

Headache: Prevalence, Patterns and Symptoms of Headache in Patients Presenting to Outdoor of Neurology Department at Allama Iqbal Memorial Teaching Hospital Sialkot

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ABSTRACT

Objective: To assess the prevalence, patterns and symptoms of headache in patients presenting with headache. **Study Design:** Cross-sectional study. **Settings:** Department of Neurology, Allama Iqbal Memorial Teaching Hospital, Sialkot Pakistan. **Duration:** 1st July 2023 to 1st March 2024. **Methods:** A total of 326 consecutive patients aged 13-65 years and belonging to either gender presenting to the outdoor of neurology department were included in this study. A predesigned questionnaire was used to record the data regarding prevalence, patterns and symptoms of headache. **Results:** Prevalence was highest in age group 31-60 with 131 (40.2%) patients. Majority of the patients 196 (60.1%) suffered from headache 1 to 4 weeks. Most of the patients 210 (64.4%) suffered this headache daily. This headache would continue 1-3 days to most of the patients, 233 (71.5%). The most common headache pattern was of whole head and suffered 125 (38.4%) patients. According to pain assessment scale, 224 (68.8%) patients had severe (7-10), 66 (20.2%) had moderate (4-6) and 36 (11.0%) patients had mild (0-3) headache. The most common symptoms during headache were nausea, vomit and dizziness found in 111 (34.0%) and 73 (22.4%) patients, respectively. Majority of the patients 204 (62.6%) felt headache during stress. 31 (9.5%) patients had family history of headache. It was seen that fatigue was the most common warning symptom before headache as 106 (32.5%). **Conclusion:** Headache has variety of patterns and symptoms with variable with migraine headache type occurring most commonly followed by tension type headache.

Keywords: Prevalence, Patterns, Symptoms, Headache, Outdoor, Neurology.

INTRODUCTION

Headache is a discomfort or pain in the head above the ears and eyes, in the back of the upper neck, and in the occipital region. It mostly originates from the structures and tissues around the brain as the brain itself lacks a nerve supply for pain sensation. Quality of pain can be variable, including dull, throbbing, sharp, mild, and persistent or intense pain. It can be classified into two main categories, primary and secondary headache. Primary headache does not have an underlying condition

or disease-causing pain. These include migraines, tension-type headaches, and cluster headaches. Almost 90% of the headaches reported by the patients are of the primary category. Tension-type headaches are often described as burden-type feelings and are mostly a constant pain. Tension-type headaches can last up to minutes; even days can occur on either side of the head and do not increase due to regular physical activity. Migraines, on the other hand, are of a severe type and can last for up to 4 to 72 hours. Their characteristics include

throbbing, are usually aggravated by any physical activity, and have moderate to severe intensity. Migraines are also associated with nausea, with the presence or absence of vomiting, and patients with migraine are usually sensitive to sound and light.¹ On the contrary, cluster-type headaches don't occur more frequently. As the name suggests, these headaches occur in clusters or groups and last for weeks or months. The intensity is severe, but the duration is short. Its duration lasts for 1 or 2 hours. It is mostly concentrated around one eye, which can become watery or inflamed.²

The underlying mechanism involved in the pathophysiology of headaches such as migraine, tension-type, and cluster-type headaches is still completely unknown. Cluster headaches and migraines are thought to originate from the brain as a result of neurologic dysfunction, such as during the involvement of cranial vessels and trigeminal nerve. When parasympathetic nerve over-activity occurs, many people may experience cluster-type headaches. Similarly, increased activity of pericranial or cervical muscles or a particular disturbance in the central neurologic system can lead to tension-like headaches, such as flexion-extension type injury to the neck, anxiety with increased grinding or clenching of teeth, or poor posture.³

Causes of secondary headaches may include any medical condition or disease like infections, increased intracranial pressure as a result of a tumor, etc. These headaches are less than 10% of the prevalence of all headaches. Other causes include brain infections such as meningitis, encephalitis or brain abscess, hydrocephalus, brain tumor, stroke, arteriovenous malformations, pseudotumor cerebri, brain aneurysm, hypertension, and subdural hematoma.⁴ Treatment of headaches consists of two main approaches. For the majority of the patients, self-treatment is a suitable approach. All these cases require advice on which painkiller to use and at what dose. In cases where self-treatment with analgesics fails, migraines are usually treated with migraine-specific pharmacological agents, i.e., triptans. Preventive therapy is deployed in cases where chronic headache or migraine attacks are more frequent than usual. Non-steroidal anti-inflammatory drugs such as paracetamol, ibuprofen, aspirin, diclofenac, naproxen, or a combination of caffeine with NSAIDs are the most common drugs used as over-the-counter analgesics for headaches.⁵

In the literature, the reported prevalence of headaches among students was 85.5%, and it has been reported as a major health issue for medical students. There is usually a history of inappropriate treatment and a family history of headaches associated with high prevalence.⁶ A similar study also reported matching results with the prevalence of headaches among school children as 85.5%. Of these,

85.5%. 43.1% reported mild, 46.6% had moderate, and 8.8% gave a history of severe headaches.⁷

METHODS

This is a cross-sectional study. This study was conducted in the outdoor department of neurology, Allama Iqbal Memorial Teaching Hospital Sialkot, from 1st July 2023 to 1st March 2024. Ethical approval for this study was obtained from the ethical review committee of the hospital (letter no. 15/REC/KMSMC). Non probability consecutive type of sampling technique was used. The sample size was calculated using the OpenEpi sample size calculator & the reference study conducted by ERUM et al.⁷. A total of 326 consecutive patients aged 13-65 years and belonging to either gender presenting to the outdoor neurology department were included in this study. The exclusion was done if the patient was already diagnosed with secondary headaches such as encephalitis, meningitis, brain abscess, or brain tumor, if the patient was a known case of chronic liver disease, chronic kidney disease, sepsis, or other chronic systemic diseases that affected the quality of life.

A predesigned questionnaire was used to record the data regarding headaches' prevalence, patterns, and symptoms. This questionnaire consisted of 11 questions and is a modified version of a questionnaire designed by Tokyo Headache Clinic. The patient's age, gender, height, weight, and temperature were also recorded.

The data thus collected was subjected to statistical analysis using the computer software SPSS version 23. Mean and standard deviation were calculated for quantitative variables such as age, height, weight, and temperature. Frequency and percentage were calculated for quantitative variables such as gender, prevalence of headache, etc.

RESULTS

The mean age of the patients was 30.79±14.94 years; the majority of the patients, 131 (40.2%), were between 31-60 years, with a predominance of female to male. (Table 1)

In this study, 248 (76.1%) cases suffered from headache on presentation. The mean duration of headache of the patients was 5.71±17.39 weeks. Most patients, 196 (60.1%), suffered from headaches for 1 to 4 weeks. Most of the patients, 210 (64.4%), suffered this headache daily. This headache would continue for 1-3 days for most of the patients, 233 (71.5%). The most common headache pattern was in the whole head, and 125 (38.4%) patients suffered from it. According to the pain assessment scale, 224 (68.8%) patients had severe (7-10), 66 (20.2%) had moderate (4-6), and 36 (11.0%) patients had mild (0-3) headaches. The kind of pain that affected most of the

patients was sudden, severe, and pulsatile, 158 (48.5%) and 80 (24.5), respectively. (Table 2)

The most common symptoms during headache were nausea, vomiting, and dizziness found in 111 (34.0%) and 73 (22.4%) patients, respectively. The majority of the patients, 204 (62.6%), felt headaches during stress. 31 (9.5%) patients had a family history of headaches. It was seen that fatigue was the most common warning symptom before headache at 106 (32.5%). (Table 3)

Table 1: Demographic profile (n=326)

Variables		Frequency	Percentage
Age (years)	≤18	89	27.3%
	19-30	92	28.2%
	31-60	131	40.2%
	>60	14	4.3%
Gender	Male	77	23.6%
	Female	249	76.4%

Table 2: Prevalence of bad headache, duration, continuation, headache types, severity and kind (n=326)

Variables		Frequency	Percentage
Do you have a bad headache now?	Yes	248	76.1%
	No	78	23.9%
How long have you been suffering from headaches?	< 1 week	31	9.5%
	1-4 weeks	196	60.1%
	>4 weeks	99	30.4%
How often does your headache come?	< 1 month	33	10.1%
	1-2 months	24	7.4%
	>3 months	59	18.1%
	Daily	210	64.4%
How long does your headache continue?	< 1 day	76	23.3%
	1-3 days	233	71.5%
	4-7 days	4	1.2%
	> 7 days	13	4%
Where is your headache?	Around eye	15	4.7%
	Back of head	37	11.3%
	Front of head	22	6.7%
	Post orbital pain	2	0.6%
	Temple	32	9.8%
	Top of head	21	6.5%
	Unilateral	72	22.0%
	Whole head	125	38.4%
Severity, Pain assessment scale	Mild, 0-3	36	11.0%
	Moderate, 4-6	66	20.2%
	Severe, 7-10	224	68.8%
What kind of pain	Sudden, severe	158	48.5%
	Pulsatile	80	24.5%
	Tightness	11	3.4%
	Dull, heavy	77	23.6%

Table 3: Symptoms, occurrence, and family history of headache (n=326)

Variables		Frequency	Percentage
During headaches, do you also have the following symptoms?	Dizziness	73	22.4%
	Nausea, Vomit	111	34.0%
	Tearing, Red eyes	3	0.9%
	Sensitive to light, sound, smell	33	10.2%
	Shoulder stiffness	32	9.8%
	Stress	21	6.4%
	Vertigo	24	7.4%
	Others	26	8.0%
	No	3	0.9%
When do you usually have a headache?	During night	18	5.5%
	During stress	204	62.6%
	During work	17	5.2%
	Lack of sleep	33	10.2%
	Weather change	6	1.8%
	Others	26	8%
	No	22	6.7%
Anyone in your family has a headache?	Yes	31	9.5%
	No	295	90.5%
Do you have warning symptoms before the headache?	Fatigue	106	32.5%
	Neck stiffness	81	24.8%
	Shoulder stiffness	75	23%
	Hunger	11	3.4%
	No	53	16.3%

Figure 1: Age distribution of included patients

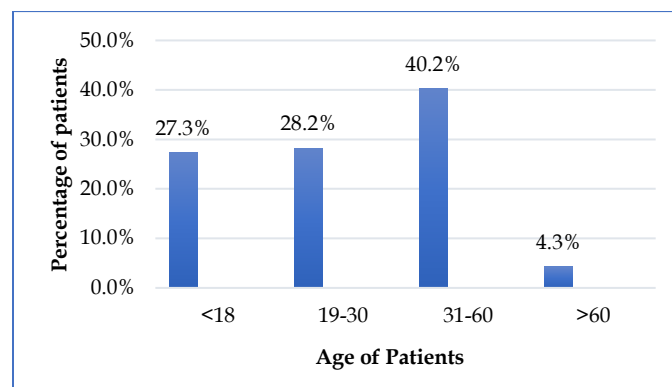


Figure 2: Gender distribution of included patients

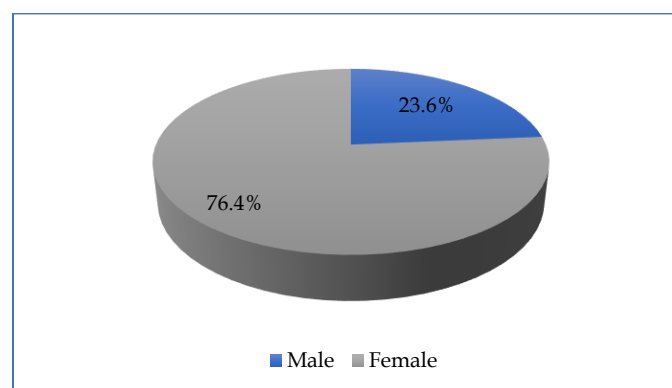
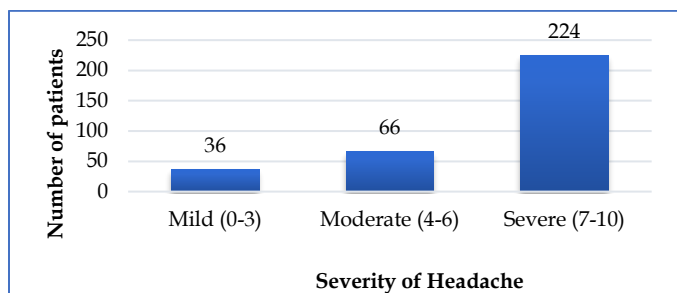
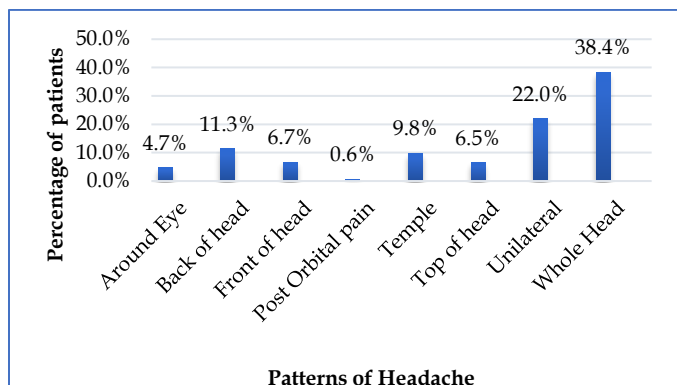
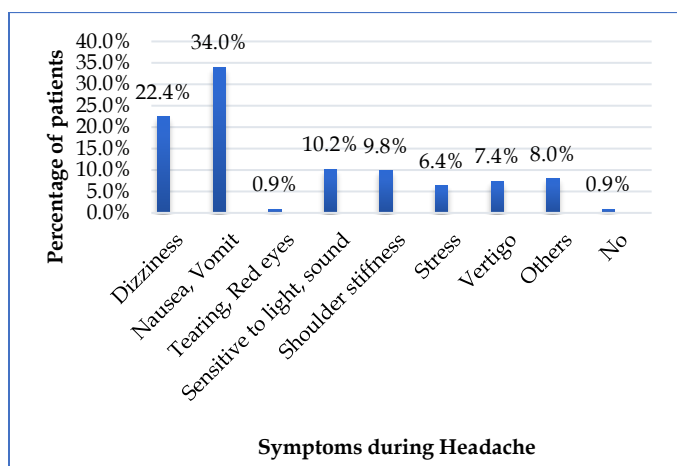
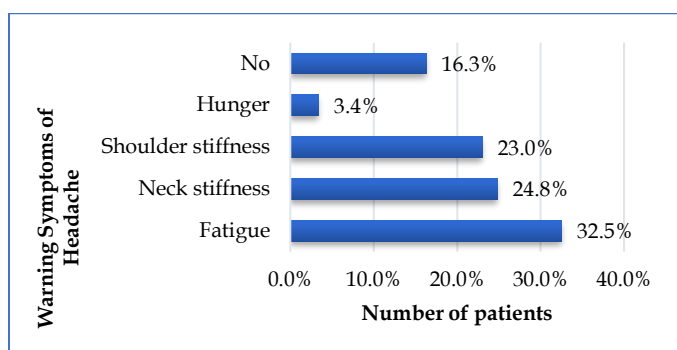
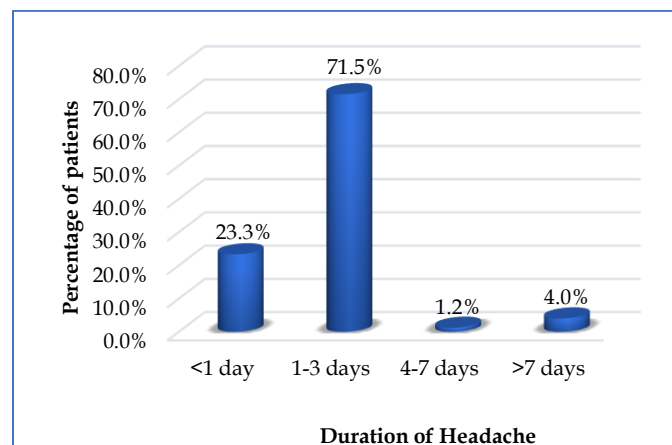


Figure 3: Severity according to pain assessment score**Figure 4: Where is your headache****Figure 5: During Headaches, do you have following symptoms****Figure 6: Do you have warning symptoms before headache****Figure 7: How long does your headache continue**

DISCUSSION

Headache in itself is a symptom and a disorder that has further types and overall is the most common disorder among the nervous system disorders, having a staggering 48.9% prevalence in the general population.⁸ This disorder occurs in all races, ages, and socioeconomic classes, with prevalence higher among females, which is also consistent with our study.⁹

The prevalence of different patterns of headaches was assessed in this study, with migraine being the most prevalent of the types of primary headaches. Consistent findings to our study were found in a hospital-based survey, with migraine being the most common type followed by tension-type headache.¹⁰ In the literature, contrasting findings have been reported where migraine pattern of headache is the second most common.¹¹ Many of the past studies on the prevalence of primary headaches reported that tension-type headaches are most common, followed by migraine.¹² Another literature suggested that Tension-type headaches are the most prevalent among the primary headache disorders.¹³ It causes significant health burden in terms of disability and medical attention. Diagnosis of tension-type headaches often faces complications as there is probable overlap between symptoms of migraine and tension-type headaches. Similarly, patients' known cases of migraine often result in difficulty in diagnosing tension-type headaches. On the other hand, migraine, although less prevalent than tension-type headaches, affects around 10% population of the world, result in significant morbidity on an individual level, and cause a substantial financial burden on the individuals as well as society.¹⁴

All patients included in this study were suffering from primary headaches. When concerning the symptoms associated with cluster headaches, very few patients showed these symptoms that can be considered consistent with the presence of cluster headaches.

Previously, it has been reported that in comparison to migraine, which is highly prevalent, cluster headaches are rather rare but still affect around 0.1% of the world population.¹⁵

The patients presenting to the neurology department had complaints of severe headaches, most commonly suggesting a high prevalence of migraine headaches. Similarly, nausea was the most common symptom associated with headaches, followed by dizziness and sensitivity to light, which suggests that in our population, migraine has the highest prevalence. Similar findings have been reported in our region as compared to contrasting findings in other regions of the world, suggesting similarities and differences in the lifestyles, environment, and socioeconomic statuses of the study populations, respectively.

CONCLUSION

On the basis of the results of our study, it can be concluded that headache has a variety of patterns and symptoms with variable prevalence among patients presenting to the outdoor department of neurology, with migraine headaches occurring most commonly followed by tension-type headaches.

LIMITATIONS

This study was limited by its single-center, hospital-based design, which may not be applicable to the general population. The use of non-probability consecutive sampling could have resulted in selection bias. Data were collected through self-reported questionnaires, making recall and classification bias possible. Additionally, the cross-sectional design prevents establishing causal relationships.

SUGGESTIONS / RECOMMENDATIONS

Future studies should be conducted on a larger, community-based population for better representation of the general public. Use of random sampling techniques and standardized diagnostic criteria is recommended to reduce selection and classification bias. Further research incorporating imaging and clinical evaluation can improve diagnostic accuracy. Longitudinal studies are further suggested to assess causal relationships and contributing risk factors for different types of primary headaches.

CONFLICT OF INTEREST / DISCLOSURE

There was no conflict of interest.

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