Section: Ophthalmology

Original Research Article

CLINICO-EPIDEMIOLOGICAL PROFILE OF HEADACHE IN OPHTHALMOLOGY OPD IN RURAL TERTIARY CARE HOSPITAL IN BANGALORE

Sonali K Singh[1], Deepa C. K.[2], Meghana S.[3], Sowbhagya H. N.[4]

[1]Associate Professor, Department of Ophthalmology, Sri Siddhartha Institute of Medical Sciences and Research Centre, T. Begur, Bengaluru, Karnataka, India.
[2]Assistant Professor, Department of Ophthalmology, Sri Siddhartha Institute of Medical Sciences and Research Centre, T. Begur, Bengaluru, Karnataka, India.
[3]Assistant Professor, Department of Ophthalmology, Sri Siddhartha Institute of Medical sciences and Research Centre, T. Begur, Bengaluru, Karnataka, India.
[4]Professor and Head of Department of Ophthalmology, Sri Siddhartha Institute of Medical Sciences and Research Centre, T. Begur, Bengaluru, Karnataka, India

Received *: 04/04/2025*
Received in revised form *: 27/05/2025*
Accepted *: 14/06/2025*

Corresponding Author:
Dr. Deepa C K
Assistant Professor, Department of Ophthalmology, Sri Siddhartha Institute of Medical Sciences and research centre, T. Begur, Bengaluru, Karnataka, India.
Email: deepashiv2013@gmail.com

DOI: 10.70034/ijmedph.2025.2.469

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (2); 2591-2594

ABSTRACT

Background: Headache is a common symptom in the Ophthalmology OPD, often not indicative of a serious underlying cause but sometimes signaling conditions requiring intervention. In causes related to other systems like Craniovascular and Medicine headache may denote emergency situation which needs intervention. **Aims and Objectives:** 1. To estimate prevalence of Ophthalmic and Non-Ophthalmic causes of headache in patients presenting to Ophthalmology OPD. 2. To evaluate the Ophthalmic conditions that contribute to headache.

Materials and Methods: This Observational research is conducted in a rural tertiary care hospital over a period of six months which included a total of 282 study participants.

Results: Among the participants, a majority were females (64.6%) compared to males (35.4%). of the 282 participants, 213 (75.4%) presented directly to the ophthalmology OPD with complaints of headaches. The study found that highest number of participants were students accounting for 97 out of the total 282. In this study 43.26% (122 patients) were found to have ophthalmic cause for their headaches while 56.73% (163 patients) had non ophthalmic causes such as medical, ENT or primary headache conditions. **Inference:** All patients presenting with headache should be evaluated for possible ophthalmic causes. At the time of examination, non ophthalmic causes should also be considered and ruled out accordingly. School screening is emphasized to reduce the disease burden pediatric population.

Keywords: Headache, causes, ophthalmic, research.

INTRODUCTION

The presenting complaints of the patient to primary physician and also almost all the specialists including Ophthalmologists is headeache. Since it affects more commonly middle-aged individuals, it majorly affects productivity and quality of life1,2
Many a times, person who is suffering from headache is not able to identify its change from pain around the eye, which is neglected, and add to the disease burden. The causes for headache are vast, it may vary from sudden increased hypertension, increased intracranial pressure or mass in the brain or clinically mild headache such as migraine, refractive errors, uveitis, inflammation of cornea and increased intraocular pressure and sinusitis etc3
The role of Ophthalmologist lies in aiding in the diagnosis of some emergency condition to treating various benign conditions causing headache.
Knowledge of the different styles of presentation of headache and the complaints of all contributing diseases that occurs in association with headache should be attained to reach right results.

An Organized way to know about the classification of headache is important for proper treatment and research, encourage the formation of the first edition International Classification of Headache Disorders (ICHD-1) in 1988.4 The second edition (ICHD-2) revised the first edition and is the current standard for headache diagnosis and classification.5

In this study main emphasis is on the complaints with which the patient presents and also on the distribution of headache according to age, both ophthalmic and non ophthalmic causes and clinical features.

Objectives

1. To estimate prevalence of ophthalmic and non-ophthalmic causes among all cases of headache coming to Ophthalmology OPD.
2. To assess the causes of ophthalmic pathologies contributing to headache.

MATERIALS AND METHODS

An observational research was done in the Ophthalmology department of Sri Siddhartha Institute of Medical Sciences and Research Centre, Rural Bangalore on a total of 282 patients attending the Ophthalmology outpatient department and patients getting referred from other departments with headaches between August 2024 and January 2025. All the subjects of either gender aged above five years presenting with an Acute/ Chronic headache were included, and already diagnosed and treated cases of a headache were excluded from the study to avoid the overlapping of the causes. Patients part of this study were told to fill questionnaire. Institutional ethical committee clearance was obtained.

Inclusion Criteria

1. All patients above age 5 years coming to Ophthalmology OPD with complaint of headache.

Exclusion Criteria

1. Patients on treatment for headaches previously diagnosed
2. Patients who have not given consent for study

After taking the consent, a detailed history with special emphasis on the type, duration, site, and associated features of a headache (nausea, vomiting, blurring of vision) was noted. A detailed eye examination done including refraction, slit lamp examination and fundoscopy using 90D. After a thorough checkup, they were referred to other departments like ENT, medicine, dentistry, and neurology to rule out the different causes of headaches. In each department after thorough history taking, clinical examination and necessary investigations like ENT- Endoscopy, CT/MRI Paranasal air sinuses etc., Medicine/ neurology- CT/MRI brain were done. A spreadsheet was made of final results and SPSS software was used to examine the results and final representation was done in form of percentages.

RESULTS

Table 1: Age group distribution of patients

AGE GROUPS(IN YEARS)	PERCENTAGE	No. of patients
5-19	31.8	90
20-36	16	45
37-52	28.2	79
>52	24	68
TOTAL	**100**	**282**

In Table 1 greatest proportion of patients in study were in younger bracket in Age group of 5-19 years (31.8%), total of 90 patients out of 282 patients in study which was followed by 37-52 years (28.2%), total of 79 patients out of 282 patients in study, 24% of patients were in greater than 52-year bracket (68 patients).

Table 2: Gender distribution of patients)

SEX	PERCENTAGE	NO. OF PATIENTS
MALE	35.4	100
FEMALE	64.6	182
	100	**282**

In Table 2 it is clearly shown that greatest number of patients were females (64.6%), total of 182 patients compared to males (34.4%), total of 100 patients out of a total of 282 study participants.

Table 3: Professional distribution of patients

TYPE OF WORK	PROPORTION	NO. OF PATIENTS
AGRICULTURIST	14	39
HOME MAKER	19.8	56
STUDENT	34.5	97
PROFESSIONAL WORKER	16.5	47
BUSINESS	15.2	43
TOTAL	**100**	**282**

In Table 3 around 34.5% (97) of total patients were students. About 19.8% (56 of total 282 patients were homemakers who reported with headaches which was followed by professional workers (16.5%), and agriculturist (14%)

Table 4: Pattern of headache distribution in study patients

NO. OF PATIENTS WITH HEADACHE PRESENTING TO	
OPHTHALMOLOGY OPD	213(75.4%)
OTHER DEPARTMENTS	69(24.6%)
TOTAL	282(100%)

It shows that 75.4% (total of 213 patients) presented with headache to ophthalmology OPD and 24.6% of patients (total of 69 patients) presented with headache to other departments (ENT, Medicine, Dental, Neurology, Surgery, etc.) and were referred to ophthalmology OPD because of the evaluation of headache.

22.4 % of patients had associated ophthalmic symptoms like eye strain, irritation in the eye, discomfort, redness, and rings of color around bright light in headache patients. Eighty-two patients (29 %) had other symptoms like sinus pain, nausea, dizziness earache, dental pain, neck pain, etc. 45 patients (16%) had mixed symptoms, which were vague and radiating types of headaches. The remaining 23(8%) patients had just headaches.

Table 5: Distribution of subjects according to etiological factors of headache

CAUSES	PERCENTAGE	NO OF PATIENTS
OCULAR	43.26	122
MEDICAL	35.11	99
ENT	13.83	39
PRIMARY HEADACHE	7.8	22
TOTAL	**100**	**282**

Table 5 shows that after complete examination and review with other departments,122 patients (43.26%) had headaches of ocular cause.

Medical causes causing headache were seen in 35.11% (99 out of total 282 patients) ENT causes causing headache was seen in 13.83% (39 out of 282 patients) Other causes causing headache was seen in 7.8% (22 out of 282 patients).

Table 6: Ophthalmic causes of headache distribution in study patients

OPHTHALMIC CAUSES OF HEADACHE	PROPORTION	NO OF PATIENTS
REFRACTIVE ISSUES	50.82	62
GLAUCOMA	4.92	6
SQUINT	13.11	16
PIGMENT DISPERSION SYNDROME	1.63	2
CORNEAL PATHOLOGY	12.2	15
HERPES ZOSTER OPHTHALMICUS	5.74	7
UVEITIS	7.38	9
SCLERITIS	3.28	4
NEURO-OPHTHALMIC CASES	0.82	1
TOTAL	**100**	**122**

Table 6 shows distribution of patients with headache with different ophthalmic causes.

Among ophthalmic causes for headaches, the most commonly encountered etiology is refractive errors in 62(50.82%) patients (51.9%), which includes uncorrected/ under-corrected myopia, astigmatism, and hypermetropia. Corneal diseases like corneal inflammations, injury, foreign body, and swelling in cornea due to fluid collection was present in 15 patients (12.2%), 16 patients (13.11%) with paralytic squint presented with headache and diplopia. Less frequent sources like inflammation of uvea, glaucoma and viral infections of eye had more ophthalmic clinical features and little pain in head. Other rare causes were scleritis, Pigment dispersion syndrome, and neuro-ophthalmic, which were seen with significant headaches.

DISCUSSION

The study that is presently done has maximum proportion of patients in the age group of 5-19 years (31.8%) trailed by 37-52 years (28.2%) and by >52 years (24%) of study participants.[13,14] In other study maximum proportion around 61% headache was present in younger age group same as in present study. In study by Rajitha Kondam,[8] the results were similar to our study regarding maximum number of study participants.

The present study had majority of patients as females (64.6%) and only (35.4%) remaining patients belonged to male sex. In a study by Jain S et al,[2] e female sex prevalence (56%) was more due to females psychological and anxiety levels. Few studies like by Marasini et al. and Dhir,[2,7,9] showed that females were more than males. Inchara N et

al,[1] in its study also depicted more female prevalence.

Study that was presently done 75.4% (213) of subjects with headache and associated symptoms have presented themselves to the ophthalmology OPD. Only 30.4% (85) of these subjects had associated ocular symptoms, the remaining patients had related symptoms but presented to eye OPD for the first time. It explains that all headaches are associated with eye problems. Evaluation of headaches needs a multidisciplinary approach and sufficient time to recognize the critical signs.

Study done presently showed that 43.26% (122) patients had headache due to ophthalmic cause. due to the medical cause was 35.11% (99), ENT cause was present in 13.83% (39) of the subjects, and other cause was present in 7.8% (22) of the subjects. In a study done by Jain S2 shows that headache due to ophthalmic causes was found in 36% of cases, followed by primary headache in 27%, ENT in 17%, medical causes in 12%, and miscellaneous in 9% cases. However, few studies, like by Queiroz et al,[9] the prevalence of primary headache was 37.2% in general population as sample and in left of the population headache was due to secondary causes. Inference from present study did not match results from studies mentioned above.

In presently done study, 50.82% (62) of patients had Refractive error, muscle imbalance was present in 13.11%(16), posterior segment abnormalities were present in 11.48%, and anterior segment abnormalities were present in 24.49%.

In a study by Jain S2, refractive issues as cause of headache was present in 65% of cases, due to diseases in anterior half of the eye was 21%, muscle misproportion in 18%, and involvement of posterior half of eye in 5% of cases.

A cross-sectional study,[6] done in Karachi showed the maximum causes being corneal ulcers (5.80%) followed by glaucoma (3.96%) and endophthalmitis (1.06%). In study by Marasini et al.8 greatest cases of headache due to refractive issues was seen in 44% of cases; astigmatism as one of refractive errors in 63.63% of subjects, hypermetropia in 27.27%, and myopia in 9.09% of patients. Kaimbo et al. reported in 12% of patients suffering from headache association was found in diseases of anterior half of eye.[10] Due to ophthalmic inflammations and sudden increase of pressure in eye pain in and around the eye and headaches may be caused.[11] Association of sudden rise in pressure in eye is with pain while it is asymptomatic in gradual rise.

In study by Uzma Fasih et al,[6] elaboratng causes of headache. The ophthalmic causes were three times more common than non ophthalmic causes.[3] This result can be authenticated on the frequency of ophthalmic referral of headache patients. Present study reflects on the measures for referral and treatment for consultant doctor. It saves time wasted in evaluation, and immediate management is achieved. The present study helps student in understanding evaluation of headache from ophthalmological prospective.

CONCLUSION

Headache, one of the most common symptom, may occur due to innumerable causes and sometimes it is difficult to establish its mechanism in many cases. A thorough history and comprehensive ocular examinations are essential to reach the correct diagnosis in this regard. Every patient with headache should be properly screened for ocular as well as non-ocular causes. Adopting a multidisciplinary approach and taking meticulous history are paramount to identify the diseases that are risky and needs immediate treatment.

REFERENCES

1. Inchara N, Kanthamani K, Shiviji AN. Profile of Ophthalmic Causes of Headache–A Prospective Study. J Clin Biomed Sci. 2023 Dec 29;13(4):122-5.
2. Jain S, Chandravanshi SL, Dukariya L, Tirkey ER, Jain SC. Clinical study of headache with special reference to ophthalmic cause. Int J Med Sci Public Health. 2015 Feb 1;4(2):292-7.
3. Schwartz DP, Robbins MS. Primary headache disorders and neuro-ophthalmologic manifestations. Eye and Brain. 2012 Sep 13:49-61.
4. Headache Classification Committee of the International Headache Society. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Cephalalgia. 1988;8(7):1-96.
5. Fasih U, Shaikh A, Shaikh N. Aetiology of headache in clinical ophthalmic practice at a tertiary care hospital of Karachi. JPMA. The Journal of the Pakistan Medical Association. 2017 Feb 1;67(2):166-70.
6. Dhir BK. Adenwalla oration-heterophoria and convergence insufficiency. Indian Journal of Ophthalmology. 1967 Mar 1;15(2):41-53.
7. Kondam R, Settypalli RR. A study to assess causes of headache in ophthalmic practice in a tertiary care teaching hospital–A hospital based cross-sectional study. MedPulse Intl J of Ophthal. 2017;3(2):45-7.
8. Marasini S, Khadka J, Sthapit PR, Sharma R, Nepal BP. Ocular morbidity on headache ruled out of systemic causes—A prevalence study carried out at a community based hospital in Nepal. Journal of Optometry. 2012 Apr 1;5(2):68-74.
9. Bhattacharya AK. Evaluation of headache. J Indian Acad Clin Med. 2005;6(1):17-22.
10. Queiroz LP, Barea LM, Blank N. An epidemiological study of headache in Florianopolis, Brazil. Cephalalgia. 2006 Feb;26(2):122-7.
11. Hainer BL, Matheson EM. Approach to acute headache in adults. American family physician. 2013 May 15;87(10):682-7.
12. Ahmed SH, Zuberi H. Depression anxiety and headache. JPMA. The Journal of the Pakistan Medical Association. 1981 Dec 1;31(12):276-9.
13. Lanchner AJ. Headache in ophthalmic practice. Neurology. 1952 Nov;2(11-12):471-.
14. Shah R, Edgar DF, Rabbetts R, Blakeney SL, Charlesworth P, Harle DE, Evans BJ. The content of optometric eye examinations for a young myope with headaches. Ophthalmic and Physiological Optics. 2008 Sep;28(5):404-21.