



Cross Sectional Study To Assess Migraine Triggering Factors Among Students

¹Mr.Sreehari R, ²Miss. Anjima S, ³Miss. Heleny Elsa Sunu, ⁴Miss. Fphamin P Philipose,

⁵Mr. Jayakumar K S, ⁶Dr. Roshiny Thankam James

^{5,6}Assistant Professor, ^{1,2,3,4}Sixth Year Pharm D,

Department Of Pharmacy Practice, Nazareth College of Pharmacy,Thiruvalla, India

***Corresponding Author:**

Mr. Sreehari R

Sixth Year Pharm D, Department Of Pharmacy, Nazareth College Of Pharmacy, Othara, Thiruvalla, India

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Migraine is a common, recurrent, primary headache of moderate to severe intensity. It is the most common neurological cause of disability in the world. In this study we aim to evaluate the triggering factors of migraine headache. A cross sectional study was done among students studying different courses over southern part of Kerala. In our study we came to find out that triggering factors plays an imperative role in the induction of migraine headache and the triggers can be dietary, lifestyle, physiological and environmental. Our study contains 161 migraineurs and among them the major triggering factors that mostly induces migraine headaches are stress, lack of sleep, missed meals and loud noise. The identification of these triggering factors helps to enhance the patient knowledge and also helps to reduce the chances of another migraine attacks.

Keywords: Migraine headache, cross sectional, triggering factors

Introduction

Migraine is a common, recurrent, primary headache of moderate to severe intensity. It interferes with normal functioning of people and is associated with Gastrointestinal, neurologic and Autonomic symptoms. Migraine is the most common neurological cause of disability in the world ^[1]. Migraine headache may occur at any time but usually occurs in the early morning and is characterised by throbbing headache in one area of the head lasting 4 to 72 hours and is associated with symptoms such as sensitivity to light or sound, nausea, and vomiting ^[2]. Some individuals experience visual disturbances (auras) that may present as zigzag lines or flashing lights either before or during a migraine. It causes as a result of activation of the trigeminal sensory nerves which triggers the release of vasoactive neuropeptides like neurokinin A, substance p and calcitonin gene related peptide resulting in the vasodilation of Dural blood vessels along with eructation of Dural plasma causing inflammation.

Migraine mostly begins at puberty which is more common in women than men approximately by a factor of 2:1^[3].

Migraine triggers are the main factors which modulates the genetic set points that leads to a migraine headache. Different triggering factors may lead to the causes of migraine headache. Triggering factors mainly include behavioural - physiological, environmental and food related factors. Lifestyle factors mainly include mental stress, improper or disturbed sleep and travelling ^[4]. Environmental factors mainly include exposure to light, noise and climatic changes whereas in food related factors, it mainly fasting, chocolate, certain beverages, cheese etc. Stress is the trigger most commonly listed by patients. Dietary factors are also frequently reported triggers but only a few have scientific validation. Oversleeping and sleep deprivation are commonly recognized triggers. Hormonal headaches are triggered by variation in female oestrogen levels and also due to other hormonal factors. Noise, bright light

and fumes are commonly identified migraine triggers. Physical exertion can cause exercise-induced migraine^[5].

The commonly reported triggers of migraine include-

Behavioural – physiological triggers

1. Insufficient sleep
2. Fatigue
3. Menstruation, menopause
4. Skipped meals
5. Sexual activity
6. Stress
7. Strenuous physical activities

Environmental triggers

1. Glare or Flickering lights
2. High altitude
3. Loud noises
4. Strong smells and fumes
5. Tobacco smoke
6. Weather change

Food triggers

1. Alcohol
2. Caffeine
3. Chocolate
4. Fermented and Pickled foods
5. Tyramine containing foods

6. Saccharin
7. Monosodium glutamate

Material & Methods:

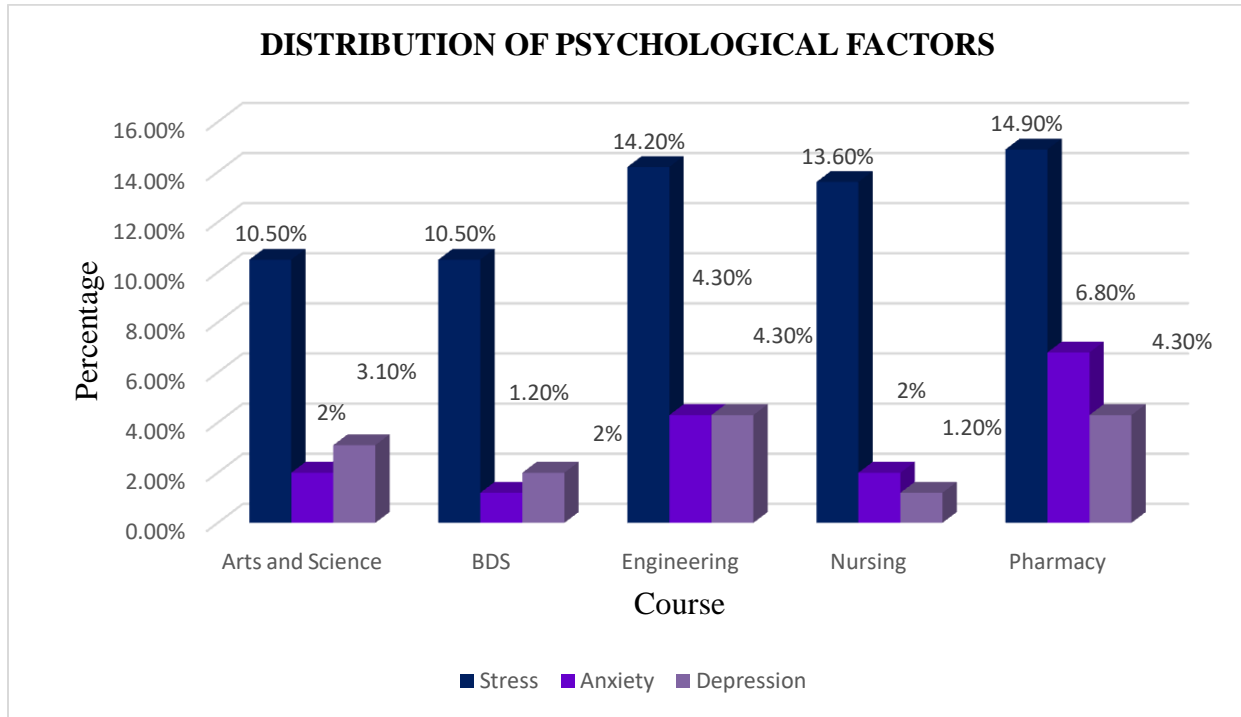
A cross sectional study was carried out on triggers of migraine among students studying different courses (engineering, bachelor of dental science (BDS), Pharmacy, Nursing, Arts and Sciences) in southern part of Kerala. The research was done during the period January 2022 to June 2022. A total of 375 students were responded in the study which include 75 students from each course. The sample size was calculated using the formula $n = Z^2_{1-\alpha/2} \sigma^2/d^2$. The data was collected using google form. Before sending the questionnaire, the subjects were intimated regarding the study and their consent were obtained. After obtaining the consent, questionnaire was sent to the respective subjects and responses were recorded in Microsoft excel. The data was statistically analysed. In this study individuals with age group between 18–35years, students from southern parts of Kerala, students studying Engineering, Pharmacy, Nursing, Bachelor of Dental Sciences and Arts & Science courses, psychological, environmental, lifestyle and dietary triggering factors are included. Pregnant women and lactating mothers were excluded from the study.

Results:

Table 1: psychological factors

Sl.no:	Triggering Factors	Arts and Science	BDS	Engineering	Nursing	Pharmacy
1	Stress	17(10.5%)	17(10.5%)	23(14.2%)	22(13.6%)	24(14.9%)
2	Anxiety	3(2%)	2(1.2%)	7(4.3%)	3(2%)	11(6.8%)
3	Depression	5(3.1%)	3(2%)	7(4.3%)	2(1.2%)	7(4.3%)

Figure 1: Graph demonstrating distribution of psychological triggering factors



Psychological factors are one of the important triggering factors of migraine. Several psychological factors include stress, anxiety and depression

Among arts and science students who have migraine, 10.5% have stress, 2% have anxiety and 3.1% have depression.

Among BDS students who have migraine, 10.5% have stress, 1.2% has anxiety and 2% have depression.

Among Engineering students who have migraine 14.2% have stress, 4.3% have anxiety and 4.3% have depression.

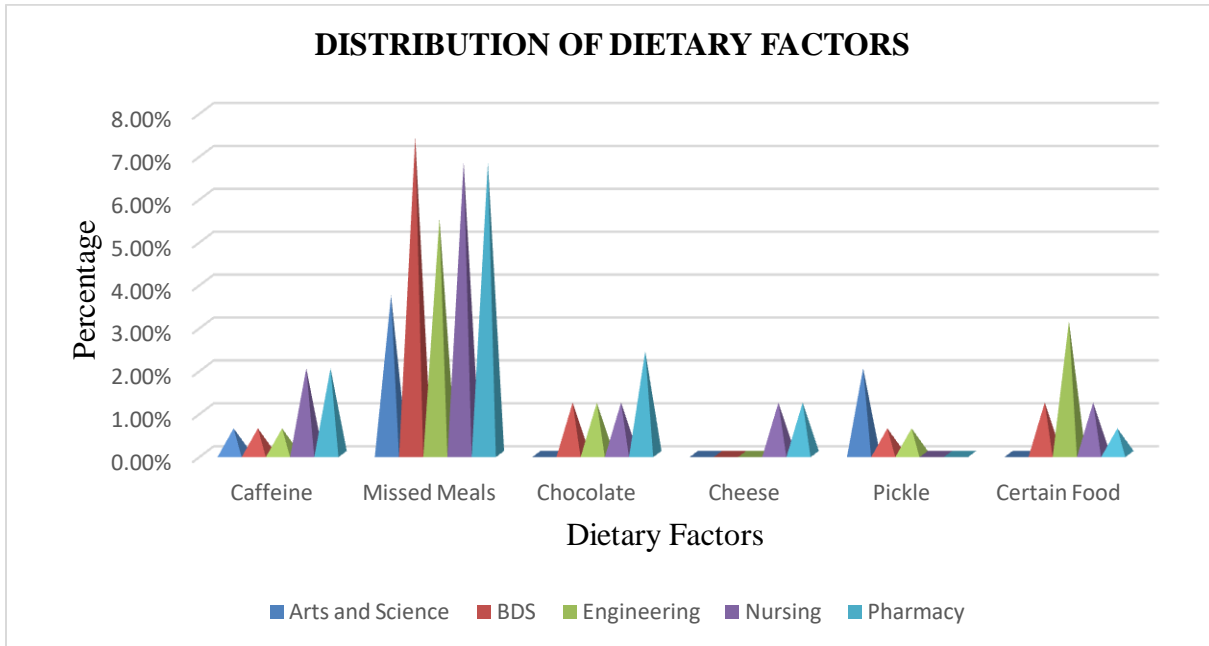
Among Nursing students who have migraine 13.6% have stress, 2% have anxiety and 1.2% has depression.

Among Pharmacy students who have migraine 14.9% have stress, 6.8% have anxiety and 4.3% have depression.

Table 2: Dietary Factors

Sl.no	Dietary Factors	Arts and Science	BDS	Engineering	Nursing	Pharmacy
1	Caffeine	1(0.6%)	1(0.6%)	1(0.6%)	3(2%)	3(2%)
2	Missed Meals	6(3.7%)	12(7.4%)	9(5.5%)	11(6.8%)	11(6.8%)
3	Chocolate	0(0%)	2(1.2%)	2(1.2%)	2(1.2%)	4(2.4%)
4	Cheese	0(0%)	0(0%)	0(0%)	2(1.2%)	2(1.2%)
5	Pickle	3(2%)	1(0.6%)	1(0.6%)	0(0%)	0(0%)
6	Certain Food	0(0%)	2(1.2%)	5(3.1%)	2(1.2%)	1(0.6%)

Figure 2: Graph Indicating Distribution Of Dietary Triggering Factors



Diet is one of the important triggering factors of migraine. Several dietary factors include missed meals, caffeine, chocolate, cheese, pickle and certain foods.

Among arts and science students who have migraine, caffeine as dietary triggering factor is reported in 1 student, 6 students cause migraine attack due to missed meals and for 3 students due to pickles.

Among BDS students who have migraine, caffeine as dietary precipitating factor is reported in 1 student, 12 students cause migraine attack due to missed meals, chocolate as dietary triggering factor in 2 students, pickle for 1 student and certain food for 2 students.

Among Engineering students who have migraine 1 student have caffeine as dietary triggering factor, 9

students cause migraine attack due to missed meals, chocolate as dietary triggering factor in 2 students, pickle for 1 student and certain food for 5 students.

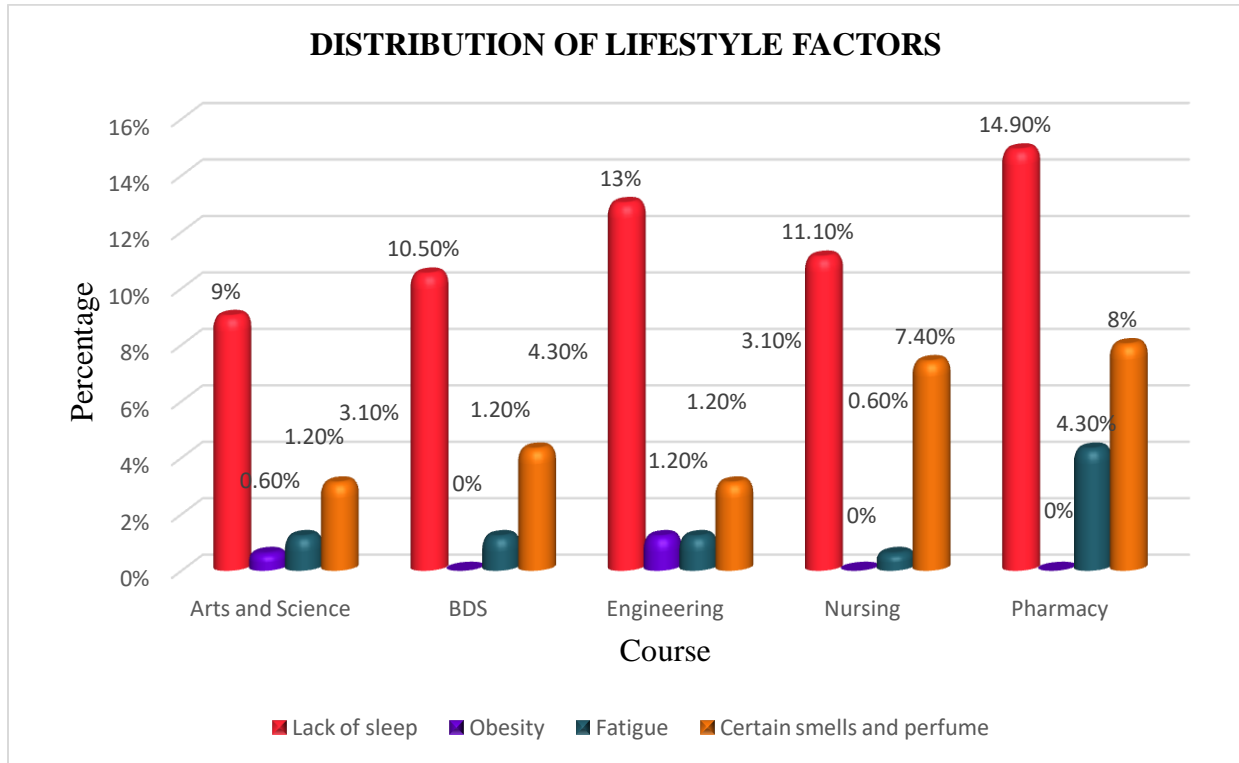
Among Nursing students who have migraine 3 student have caffeine as dietary triggering factor, 11 students cause migraine attack due to missed meals, chocolate as dietary triggering factor in 2 students, cheese for 2 student and certain food for 2 students.

Among Pharmacy students who have migraine 3 student have caffeine as dietary triggering factor, 11 students cause migraine attack due to missed meals, chocolate as dietary triggering factor in 4 students, cheese for 2 student and certain food for 1 student.

Table 3: Lifestyle Factors

Sl.no:	Lifestyle Factors	Arts and Science	BDS	Engineering	Nursing	Pharmacy
1	Lack of sleep	14(9%)	17(10.5%)	21(13%)	18(11.1%)	24(14.9%)
2	Obesity	1(0.6%)	0(0%)	2(1.2%)	0(0%)	0(0%)
3	Fatigue	2(1.2%)	2(1.2%)	2(1.2%)	1(0.6%)	7(4.3%)
4	Certain smells and perfume	5(3.1%)	7(4.3%)	5(3.1%)	12(7.4%)	13(8%)

Figure 3: Graph Showing Distribution Of Lifestyle Factors



Commonest lifestyle factors include lack of sleep, obesity, fatigue and certain smells and perfume.

Among arts and science students who have migraine, lifestyle triggering factors include lack of sleep in 14 subjects, obesity in 1 student, fatigue in 2 students and certain smell and perfume in 5 subjects.

Among BDS students who have migraine, lifestyle triggering factors include lack of sleep in 17 subjects, fatigue in 2 students, certain smells and perfume in 7 subjects and none have obesity as lifestyle factors.

In the case of Engineering students who have migraine, lifestyle triggering factors include lack of sleep in 21 students, obesity in 2 students, fatigue in

2 students and certain smell and perfume in 5 students.

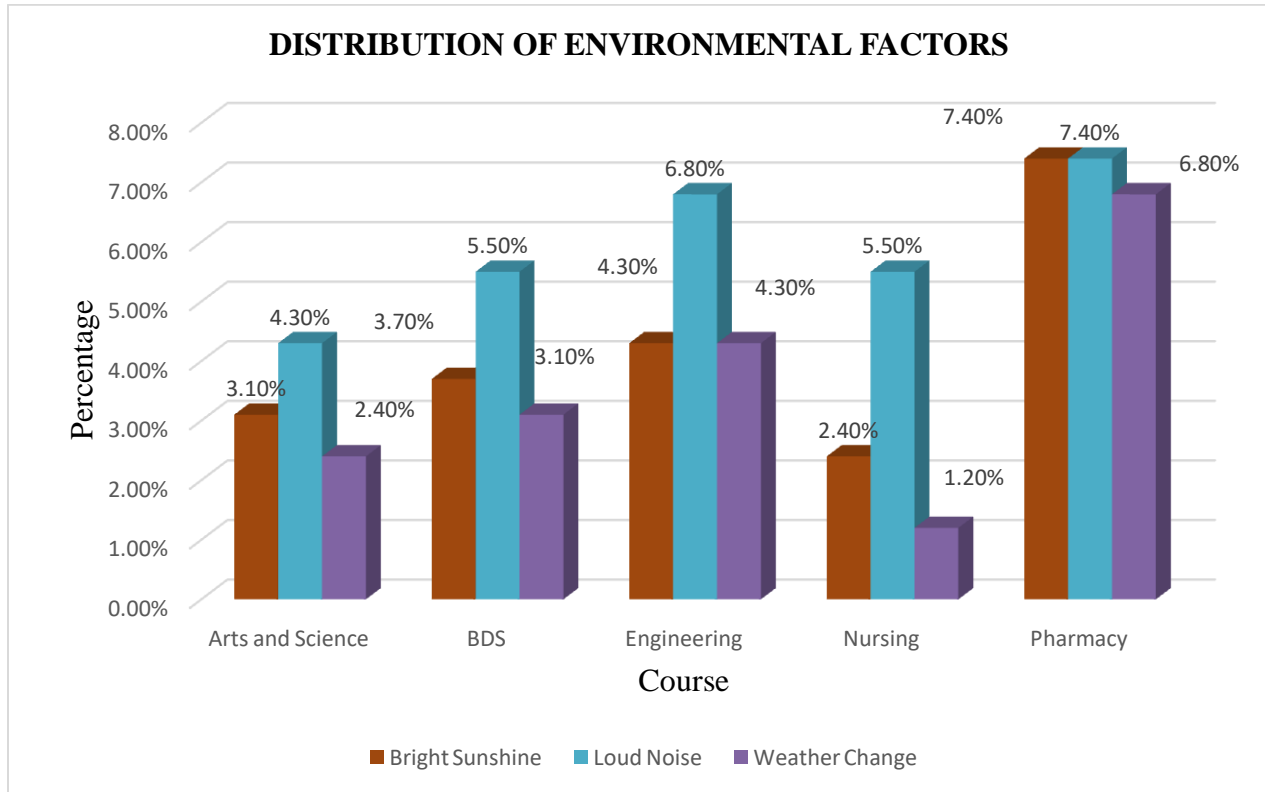
Whereas the case of Migraineurs in Nursing course, the lifestyle triggering factors include lack of sleep in 18 subjects, fatigue in 1 subject, certain smells and perfume in 12 subjects and none have obesity as lifestyle factors.

Among Pharmacy students who have migraine, lifestyle triggering factors include lack of sleep in 24 subjects, fatigue in 7 students, certain smells and perfume in 13 subjects and none have obesity as lifestyle factors.

Table 4: Environmental Factor

Sl.No:	Environmental factor	Arts and Science	BDS	Engineering	Nursing	Pharmacy
1	Bright Sunshine	5(3.1%)	6(3.7%)	7(4.3%)	4(2.4%)	12(7.4%)
2	Loud Noise	7(4.3%)	9(5.5%)	11(6.8%)	9(5.5%)	12(7.4%)
3	Weather Change	4(2.4%)	5(3.1%)	7(4.3%)	2(1.2%)	11(6.8%)

Figure 4: Graph showing distribution of environmental factors



Many environmental factors are reported to trigger the migraine. Migraineurs are frequently more sensitive to various environmental stimuli than individual without migraine. And the environmental triggering factors are bright sunshine, loud noise and weather change. The frequency of environmental triggering factors in Arts and science students is bright sunshine in 5 subjects, loud noise in 7 and weather change in 4 subjects, in the case of BDS students the frequency is bright sunshine 5, loud noise 9 and weather change 5. Among engineering students, the frequency is bright sunshine 7, loud noise 11 and weather change 7. Among nursing students, the frequency is bright sunshine 4, loud noise 9 and weather change 2. Whereas in the case of pharmacy students who have migraine 12 have bright sunshine and loud noise and 11 have weather change as environmental trigger.

Discussion:

Regarding the psychological factors which triggers migraine on various professional students it showed that the highest psychological factor was stress followed by anxiety and depression. Diet is one of the most important triggering factors and this study revealed that major dietary factors that leads to

migraine was missed meal. Other dietary factors where caffeine, chocolate, cheese, pickle and certain foods. In our study the major lifestyle factor triggering migraine is found to be lack of sleep (14%). The other lifestyle factors where obesity, fatigue, certain smells and perfume. The study exhibited that the environmental factors triggering migraine, loud noise (7.4%) was considered to be the major factor provoking migraine. The other environmental factors where bright sunshine and weather change.

Conclusion:

Migraine headache is the most common primary headache. In this study stress and missed meals were recognized as the precipitating factors of migraine headache. Lack of sleep and loud noise was found to be the most influential lifestyle and environmental triggering factor. Tracking migraine is an important factor. Nowadays several digital tools aid in communication between patient and healthcare provider. Keeping migraine trigger diary helps to make correct diagnosis for physicians, can recognize triggers and warning signs. Assess whether acute or preventive medications were needed for treatment. Identification of trigger enhance patient knowledge

and understanding of their migraine. Although we have achieved our objectives to a great extent, there were certain limitations like menstruation as a triggering factor was not included in our study because there was preponderance of female population in our study.

Acknowledgement:

We appreciate all the participants of our study. And we are grateful to our beloved teachers Mr. Jayakumar K S, Ms. Roshiny Thankam James for their guidance and support throughout our study.

References:

1. Vos T, Barber RM, Bell B, Bertozzi-Villa A, Biryukov S, Bolliger I, Charlson F, Davis A, Degenhardt L, Dicker D, Duan L. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The lancet*. 2015 Aug 22;386(9995):743-800.
2. Kelman L. *The triggers or precipitants of the acute migraine attack*. Sage publications, 2007; 27:394–402.
3. Al-Hassany L, Haas J, Piccininni M, Kurth T, Maassen Van Den Brink A, Rohmann JL. Giving researchers a headache—sex and gender differences in migraine. *Frontiers in neurology*. 2020 Oct 22; 11:549038.
4. Mollaoğlu M. Trigger factors in migraine patients. *Journal of health psychology*. 2013 Jul;18(7):984-94.
5. Yadhav K R, Kalita J, Misra K U. A Study of Triggers of Migraine in India. *Pain medicine*, 2010; 11: 44–47.