

# A Review on Headache: Epidemiology, Pathophysiology, Classifications, Diagnosis, Clinical Management and Treatment Modalities

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**Abstract:** With a frequency of 48.9% in the general population, headache problems are among the most prevalent of all nervous system illnesses and are a very frequent symptom. [1] People of all ages, colours and socioeconomic level can get headaches, although women are more likely to get them than males. Some headaches can be so incapacitating and detrimental to a person's quality of life that they place a tremendous financial burden on healthcare and indirectly on the economy. The majority of headache diseases may be treated without the help of a physician. A primary care by general physician may effectively treat the vast majority of patients with the right clinical diagnosis and no additional testing. Nearly 98 % of headaches are caused by primary headache disorders including migraine, tension headache, and cluster headache, but secondary headaches are very dangerous and can be fatal. The most typical headache diseases are described in this article, along with the warning signs that should prompt an immediate professional referral when they are present. In order to provide a paradigm that would work effectively in the financially strapped National Health Service (NHS) and with upcoming NHS changes, the existing pathway of headache care in the UK is explored. The British Association for the Study of Headache and patient organisations like Migraine Trust play important roles in altering the way of headache treatment which is provided in the UK by educating clinicians and the general public about headaches. The paper summarizes the evidence-based management of frequent headache diagnosis as its conclusion.

**Keywords:** Headache, migraine, tension headache, cluster headache, medication overuse headache

## 1. Epidemiology

According to literature reviews, between 64 and 77 % of individuals have had a headache at some point in their life. [2, 3] Between 46% to 53% of persons get headaches annually. [2, 3] However, depending on how the survey was done, researchers have found that the lifetime prevalence of headaches ranges from as low as 8% to as high as 96 %. [2, 3, 4] The majority of these headaches pose little threat, only 1-5% of persons who go to the emergency room for headaches have a significant underlying condition. [5] Primary headaches account for more than 90% of headaches. [6] Tension headaches make up the majority of these main headaches. [3] Most tension headache sufferers the experience of "episodic" headaches that frequently happen. Only 3.3% of individuals get chronic tension headaches, defined as more than 15 days of headaches each month. [3] Around 12-18% of individuals worldwide suffer from migraines. [3] Migraines affect more women than males, 5 to 9 % of men and 12 to 25 % of women in Europe and North America suffer from migraines, respectively. [2] Cluster headaches don't happen very often. Only 1-3 persons per 1000 are impacted globally. Men are three times more likely than women to get cluster headaches. [3]

## 2. Pathophysiology

Because the brain lacks pain receptors, it is not responsive to pain. However, there are pain receptors in a few places on the head and neck, so those parts may feel pain. These include the meninges, the falx cerebri, the middle meningeal artery, the major veins, the venous sinuses, the cranial and spinal nerves, the head and neck muscles, the extracranial arteries, the teeth, the mouth lining. [7, 8] Pain is produced

by the pial arteries rather than the pial veins. [9] Meningeal and blood vessel traction or irritation is a common cause of headaches. [10] Head injuries or tumours may activate the pain receptors, which results in headaches. Inflammation or infection of the meninges, blood vessel spasms, dilated blood vessels, and muscle tension can also activate pain receptors. [8] Once activated, a nociceptor signals the brain's nerve cells that a portion of the body hurts by sending a message up the length of the nerve fibre. [11] Secondary headaches are easier to comprehend than primary headaches. There is currently no recognised cure for migraines, tension headaches, or cluster headaches. [12] Over time, several theories have been put up in an effort to explain what exactly occurs in the brain to create severe headaches. [13] Currently, it is believed that malfunctioning brain nerves are the cause of migraines. [14] Before, it was believed that the main issue with the brain's blood arteries was what produces headaches. [15] This vascular hypothesis, which Wolff established in the 20th century, postulated that migraine headaches are induced by rebound dilatation of extracranial arteries (vessels just outside the brain), whereas the aura is caused by constriction of intracranial vessels (vessels inside the brain). These extracranial blood vessels expand, activating the pain receptors in the nearby neurons and resulting in a headache. But this vascular theory is no longer acceptable. [14, 16] According to studies, migraine head discomfort very slightly increases intracranial vasodilation rather than causing extracranial vasodilation. [17] The majority of medical professionals currently believe that a basic issue with the brain's nerves is what causes migraines. [14] A wave of elevated neuronal activity known as cortical spreading depression [18] followed by a period of decreased activity is assumed to be the primary source of auras. [19] Few people believe that the stimulation of sensory neurons, which releases peptides or serotonin, causes inflammation in

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