

# HEADACHE AS A SYMPTOMATOLOGY IN SINUSITIS – A CROSS-SECTIONAL STUDY

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## Abstract

The study was conducted to see the relationship of headache with sinusitis. Sinus headaches are a very common complaint that are encountered by ENT surgeons. A structured questionnaire consisting of 16 questions which evaluates the type and severity of headaches and associated factors in people with sinusitis was used in the study.

Sinus headache is not included in any classification of headache as an independent entity. Most people tend to self-diagnose wrongly. Therefore, unless there is any evidence or diagnosis of rhinosinusitis sinus headaches are mostly misinterpreted for migraine headaches.

**METHODOLOGY:** Patients visiting ENT OPD with headache were interviewed using a structured questionnaire consisting of 16 questions. Results were analysed using EpiInfo v7.2.4.

**RESULTS:** Majority of the people (61%) having headache were unsure that their headache was due to sinusitis. 34.48% had associated complaints of nasal obstructions and 40.35% had facial pain. While only 31.03% had taken antibiotics, 93.10% of the participants were taking analgesics.

**Keywords:** Headache, Sinusitis, symptomatology, rhinosinusitis

## Introduction

Headache as such is an affliction that has been experienced by almost any person at least once in their lifetime<sup>1</sup>. Lifetime incidence of headache is at least 90% and when there is a definable underlying pathology it is termed as secondary headache. The term sinus headache is itself very vague and can be self-diagnosed in most cases which proves to be a challenge to neurologist or a general physician or a otorhinolaryngologist<sup>3</sup>. Also headache even though one of the most common symptoms in sinusitis is only one of the minor criteria in diagnosis of rhinosinusitis.

Rhinosinusitis is now defined only based on clinical grounds which again can be acute or chronic – acute being less than 12 weeks duration. Allergic rhinitis is a symptomatic disorder of the nose that can be induced after exposure to any allergen that can lead to an IgE-mediated inflammation of the nasal mucosa. The symptoms can include rhinorrhea, congestion of nasal mucosa, itching, and sneezing<sup>5</sup>.

Rhinosinusitis by definition is inflammation of the nose and the paranasal sinuses that can be characterized by two or more symptoms, nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip) with/without facial pain/pressure and reduction or loss of smell, combined with signs of disease seen by endoscopic examination or by CT scan<sup>4</sup>.

The inappropriate diagnosis as sinus headache can lead to unnecessary diagnostic studies and surgical interventions<sup>2</sup>.

## Materials and methods

Cross sectional study was conducted at Rural Health Training Centre of a tertiary care hospital in Western Maharashtra. After obtaining informed consent, patients of age 21years to 40 years having headache were interviewed using a prevalidated structured questionnaire from July 2021 to September 2021. Patients with either DM or HTN were excluded. Data was entered using google forms and analysed using EpiInfo v7.2.4. Categorical variable is expressed in terms of frequency and percentage.

## Results

The participants consisted of 61% (47.44% - 73.45%) Males and 39% (26.55% - 52.56%) Females. Majority 61% of the participants answered Yes/Maybe when they were asked whether they had sinusitis.

**Table 1:**

Parameter		Frequency	Percentage	Confidence Level
Do you have sinusitis?	Maybe	11	18.64%	9.69% - 30.91%
	No	25	42.37%	29.61% - 55.93%
	Yes	23	38.98%	26.55% - 52.56%

Majority of the study population 39% (27.05% - 53.36%) suffered from headache atleast once a week and almost 17 percent of them missed work/studies because of the headache. The headache was described as a dull aching type which is mostly present above the eyes by the highest fraction (46.55%).

**Table 2:**

Parameter		Frequency	Percentage	Confidence Level
Frequency of headache	Everyday	4	6.90%	1.91% - 16.73%
	Once a month	21	36.21%	23.99% - 49.88%
	Once a week	23	39.66%	27.05% - 53.36%
	once in a year	10	17.24%	8.59% - 29.43%
Type of headache	Dull aching	27	46.55%	33.34% - 60.13%
	Pricking	8	13.79%	6.15% - 25.38%
	Throbbing	23	39.66%	27.05% - 53.36%
Miss work/school	Yes	10	16.95%	8.44% - 28.97%
	No	49	83.05%	71.03% - 91.56%

**Table 3:**

Parameter		Frequency	Percentage	Confidence Level
Location of headache	Above the eyes	32	55.17%	41.54% - 68.26%
	Behind the eyes	4	6.90%	1.91% - 16.73%

	Below the eyes	3	5.17%	1.08% - 14.38%
	Between the eyes	4	6.90%	1.91% - 14.38%
	Generalised	15	25.86%	15.26% - 39.04%

Majority of them described symptoms such as nasal obstruction associated with these episodes of headaches (34.48%) and 40.35% (27.56% - 54.18%) of them had associated facial pain. Only 31.03% of the study population had associated allergic symptoms. Strong odours such as that of perfume triggered the headache in 17.54% of the participants while 14.04% had aggravated headache after consuming alcoholic drinks.

**Table 4 :**

Parameter		Frequency	Percentage	Confidence Level
Associated symptoms	Nasal obstruction	20	34.48%	22.49% - 48.12%
	Nausea	5	8.62%	2.86% - 18.98%
	Vomiting	3	5.17%	1.08% - 14.38%
	Watering from eyes	4	6.90%	1.91% - 16.73%
	Others	5	8.62%	2.86% - 18.98%
	None	21	36.21%	23.99% - 49.88%
Facial pain	Yes	23	40.35%	27.56% - 54.18%
	No	34	59.65%	45.82% - 72.44%
Triggered by strong odors	Maybe	17	29.82%	18.43% - 43.40%
	No	30	52.63%	38.97% - 66.02%
	Yes	10	17.54%	8.75% - 29.91%
Allergic symptoms	Maybe	6	10.34%	3.89% - 21.17%
	No	34	58.62%	44.93% - 71.40%
	Yes	18	31.03%	19.54% - 44.54%
Triggered by alcoholic drinks	Maybe	6	10.53%	3.96% - 21.52%
	No	43	75.44%	62.24% - 85.87%
	Yes	8	14.04%	6.26% - 25.79%

While 31.03% of the population sought out to antibiotic therapies, 36.36% did not have any relief with antibiotics. Majority of the study population (93.10%) were dependent on pain killers for relief from headaches. 6.9% of participants have already underwent sinus surgery.

**Table 5:**

Parameter		Frequency	Percentage	Confidence Level
Antibiotic therapy	Yes	18	31.03%	19.54% - 44.54%
	No	40	68.97%	55.46% - 80.46%
Relief with antibiotics	No	20	36.36%	23.81% - 50.44%
	Sometimes	17	30.91%	19.14% - 44.81%
	Yes	18	32.73%	20.68% - 46.71%

Relief with pain killers	Yes	54	93.10%	83.27% - 98.09%
	No	4	6.90%	1.91% - 16.73%
Underwent sinus surgery	Yes	1	1.72%	0.04% - 9.24%
	No	57	98.28%	90.76% - 99.96%

### Conclusion:

Headaches most commonly associated with sinusitis are mostly going undiagnosed and usually are seen to be self-treated with over-the-counter pain killers. Most of the population with a frequency of headache of once a week are dependent on pain killer rather than being treated with proper antibiotic therapy or even sinus surgery. People who are regularly being treated with antibiotics for every episode of headache and not get relieved by it might actually require sinus surgery.

The headaches are also seen to be aggravated by strong odors like that of perfume or gasoline and also by alcoholic drinks. Associations with allergic symptoms are surprisingly less which can also be due to the lack of awareness of the same that it has gone unnoticed.

The headache is mostly being described as a dull aching pain which is mostly present only in the frontal regions and in some also generalized including retro orbital pain. The frequency of headache is such that people are also forced to miss school/work and still are dependent on over-the-counter pain killers and not sought proper treatment for the same.

Most of the population have also seem to have self-diagnosed to have sinusitis and have not been clinically diagnosed or further investigated as in to come to a proper diagnosis.

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