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Review on primary headache among college students

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***Abstract*---**Introduction: The most common sort of headache problem on the planet is primary headache disorders yet underappreciated, misunderstood, and inadequately treated, and they seem to be the third leading cause of disability in the world, because of the unpredictability of headache attacks and the existence of associated symptoms including dizziness, vomiting, nausea, and visual and/or hearing problems, persistent primary headaches can even have a massive effect on peoples' health. Migraine, the most common cause of headache in the world, is characterized by headache bouts that last anywhere from 4 to 72 hours if left untreated. Students are more likely to experience exhaustion, stress, and worry, being the most prevalent triggers of TTH as well as migraine. Cluster Headache is amongst the most debilitating headache conditions, with a significant level of severity. CH has a lesser incidence than migraines. It hits about one out of every thousand people. Methodology: Database searches including PubMed Central, Google Scholar and Cochrane library were performed. Studies that investigated Impact of primary headache, prevalence of primary headache among students, health related quality of life in students with primary headache disorders were included and reviewed. Articles that evaluate any form of secondary headache were excluded. Result: The review consisted of 70 articles out of which 31 articles are match with my studies, that full filed the criteria of headache. Both emotional, social and physical areas of life were affected by headache subtypes, however the degree of impairment varied. A lot of important headache triggers and reliving factors were also discovered. Conclusion: After completing extensive research on various types of primary headaches among college students, we have come to the conclusion that students require more understanding of headache diseases and their triggers. It is a cause

for concern because a large number of students suffer from various types of headaches. Medical students, however, are more prone to headache disorders due to their curriculums; they are expected to have more time for studies as a result of such burden; med students are more likely to have a high number of stressors.

***Keywords*---**Primary headache, migraine, cluster headache, tension type headache**.**

Introduction

In neurology clinics, headache disorders are one of the most main complaints (1). Headache problems are underappreciated, misunderstood, and inadequately treated, and they seem to be the third leading cause of disability in the world. They place a substantial influence on the the standard of living of both individuals and communities. Primary headaches, which are not because of an underlying disease, and secondary headache disorders, which resulting from pre-existing morbidity, are the two types of headache disorders. Students' academic, social, and personal lives are all affected by illness. Previous headache research has focused on medical students in particular, due to the high intellectual load and stress they face throughout their school days. The most common sort of headache problem on the planet is primary headache disorders (2).

Previous research on primary headache disorders among medical students has found a link between poor academic performance and the need for action. (3) Headache is still the most common referral for neurologic consultation in the outpatient setting, according to the Global Burden of Disease (GBD) release of data in2013, which was recognized as "one of most complete global observational epidemiological studies to date" in 2017. Ingrained headache problems are the seventh-highest on record spent disabled. Because of the unpredictability of attacks and the existence of associated symptoms including dizziness, vomiting, nausea, and visual and/or hearing problems, persistent primary headaches can even have a massive effect on peoples' health(4).

Headache in young adults is linked to a number of psychopathological factors, and students have been discovered to get a higher risk of headaches (5). Anxiousness about aspects of the study, such as exam preparation and presentations, general emotional stress, feelings of hopelessness, interpersonal difficulties, eating disorders, personal tragedies & parental separations, boredom as well as feelings of loneliness, lack of self-confidence or low self-esteem, trying to manage progressions, making tough decisions, and so on have all been linked to depression (6). The goal of this study is to learn in-depth knowledge about the epidemiology of main headache disorders among college students, as well as the coping mechanisms they employ to deal with headaches' negative consequences on their academic performance (7).

Classifications of Primary Headache

Cluster headache is a type of trigeminal autonomic cephalalgia (TACs). In the Observations Medicare, it was defined as a recurrent intense single side headache that lasted little more than two hours. Neuropathic pain bouts can last anywhere from 15 minutes to three hours without therapy, with a typical period of 45–90 minutes. Victims have cranial autonomic complaints which including lacrimation, eye redness, ocular discomfort such as cheesiness, ptosis, rhinitis, runny nose, auditory heaviness, windpipe enlargement, as well as flushing during an episode (19). It's amongst the most debilitating headache conditions, with a significant level of severity. CH has a lesser incidence than migraines (22).

The discomfort is tremendous, intense, acute, and scorching, and it is often compared to birth. "Suicide headaches" is another name for it. The assault usually intensifies swiftly, culminating in acute pain that subsides in a comparable duration, with a distinct beginning and ending (19). It hits about one out of every thousand people (20). Cluster headache has long been thought to be a male-dominated condition with a strong male-to-female ratio. In both genders, the average age of beginning of cluster headache seems to be in the 30s with the difference separating episodic cluster headache (ECH) and chronic cluster headache (CCH) believed to be in the third decade (19). Cluster headache is classified as episodic or chronic based on the time between bouts. People suffering episodic cluster headache experience 'bouts,' which are clusters of attacks. These episodes typically last 6 to 12 weeks and follow a yearly rhythm, with more attacks in the springtime. If the interval between attacks is more than three months and the person is not undergoing a preventive treatment, the client is shown to have an episodic cluster headache. Chronic cluster headache is defined as a series of occurrences with a gap of less than three months between them (20).

Migraine is a form of primary headache condition marked by repeated attacks of varying severity one side throbbing ache, often followed by nausea, photophobia, and phonophobia. It is categorized into two kinds: migraine without aura (MO) and migraine with aura (MA), the latter of which has visual, sensory, or other CNS abnormalities preceding the headache and concomitant migraine characteristics (23). Migraine, as being among the neurologic illnesses, is a major public health issue because of its high frequency, accompanying disabling symptoms, and decreased function. Migraine can indeed limit people's socialization skills, work, and study at times when they are most productive (24).

Migraine, the most common cause of headache in the world, is characterized by headache bouts that last anywhere from 4 to 72 hours if left untreated. It's a unilaterally pulsating or throbbing pain that ranges from mild to severe, and it's often accompanied by nausea or vomiting, as well as sensitivity to light and phonophobia. Are associated with serious pain, nausea, vomiting, photophobia, phonophobia, and, in some cases, visual or sensory abnormalities. Moreover, they are connected with considerable expenditures, most of which are indirect, such as decreased productivity and lost work time. (25).

According to a study, a large proportion of undergraduate medical students suffer from migraines, the most prevalent cause of which is a disrupted sleep pattern. (26). TTH is a form of headache in which the pain is characterized as "a band around the head." It is mild to moderate in severity, occurring on both sides of the head (bilateral), is not made worse by ordinary activity (trying to bend over or climbing stairs), and has a pressing or tightening quality rather than throbbing or pulsing. There is no nausea or vomiting associated with it. (27).

Because of their lifestyle, students are more likely to experience exhaustion, stress, and worry, being the most prevalent triggers of TTH as well as migraine. Migraine is very common among university students, and it is linked to poor educational outcomes and a reduction in daily tasks. It has detrimental consequences for university students, who must maintain continual concentration and perform at a high level. Reduced academic performance among university students restricts success, which may have an impact on career dealing with stressful situations in society (28).

Furthermore, it must be remembered all headaches conditions, particularly migraine, are a financial burden, with the majority of the economic impact coming from work-related costs such as absenteeism, presenteeism, and lost productivity (29). Headaches, particularly migraines, are estimated to have cost the US population one hundred and twelve million days of work or school each year, and the UK population twenty-five million days. (25).

Primary headache's neurochemistry

Cluster headache is a neurovascular instead of a vascular illness, with the consequences of trigeminal autonomic reflex firing driving vascular cerebral alterations. The trigeminal autonomic response is a route that is activated by excitation of the trigeminovascular pathways and composed of just a brainstem connection between both the trigeminal nerve and facial cranial nerve parasympathetic outflow. The trigeminovascular pathway is made up of neurons inside the trigeminal ganglion that innervate the cerebral vessels as well as dura mater via cell bodies. The presence of bipolar cells in the ganglion, as well as spontaneous and nitroglycerin-induced cluster headache attacks, suggests that the trigeminovascular circuit is engaged during attacks (19). Patients report a cluster headache onset as an acute and terrible strictly unilateral pain originating from deep inside the supraorbital, retro orbital, and temporal regions. It affects about one out of every thousand people. Preventive therapy should be continued for up to a month after assaults have calmed, as demonstrated by lack of ‘shadows or responsiveness to stressors, or after the bout has lasted the typical length of time. (20).

Cluster headache symptoms are caused by the trigeminal autonomic reflex pathway being activated by parasympathetic discharge from the superior salivatory nucleus, the cranial facial nerve, and the sphenopalatine ganglion, resulted in vasodilation and parasympathetic activity. (19).

Migraine is caused by a multi-step process that starts with basic neuronal malfunction. Neurons from the cranial nerve V nucleus and the higher cervical

roots' posterior portions directly stimulate the dural vascular structures. Primary sensory nucleus caudalis and trigeminal cervical complex, these nuclei transmit onto 2nd order neurons. The brain and sensory cortex are reached after that. The trigeminal nerve's fibers converge via the trigeminal nucleus caudalis and upper cervical roots, causing pain in the head and neck. Both descending and ascending hypothalamic fibers, periaqueductal grey, locus coeruleus and nucleus raphe Magnus onto the trigeminal nucleus caudalis can control pain. Spreading cortical depression, which was previously pondered exclusively take place in migraines with aura, now appears to be present in all migraines (8). Central pain pathways are triggered by persistent nociceptive activation of the pericranial my fascia, which can be the cause of *chronic tension-type headache* conversion (9).

The ICHD divides TTH into four categories: rare, frequent, persistent, and probable. Tension Type Headache is the most frequent main headache disease, and according to a cross-sectional study, women are significantly more affected than males, with a mean starting a range of twenty-five to thirty years old, with a maximum age of 39 years old (10).

Headaches Can Be Linked to Stress 1 retrospective research (asking headache patients if stress is the source of their affliction), (ii) prospective research (headache patients stress and headaches self-monitoring at the very same time), and (iii) lab study (investigating effect of induced stress) (4). Turner and colleagues identified three main theories for determining whether stressors induce headaches, arguing that assessing such claims was difficult (5). The findings of studies that look back nearly identically endorse stress as one of the most widely accepted triggers migraine and tension-type headaches in adults, as well as in schoolchildren for migraine (6).

The Effect of Stress on Students

Physically, the heart starts to beat faster, causing the heart to pound and the venous pressure to rise. Palpitations are common in some individuals. Muscle contraction rises, causing headaches, drowsiness, jaw ache, and even sleeplessness. The lips become parched. Digestion becomes sluggish, resulting in stomach "butterflies." Respiration is faster and less effective, which can result in over-breathing (rapid breathing) and shortness of breath. Dehydration, blushing, or shivery legs and hands can result from microcirculation towards the skin (7). More so Panic and stress are increased by intrusive thoughts and fear of the worst (8). However, Stress affects people in a variety of ways. Irritation, lack of patience, frustration, distress, anxiety, tension, conscience, nervousness, pessimism, feelings of failure, uncertainty, loss of hope, dejection, social alienation, and depressed mood are all common emotional effects (9).

Stress-Related Headaches: Clinical Management

Some studies have discovered headache treatment programs known as "stress management therapy"/Bastress-coping (10). Techniques such as biofeedback and relaxation as well as CBT are the most commonly used signifiers for behavior interventions (CBT) (11). A few methods for headache behavioral treatment combine each of these techniques (12). As one relaxation training is advised to

lessen tension, almost all sorts of Behavioral therapy could be considered of as stress management training., (ii) The purpose for biofeedback training would be to alter physiological variables (such as muscular tension) while lowering sympathetic arousal. (iii) Behavior therapy is based on ineffective thoughts and attitudes about stress and unpleasant emotions, such as triggers or how to deal with a headache (13). It exists still a substantial body of literature reviewing behavioral treatments for migraine and TTH, as well as numerous reviews, for example. Neurofeedback training, relaxation training, and CBT are all proven to be effective. It is far less clear how they attain their excellence (14). Several research has confirmed how behavioral treatment is linked to comparable cognitive changes, for example, because Self-efficacy appears to be a moderator of the influence of stressors on headaches (15).

Was the quality of life affected by Primary Headaches?

Norazah Abu Bakar et al 2015 suggests that headache, especially persistent headache, has a significant impact on HRQoL (16). The patient's view of the total effect of sickness and treatment on his or her capacity to live a fulfilling life is referred to as health-related quality of life (HRQOL). HRQOL measuring techniques convey the impact of sickness on a patient's well-being, providing unique insight into disease diagnosis and management. Migraines are a type of headache. Despite the episodic character of migraine, HRQOL has been found to be equivalent to that of patients suffering from chronic conditions like diabetes and arthritis (17). Migraine. The bulk of studies looking into HRQoL in migraine sufferers were of moderate to good quality, concluded across migraine subgroups, there have been no variations in HRQoL. (migraine without aura, aura migraine, and migraines with and without aura) (18). Physical, emotional, and somatic pain investigations indicated impairments in social performance. On the HRQoL measure, migraineurs scored considerably lower than asthmatics in the social functioning, role emotional, mental wellbeing, physical functioning, and energy domains. Anxiety and depression are known to be linked to migraine. Migraine and serious depression are frequently co-occurring, according to a new population research conducted in Canada (17). However, when migraine was related with anxiety and depression, Lantéri Minet et al. discovered higher migraine disability and HRQOL impairment.

Primary headache disorder comorbidities include:

Primary headache problems are a prevalent and debilitating ailment. They're linked to a variety of comorbidities, such as cardiovascular and psychological issues, which add to the overall burden of headache. Mood swings, hypertension, as well as panic attacks were the most commonly addressed comorbidities. Within studies, correlations between The age range and female predominance were discovered indicated hypertension was much more widespread than previously thought and fewer in research involving women of a certain age whereas In research with younger participants and more females, fibromyalgia, restless leg syndrome, and depressive disorders were more prevalent (16).

Measures to Prevent

The issue of recognizing students with psychological difficulties at an early stage should be addressed through counselling institutions. Conducting seminars and workshops for teachers at med schools on how to detect kids with psychological disorders is one way to accomplish this, with the support of psychotherapists, student counselling centers should be established in all colleges, and counselling can be provided as an early intervention. Increase awareness amongst college students to seek mentorship or therapy from a student counselling center if they encounter any academic or emotional issues, Student mentors should maintain frequent communication with the student counselling centre so that they can refer kids early and receive advice from the center. Students should have access to regular workshops on managing stress, goal setting, assertiveness training, and effective communication (1).

Treatment

It is critical to educate the patient about *migraines* and how to control them in order to provide successful treatment. Treatment usually consists of a mix of general precautions, preventive medication, and abortive treatment. Nevertheless, to avoid medication overuse headache, keep a headache diary to track triggers and limit the use of acute remedies (OTC medicines, triptans) to twice per seven days or 10 days per month. It is recommended that you don't skip meals, eat a well-balanced food, have Eight hours of sleep at night, reduce stress, exercise half an hour each day, stay hydrated, and drink six to eight cups of water per day.

Sleep disruption, stress, and nutritional changes are all typical provoking factors. Migraine frequency and intensity can be reduced by lowering the triggering variables (30). Many people can reduce their migraine risk by managing stress, getting adequate rest, eating regularly, and staying away from causes. As a result, the current study intends to assess the efficacy of a multiphase intervention in the treatment of migraine headaches. A behavioral lifestyle modification strategy and pranayama sessions are part of the multi-component treatments (a form of breathing exercise) (31).

Cluster headache treatment is classified into two categories: acute and preventative. Subcutaneous sumatriptan, intranasal sumatriptan, and zolmitriptan, high-flow oxygen via a non-rebreather mask, and non-invasive vagus nerve stimulation are the evidence-based acute therapies for cluster headaches (nVNS). Verapamil was proven to be an effective preventive therapy. Topiramate's efficacy in preventing cluster headache is based on an open-label trial that used large doses (100–200 mg/day) and indicated good efficacy in up to two-thirds of patients. Although the evidence for lithium is weak, it is widely acknowledged as a viable second-line choice. Melatonin 10 mg taken at night can assist to prevent episodic cluster headache attacks. (20).

Treatment with drugs for episodic TTH, The primary line of treatment is nonsteroidal anti-inflammatory drugs (NSAIDs). followed by combination analgesics. The first-line treatment for CTTH is a low-dose tricyclic antidepressant such as amitriptyline (10-50 mg). In episodic, chronic, and refractory migraine,

new therapeutic techniques are being explored to increase pain reduction effectiveness and compliance (12). Nonpharmaceutical Therapy Patients with CTTH benefit from cognitive behavior therapy, biofeedback, and mindfulness to reduce pain intensity and headache-related impairment. Acupuncture is a successful short-term therapy for According to available data, there is a high prevalence of episodic and chronic TTH. The effects of physical therapy procedures in individuals with TTH and CTTH were explored in a study by Epsi-Lopez and colleagues. Patients in the therapy group reported increased quality of life, improved function, and reduced after four weeks, the intensity of the discomfort (16).

The major goals of *cluster headache* care are to promptly end the assault and cause the event to go away quickly. Both abortive and preventative drugs are always used in conjunction with management. A link between the abortive and the preventive drugs can be used to control a cluster headache cycle quickly in a number of ways. For 15 minutes, use 10 to 15 L/min high flow oxygen using a rebreather mask., subcutaneous dihydroergotamine or zolmitriptan 5 mg nasal spray are all examples of abortive therapy for cluster headache. Oral medications are ineffective in preventing cluster headaches because they work too slowly (17).

Non-invasive vagus nerve stimulation
In an open-label study, the gamma Core (nVNS) device demonstrated efficacy in treating cluster headache attacks with three 2 minute ipsilateral stimulations of the cervical branch of the vagus nerve, and in two double-blind sham-controlled randomized studies, the device demonstrated efficacy in treating episodic cluster headache(20).

Discussion

This study looked at the neurochemistry of primary headaches in students and how they coped with them. It demonstrates that headache among college students is a source of concern for every country. Several contributing factors emerge early in college, including stress, anxiety, and depression. Headache is a major public health concern. The strictness of the classification model used helps explain the variation in prevalence rates between studies in the literature.

Conclusion

After completing extensive research on various types of primary headaches among college students, we have come to the conclusion that students require more understanding of headache diseases and their triggers. It is a cause for concern because a large number of students suffer from various types of headaches. Medical students, however, are more prone to headache disorders due to their curriculums; they are expected to have more time for studies as a result of such burden; med students are more likely to have a high number of stressors.

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