International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2017): 7.296

Prevalence and Quality of Life in Migraine among Young Adults

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Abstract: ***Migraine is a neurological disorder characterized by severe unilateral head ache accompanied by other disabling symptoms. Migraine is highly prevalent in India, and associated with substantial disability, especially among women and rural populations. Aura is a term used to describe a neurological symptom of migraine, most commonly visual disturbances. The trigger factors for migraine are: bright light, flickering light, loud sound, smoky room, temperature changes, various odours, stress, anxiety, irregular sleep, alcohol, dehydration, birth control pills, hormonal triggers, food like red wine, cheese, chicken liver, hot dogs, chocolate, banana, onions, dairy products, etc. Migraine attacks can act as a stressor, potentially leading to a vicious circle of increasing migraine frequency. Prevalence of migraine was 44%. Migraine often occurs for the first time in teenage/early 20s but teenagers can recover very quickly from this type of headache without any intervention. At least 90% of people with migraine experience first attack before the age of 35. SF36 questionnaire was used to comment on the quality of life. Individuals with migraine had moderate disturbance in their quality of life. The domains of General health, energy level, emotional wellbeing were moderately affected. They even experienced bodily pain which interfered with their normal routine.***

Keywords: migraine, quality of life, prevalence, trigger factors, aura

1. Introduction

Migraine is a neurological disorder characterized by severe unilateral head ache accompanied by other disabling symptoms. Migraine is highly prevalent in India, and associated with substantial disability, especially among women and rural populations. [1]

Migraine is best described as a neuronal event that may be caused by a hereditary susceptibility of the brain and various environmental triggers. It may occur in patients who have a genetically sensitive nervous system. The most recent and widely studied theory involves the trigeminovascular system, which—under the influence of a variety of external and internal triggers—results in the release of various inflammatory peptides, including calcitonin gene-related peptide (CGRP), substance P, neurokinin A, and nitric oxide. The resultant perivascular inflammatory response influences the trigeminal nucleus caudalis in the brainstem (the migraine generator) and cervical cord area, transferring pain data to the upper areas of the brain, including the thalamus and cortex. This leads to a state of hyperexcitability or cortical sensitization, resulting in the pain of migraine and associated features, including gastrointestinal (GI) and visual changes. [2], [3]

The knowledge about migraine triggers is important for proper management of the patients. The trigger factors for migraine are: bright light, flickering light, loud sound, smoky room, temperature changes, various odours, stress, anxiety, irregular sleep, alcohol, dehydration, birth control pills, hormonal triggers, food like red wine, cheese, chicken liver, hot dogs, chocolate, banana, onions, dairy products, etc. [4]

Headache affects work, social and leisure activities and has a tremendous impact on a person's life. The unpredictable nature of the disease leads to frequent absenteeism or decreased productivity at work. The episodic form of migraine if not treated can transform to chronic form. Chronic pain affects the quality of life (QOL). [5]

According to a study on 'Quality of life in chronic daily headache', targeted population studies for any disease will help us in identifying the high-risk group in the general population, identifying the trigger factors, and also in knowing its impact on their QOL. In the general population, CDH reduced all QoL aspects studied with the SF-36. This reduction in QoL was most marked in subjects with analgesic overuse. QoL was affected more by the chronicity than by the intensity of pain. [6]

The study on 'Stress and psychological factors before a migraine attack: A time-based analysis' says that stress is a key precipitating and aggravating factor that causes or worsens migraine. It is suggested from clinical experience that there is a time lag of a few days between stress and migraine attack. Psychosocial stress preceding the onset of migraines by several days was suggested to play an important role in the occurrence of migraines. There are reports that mood changes such as alertness, tension, depressive tendency, irritability and fatigue, as well as stress, also went a few days ahead of migraine attack. [7]

According to a study on young male adults in India, ranging from mild to extremely severe, depressive symptoms were present in 18.5% of the population, anxiety in 24.4%, and stress in 20%. Clinical depression was present in 12.1% and generalized anxiety disorder in 19.0%. Comorbid anxiety and depression were high, with about 87% of those having depression also suffering from anxiety disorder. Detecting depressive, anxiety, and stress-related symptoms in the college population is a critical preventive strategy, which can help in preventing disruption to the learning process. Health

policies must integrate young adults' depression, stress, and anxiety as a disorder of public health significance. [9]

Hence, the targeted population in this study of migraine are young adults.

According to ID Migraine test, the subjects are classified as migraine or nonmigraine subjects. The sensitivity of the ID Migraine™ test for neurologist's diagnosis of migraine was 91.8%, specificity was 63.4%, positive predictive value was 71.9% and negative predictive value was 88.4%. The quality of life is studied through QOL-SF36 scale. The SF-36 is a promising new instrument for measuring health perception in a general population. It is easy to use, acceptable to patients, and fulfils stringent criteria of reliability and validity. Its use in other contexts and with different disease groups requires further research. [10], [11]

The aim of the study was to study the prevalence, trigger factors and also the quality of life in individuals with migraine.

2. Methodology

Research approach
Prospective

Study design:
Case-crossover survey based through a questionnaire.

Sample size:
219

Material used:
SF36 Questionnaire

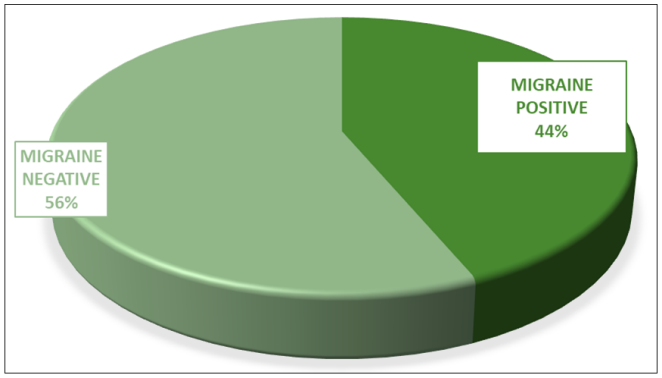
Inclusion criteria:
This study includes 219 subjects between the age of 18-35 years.

Exclusion criteria:
Those who are not willing to participate in the study.

Methodology
The design of the study was randomized control type survey. The questionnaire was administered randomly to the targeted population. Consent was taken from everybody included in the study. The questionnaire consisted questions, such as demographic data, presence of headache, photophobia, intensity of headache, triggers, family history, response of medications on headache which was followed by a quality of life (SF36) questionnaire. ID Migraine test was used to classify subjects having migraine.

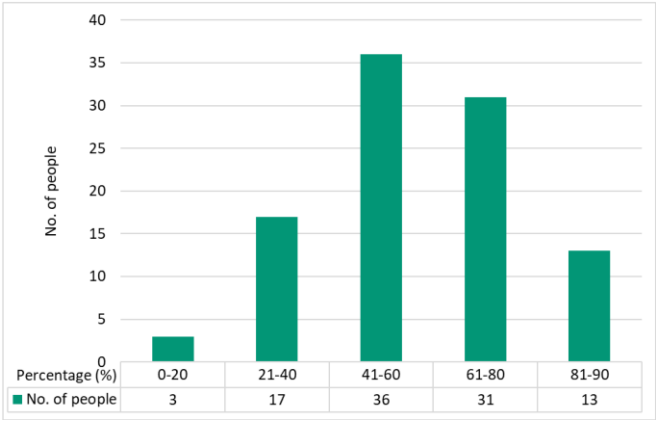
3. Results

3.1 Prevalence of migraine



Inference:
44% people from the total sample collected were classified as migraine.

3.2 QoL- General health

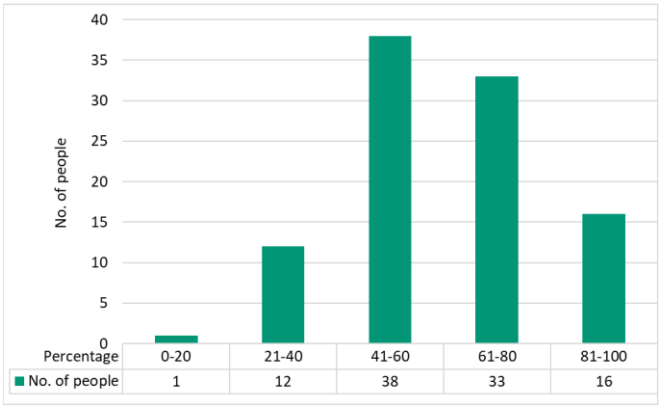


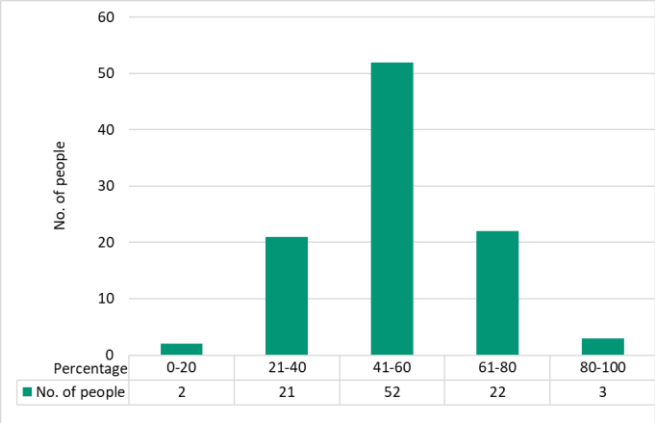
Inference
There was moderate (41-60%) affection of general health among subjects classified as migraine positive from the targeted population.

3.3 QoL- Emotional wellbeing

Inference:
Emotional status of 38 samples was moderately affected.

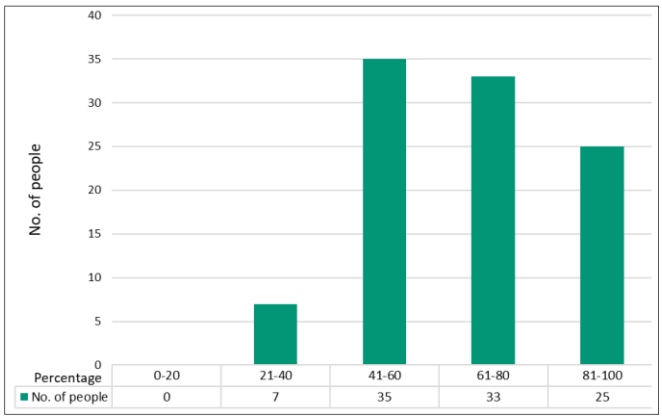
3.4 QoL- Energy/Fatigue





Inference
52% individuals felt moderate fatigue/had less energy than usual.

3.5 QoL- Bodily pain



Inference:
35 people suffered with moderate amount of pain which interfered with their participation at/outside home.

4. Discussion

The following study comprises total of 219 samples aged 18-35 years. Presence or absence of migraine was based on ID Migraine test which has a sensitivity of 91.8% and specificity of 63.4%. According to the responses received, 100 subjects answered yes to 2 or more than 2 questions hence they were classified as having migraine. Prevalence of migraine in the collected sample was 44%.

There was 15% prevalence of migraine in the age group of 18-20 years, 50% in the age group of 21-23 years, 9% in the age group of 24-26 years, 12% in the age group of 27-29 years, 5% in the age group of 30-32 years and 9% in 33-35 years. Migraine often occurs for the first time in your teens or early 20s but teenagers can recover very quickly from this type of headache without any intervention. It is most common in the 30 to 35 age group. At least 90% of people with migraine experience first attack before the age of 35. [13] Some of the reasons why it is common in teenagers are because they are more prone to the activities, like: skipping a meal, not getting adequate sleep, participation in sports which can lead to drop in blood sugar and lack of hydration and teenage emotional/hormonal changes.
Genetic factors are a predisposing factor for migraine. 79% samples having migraine had a family history of migraine while 21% samples denied having any kind of family history of migraine. According to this study, 71% samples responded to drugs while the other 29% samples had no effect of drugs on their headache. Successful treatment of migraine attacks has been defined as elimination of pain completely 2 hours after treatment or transformation of moderate-severe pain to mild pain.

The study conducted showed that 79%, 49%, 45%, 44%, 29% and 14% migraine headaches are triggered/worsened by alteration in the sleep schedule, change in the intensity of light, watching tv/phone for long hours, different odours, smoking or air pollution, food substances like cheese, chocolate, milk, and nuts. [20]

The biggest culprit of all, stress is a trigger for most people with migraine, and there is significant association between daily stress level and daily migraine activity. When you add the perpetual worry of when the next attack will strike, it can start to feel like a never-ending, exhausting cycle. The connection between migraine and sleep is undeniable. Sleep renews and repairs all parts of the body including the brain so it makes sense that when your sleep schedule becomes irregular, you are more prone to migraine attacks. Nearly half of all migraine attacks occur between 4:00am and 9:00am, putting people at a greater risk for developing a sleep disorder. It is said that migraine symptoms are heightened after consuming caffeine or alcohol. Conversely, other people say that a cup of coffee can stop their migraine symptoms, and some medications designed to fight migraine pain may contain a dose of caffeine. Although migraine patients consider red wine the principal alcoholic trigger, studies show that other types of alcohol are just as likely the culprit. Both natural, bright light and fluorescent or flickering bulbs are problematic, making it difficult to spend time outside or be in an office environment. This condition is called Photophobia. Some odours may activate certain nerve receptors in the nasal passages that may trigger a migraine attack or make worse one that already started. [21], [22]

Quality of life is a complex, abstract, multidimensional concept that defines an individual's satisfaction or happiness with life in domains he or she considers important. Migraine headaches vary in severity from moderate pain with no activity limitations to severe pain and prolonged incapacitation undermining severely the quality of life. [23], [24] QOL was studied in all the subjects with migraine and the following observation was seen according to domains:

GENERAL HEALTH: It was observed that there was moderate affection of general health in 36% of samples. This means 36% people thought their health was not as healthy as others around them. This is an objective assessment of overall feeling about their own health by them.

FATIGUE/ENERGY: 52% migraine prevalent subjects felt fatigue, tired or worn out at some point in the last 4 weeks.

Fatigue is often stated as a headache trigger or migraine-specific symptom. It is the feeling of drowsiness, depression, weakness and helplessness. Pain is not the reason for fatigue; in fact fatigue is a part of migraine pathophysiology, which is defined as the functional bodily changes produced by the disease. [25]

EMOTIONAL WELLBEING: This study showed 38% samples with migraine have emotional disturbances. Because of migraine they have experienced nervousness, anxiety, downhearted and unhappiness. This is because during the migraine attack dopamine neurotransmitter which regulates emotion, motivation and sensory perception is reduced. [26]

PAIN: 35% migraine prevalent subjects experienced bodily pain that interfered with work outside and inside the house. There is no hypothesis relating bodily pain and migraine.

5. Conclusion

From this study it can be concluded that the prevalence of migraine in the targeted population is 44% with 50% of them from the age group of 21-23 years. Migraine can be triggered by various factors commonest being the alteration in sleep schedule followed by change in the intensity of light, watching tv/phone for long hours, different odours, smoking or air pollution, food substances like cheese, chocolate, milk, nuts. Individuals with migraine had moderate disturbance in their quality of life. The domains of General health, energy level, emotional wellbeing moderately affected. They even experienced bodily pain which interfered with their normal routine.

Change in the lifestyle can to some extent help to reduce the frequency of the headaches.

Cervical mobilization and manipulation are frequently used to treat patients diagnosed with cervicogenic headache (CEH); however, there is conflicting evidence on the efficacy of these manual therapy techniques.[27] There is lack of evidence on the use of these techniques in patients with migraine.

References

[1] Kulkarni, G., Rao, G., Gururaj, G., Subbakrishna, D., Steiner, T. and Stovner, L. (2014). EHMTI-0333. The prevalence and burden of migraine in india: results of a population-based study in Karnataka state. The Journal of Headache and Pain, 15(S1).

[2] May, A. and Goadsby, P. (1999). The Trigeminovascular System in Humans: Pathophysiologic Implications for Primary Headache Syndromes of the Neural Influences on the Cerebral Circulation. Journal of Cerebral Blood Flow & Metabolism, 19(2), pp.115-127..

[3] Demaagd G. The pharmacological management of migraine, part 1: overview and abortive therapy. [Internet]. Europepmc.org. [cited 5 August 2018]. Available from: http://europepmc.org/articles/PMC2740949

[4] Wöber C, Holzhammer J, Zeitlhofer J, Wessely P, Wöber-Bingöl Ç. Trigger factors of migraine and tension-type headache: experience and knowledge of the patients. 2018.

[5] Leonardi M, Steiner T, Scher A, Lipton R. The global burden of migraine: measuring disability in headache disorders with WHO's Classification of Functioning, Disability and Health (ICF). The Journal of Headache and Pain. 2005;6(6):429-440.

[6] Guitera V, Munoz P, Castillo J, Pascual J. Quality of life in chronic daily headache: A study in a general population. Neurology. 2002;58(7):1062-1065.

[7] Hashizume M, Yamada U, Sato A, Hayashi K, Amano Y, Makino M et al. Stress and psychological factors before a migraine attack: A time-based analysis. BioPsychoSocial Medicine. 2008;2(1).

[8] Becker W, Sauro K. Recent Studies on Stress Management-Related Treatments for Migraine. Headache: The Journal of Head and Face Pain. 2009;49(9):1387-1390.

[9] Sahoo, Saddichha, Khess, R. J. C. Prevalence of Depression, Anxiety, and Stress Among Young Male Adults in India: A Dimensional and Categorical Diagnoses-Based Study. The Journal of Nervous and Mental Disease. 2010;198.

[10] Karli N, Ertas M, Baykan B, Uzunkaya O, Saip S, Zarifoglu M et al. The validation of ID migraine™ screener in neurology outpatient clinics in Turkey. The Journal of Headache and Pain. 2007;8(4):217-223.

[11] Brazier J, Harper R, Jones N, O'Cathain A, Thomas K, Usherwood T et al. Validating the SF-36 health survey questionnaire: new outcome measure for primary care. BMJ. 1992;305(6846):160-164.

[12] Migraine underdiagnosed and undertreated in the US. PharmacoEconomics & Outcomes News. 2000;252(1):8-8.

[13] Das S, Ray B, Paul N, Hazra A, Das S, Ghosal M et al. Prevalence, burden, and risk factors of migraine: A community-based study from Eastern India. Neurology India. 2017;65(6):1280.

[14] Peterlin B, Gupta S, Ward T, MacGregor A. Sex Matters: Evaluating Sex and Gender in Migraine and Headache Research. Headache: The Journal of Head and Face Pain. 2011;51(6):839-842.

[15] Hansen J, Lipton R, Dodick D, Silberstein S, Saper J, Aurora S et al. Migraine headache is present in the aura phase – a prospective study. The Journal of Headache and Pain. 2013;1(Suppl 1):P130.

[16] Dalkara T, Nozari A, Moskowitz M. Migraine aura pathophysiology: the role of blood vessels and microembolisation. The Lancet Neurology. 2010;9(3):309-317.

[17] Gasparini C, Sutherland H, Griffiths L. Studies on the Pathophysiology and Genetic Basis of Migraine. Current Genomics. 2013;14(5):300-315.

[18] Schürks M. Genetics of migraine in the age of genome-wide association studies. The Journal of Headache and Pain. 2011;13(1):1-9.

[19] Kelman L. Pain Characteristics of the Acute Migraine Attack. Headache: The Journal of Head and Face Pain. 2006;46(6):942-953.

[20] Yadav R, Kalita J, Misra U. A Study of Triggers of Migraine in India. Pain Medicine. 2010;11(1):44-47.

[21] Maleki N, Becerra L, Borsook D. Migraine: Maladaptive Brain Responses to Stress. Headache: The Journal of Head and Face Pain. 2012;52:102-106.
[22] Swanson S, Zeng Y, Weeks M, Colman I. The contribution of stress to the comorbidity of migraine and major depression: results from a prospective cohort study. BMJ Open. 2013;3(3):e002057..
[23] Apolone G, Mosconi P. Health–related quality of life (HRQOL)and migraine. The Journal of Headache and Pain. 2001;2(S1):s21-s24.
[24] Anand K, Sharma S. Quality of life in migraine. Drug Development Research. 2007;68(7):403-411.
[25] Seo J, Park S. Significance of fatigue in patients with migraine. Journal of Clinical Neuroscience. 2018;50:69-73.
[26] DaSilva A, Nascimento T, Jassar H, Heffernan J, Toback R, Lucas S et al. Dopamine D2/D3 imbalance during migraine attack and allodynia in vivo. Neurology. 2017;88(17):1634-1641.
[27] Garcia J, Arnold S, Tetley K, Voight K, Frank R. Mobilization and Manipulation of the Cervical Spine in Patients with Cervicogenic Headache: Any Scientific Evidence?. Frontiers in Neurology. 2016;7.

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