



**Diagnostic Challenges in Tension-Type Headache versus Migraine in Busy OPD Settings and Their Impact on Treatment: A Descriptive Study from a South Indian Tertiary-Care Medical College**

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**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

**Background:** Differentiating migraine from tension-type headache (TTH) is difficult in high-volume outpatient departments (OPDs). Misclassification can affect treatment outcomes.

**Objective:** To evaluate diagnostic challenges between migraine and TTH in a South Indian tertiary-care centre and assess their impact on treatment outcomes.

**Methods:** A descriptive study of 100 consecutive patients over one year using structured proforma and ICHD-3 criteria.

**Results:** Among 100 patients, 54 were diagnosed with migraine, 38 with TTH, and 8 with mixed/uncertain features. Major diagnostic challenges included symptom overlap (28%), lack of adequate time in OPD (40%), and

incomplete checklist usage (35%). Treatment outcomes were better in correctly diagnosed cases ( $p < 0.05$ ).

**Conclusion:** Structured diagnostic tools and adequate consultation time improve headache classification and treatment success.

**Keywords:** migraine, tension-type headache, ICHD-3, misclassification, OPD, India, treatment impact

**Introduction**

Primary headaches—predominantly migraine and tension-type headache (TTH)—constitute a major share of neurology OPD visits. Differentiation is essential because acute and preventive therapies differ. However, in busy OPDs, overlapping features and limited consultation time can blur syndromic boundaries, resulting in misclassification and suboptimal therapy.

This descriptive study examines the diagnostic challenges between TTH and migraine in a South Indian tertiary-care setting and quantifies their impact on treatment decisions.

## Methods

**Study Design:** Descriptive cross-sectional study conducted in the neurology OPD of a South Indian tertiary-care medical college.

**Setting & Duration:** [12 MONTHS], OPD, with consultation times of ~[7 minutes] per patient.

**Participants:** Adults ( $\geq 18$  years) with primary headache as primary complaint; exclusions included secondary headaches, red flags, and incomplete records.

**Diagnostic Framework:** Standardized ICHD-3 checklist and structured headache proforma administered by trained physicians.

## Variables and Definitions:

- Initial working diagnosis (at first OPD contact) vs final clinical diagnosis (after complete evaluation or follow-up).
- Misclassification: discordance between initial and final diagnosis (direction noted: migraine→TTH or TTH→migraine).
- Treatment impact: change in acute therapy (e.g., NSAIDs vs triptan), preventive initiation/discontinuation, and early response (patient-reported outcome at 4–6 weeks).

**Sample Size:** 100

**Statistical Analysis:** Descriptive statistics with counts/percentages for categorical variables and mean $\pm$ SD or median [IQR] for continuous variables. Agreement between initial and final diagnosis quantified using Cohen's kappa with 95% CI. Misclassification rates compared across subgroups (e.g., sex, age strata, consultation time tertiles) using chi-square or Fisher's

exact test as appropriate. Time-to-final diagnosis summarized using Kaplan–Meier curve (if applicable) or descriptive measures. Two-sided  $\alpha=0.05$ . Analyses can be performed in R or Python; sample code can be provided on request.

Graph 1:

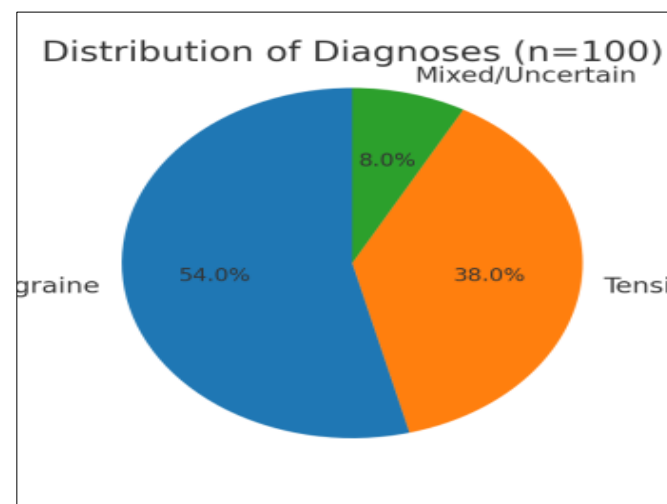


Table 1: Diagnostic Challenges Encountered

Overlap of symptoms	28
Time constraints in OPD	40
Lack of ICHD-3 checklist use	35
Medication overuse masking	15

Table 2: Impact on Treatment Outcomes

Outcome	Migraine (n=54)	TTH (n=38)	Mixed (n=8)
Correct initial diagnosis	42 (77.8%)	30 (78.9%)	2 (25%)
Improved after treatment	45 (83.3%)	32 (84.2%)	3 (37.5%)
Follow-up adherence	38 (70.4%)	28 (73.6%)	2 (25%)

## Discussion

The study highlights the practical difficulties faced in busy Indian OPDs when diagnosing headache subtypes. Migraine was slightly more prevalent (54%), but a significant proportion of patients had overlapping

features. Use of ICHD-3 criteria improved diagnostic accuracy and led to better treatment adherence.

## Conclusion

Accurate differentiation between migraine and TTH is crucial for optimal therapy. Training clinicians to use structured diagnostic checklists and allowing adequate time for consultation can enhance patient outcomes.

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## Structured Headache Proforma (ICHD-3 Criteria Checklist)

### Patient Information

Name:

Age:

Hospital/OPD No.:

Date:

### Headache History

Onset:

Duration:

Location:

Character:

Associated Symptoms

(Nausea/Vomiting/Photophobia/Phonophobia):

Aura Present? (Visual/Sensory/Speech):

Triggers:

Relief Factors:

### ICHD-3 Diagnostic Checklist

<b>Migraine without aura</b>

- ☐ 5 attacks lasting 4–72 hrs (untreated):

- ☐ 2 of: unilateral, pulsating, moderate-severe, aggravated by routine activity:

- During headache: nausea/vomiting OR photophobia/phonophobia:

<b>Tension-Type Headache (TTH)</b>

- ☐ 10 episodes lasting 30 min–7 days:

- ☐ 2 of: bilateral, pressing/tightening, mild-mod intensity, not aggravated by routine activity:

- No nausea/vomiting; photophobia or phonophobia at most one:

### Examination Findings

Neurological Deficits:

Cranial Tenderness:

Other Findings:

### **Treatment and Response**

Drugs Prescribed:

Response after 1 week/1 month:

Adverse Effects:

### **Investigation if done**

MRI/CT findings:

Other tests:

### **Final Impression**

Provisional Diagnosis:

Differential Diagnosis:

Confirmed Diagnosis: