6%)	0(0%)	1(0.6%)	0(0%)	0(0%)
10	By avoiding triggering factors	7(4.3%)	3(1.8%)	12(7.4%)	6(3.7%)	20(12.4%)

Among arts and science students who have migraine 20 students take rest, 4 prefers quiet and dark environment,

2 use hot or cold compress, 1 take massage, 3 take warm shower, 1 applies pressure over migraine headache area, 1 do physiotherapy, 7 by avoiding triggering factors and none use acupuncture.

Among BDS students who have migraine 21 students take rest, 9 prefers quiet and dark environment,

3 use hot or cold compress, 6 take massage, 4 take warm shower, 5 applies pressure over migraine headache area, 3 of them avoids triggering factors and none of them do physiotherapy or acupuncture.

Among engineering students who have migraine 27 students take rest, 4 prefers quiet and dark environment, 4 use hot or cold compress, 2 take massage, 1 take warm shower, 7 applies pressure over migraine headache area, 1 do physiotherapy, 12 avoids

the triggering factors and none of them use acupuncture.

Among nursing students who have migraine 20 students take rest, 12 prefers quiet and dark environment, 2 use hot or cold compress, 1 take massage, 2 take warm shower, 8 applies pressure over migraine headache area, 6 of them avoids triggering factors and none of them do physiotherapy or acupuncture.

Among pharmacy students who have migraine 34 students take rest, 16 prefers quiet and dark environment, 7 use hot or cold compress, 15 take massage, 5 take warm shower, 4 applies pressure over migraine headache area, 20 of them avoids triggering factors and none of them do physiotherapy or acupuncture.

To check the most prominent used anti-migraine medications, data were collected from migraine patients Table 4.

Table 4: Distribution of use of various OTC (allopathy) medications for migraine treatment

OTC (Allopathy) Medications				
S. No:	Brand Name	Generic Name	Frequency	Percentage
1	Divon	Diclofenac	2	5
2	Diclomol	Diclofenac and Paracetamol	4	10
3	Brufen	Ibuprofen	1	2
4	Meftal	Mefenamic Acid	1	2
5	Migranil	Ergotamine, Caffeine, Paracetamol, Belladonna	4	10
6	Naprosyn	Naproxen Sodium	1	2
7	Domcet	Paracetamol and Domperidone	3	8
8	Dolo	Paracetamol	24	59
9	Vasograin	Ergotamine, Caffeine, Paracetamol and Prochlorperazine	1	2
	Total		41	100

Self medication or OTC medications were used by 41 candidates (26%). Among 41 migraineurs the frequency of use of OTC medication is as follows, 5% use Diclofenac, 4% combination of Diclofenac and Paracetamol, 1% Ibuprofen, 1% Mefenamic acid, 4% combination of Ergotamine, Caffeine, Paracetamol and Belladonna (Migranil), 1% Naproxen sodium, 3% combination of Paracetamol and Domperidone, 24% Paracetamol and 1% combination of Ergotamine,

Caffeine, Paracetamol and Prochlorperazine (Vasograin).

Students use self medication readily as it relieve acute medical problem, can save the time spent in waiting to see a doctor, may be economical and can even reduce headache in acute conditions. About 36 migraineurs were taking medications that are prescribed by doctor Table 5.

Table 5: Distribution of medications prescribed by the doctor

PRESCRIBED DRUGS			
S. No:	Brand Names	Generic Names	Responses
1	Almotan	Almotriptan	2(5.5%)
2	Amitryn	Amitrptylline	1(2.7%)
3	Divon	Diclofenac	1(2.7%)
4	Sibelium	Flunarizine	9(25%)
5	Inmecin	Indomethacine	1(2.7%)
6	Ketanov	Ketorolac Tromethamine	1(2.7%)
7	Metolar	Metoprolol	1(2.7%)
8	Paramet	Metoclopramide and Paracetamol	2(5.5%)
9	Naxdom	Naproxen and Domperidone	1(2.7%)
10	Ciplar	Propanolol	4(11.1%)
	Inderal		
11	Domcet	Paracetamol and Domperidone	6(16.6%)
12	Suminat	Sumatriptan	1(2.7%)
	Total		30

About 25% of drug prescribed is Flunarizine, 16.60 % takes combination of Paracetamol and Domperidone, 11% takes Propanolol, 5.50% takes Almotriptan and a combination of Metoclopramide and Paracetamol and 2.70% of subjects is prescribed with drugs such as Amitriptyllin, Diclofenac, Indomethicine, Ketorolac Tromethamine, Metoprolol, Sumatriptan and combination of Naproxen and Domperidone.

There are different classes of drugs used for treating migraine using single/ combination of two or

three drugs which includes acute, preemptive and preventive medications. Non steroidal anti-inflammatory drugs (NSAIDs), calcium channel blocker (CCBs), beta blockers, triptans were the most predominantly prescribed drug in our study. To assess the effectiveness of medication that are taken as OTC and prescribed by doctor the duration of migraine headache after taking medication were also involved in the questionnaire Figure1.

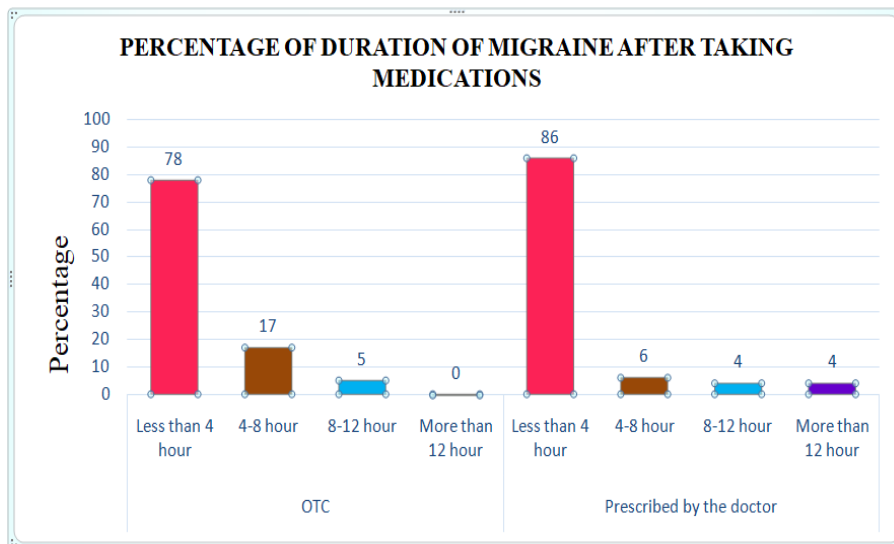


Fig 1: Graph showing percentage of duration of migraine after taking medications.

As per the study, the migraineurs who takes Over the counter drugs 78% have duration of migraine less than 4 hours, 17 % have headache for 4-8 hours, 5% have 8-12hours and no one experience headache for more than 12 hours. In case of migraineurs who takes medications prescribed by doctor, 86% have duration of migraine less than 4 hours, 6% have headache for 4-8 hours, and 4% have migraine headache for 8-12 hours and 4% experience headache for more than 12hours.

Discussion

It is important to identify headaches among students since they are the most distressing symptom that has a detrimental impact on their social and daily activities. In a study of 161 migraineurs, 52 percent said they didn't take any medication. The majority of them were put to sleep or chose to be in a dark, quiet setting. The remaining 26% take over-the-counter drugs, while only 22% utilise prescription medications. This demonstrates the need of raising student awareness about their health and encouraging them to seek medical advice from specialists if they are unaware of the ailment. Improper medicine use might result in

unwanted side effects such as rebound headaches, medication overuse headaches, gastrointestinal difficulties, and so on. Paracetamol was the most widely utilised OTC medicine to treat acute migraine attacks among students. Flunarizine, a calcium channel blocker, is prescribed by about 25% of doctors as a preventative drug, which appears to be unusual from the usual therapy pattern. Only a small minority of clinicians prescribe specific medicine for migraine treatment, according to the study. The length of time that migraine headaches last after taking medication implies that the headache is less severe. When comparing patients who were taking OTC and prescribed drugs, the subjects who were taking the medication prescribed by their doctor showed the biggest clinical benefit. This means that with proper diagnosis and treatment, migraine headache severity and duration will be reduced, and migraineurs' quality of life will improve. Furthermore, this study makes no mention of other medical systems such as ayurveda, unani, or homoeopathy, which are widely used by migraine sufferers. To analyse the trend in medication

use over time, an estimate of the daily defined dose of a drug required by the population was also determined. As a result, we recommend that students conduct future research in this area.

Conclusion

Within the limits of the current study, we have come to the conclusion that the majority of migraineurs who adopt non-pharmacological method, rest to relieve their headaches. Self-medication, using paracetamol as an OTC medicine, was the most popular form of migraine management among students. Flunerazine, on the other hand, was the most usually recommended medicine. The majority of migraineurs did not obtain proper therapy, which may result in chronic migraine and migraine-related impairment, given the present trend in migraine care. Our results indicate that headaches are a serious health problem among college students.

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