



## Original Research Article

## The prevalence and burden of primary headache disorders among adults in rural villages of Bangalore District, South India: A community-based study

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## ARTICLE INFO

## Article history:

Received 30-07-2021

Accepted 21-10-2021

Available online 05-01-2022

## Keywords:

Primary headache disorders

Migraine

Tension type headache

Chronic migraine

Rural population

Community study

## ABSTRACT

**Introduction:** The prevalence of primary headache disorders (PHDs) and their burden has been seldom studied in the rural community setting of a developing country.

**Aim:** To study the prevalence of primary headache disorders and their burden in the rural community

**Material and Methods:** A door to door survey was done in seven rural villages under Mugalur sub centre area, Sarjapura Primary Health Centre and Anekal taluk, Bangalore district, Karnataka State, south India, for finding the prevalence and burden of PHDs.

**Results:** During the study period of three months, a total of 1255 people were screened in the seven villages. 13.1% (165/1255) of people suffered from PHDs. The population prevalence of migraine without aura was 8.84% (111/1255), tension type headache was 2.86% (36/1255) and chronic migraine was 1.43% (18/1255). The mean number of headache days for all the PHDs was 4.26 ( $\pm 1.64$ ) days. 66.1% of persons with headache reported minimal or infrequent impact of headache. Among various demographic variables, headache was significantly associated with the female gender and marital status.

**Conclusion:** PHDs are prevalent in the rural communities of developing countries and need urgent attention of primary care physicians, community health departments, governmental agencies and policy makers.

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### 1. Introduction

The prevalence of primary headache disorders (PHDs) and their burden has been seldom studied in a rural community setting. Hospital based studies have shown that PHDs especially migraine is the commonest reason for neurology consultation while data regarding community prevalence of these disorders are scarce. In this context we embarked on conducting a survey to estimate the prevalence of PHDs and their burden among adults (18-60 years) living in the villages of Rajiv Gandhi nagara, Mattanahalli,

Madappanahalli, Mugalur, Kugur, Panditana Agrahara and Banahalli.

### 2. Materials and Methods

A door to door survey was done in seven rural villages of Mugalur sub centre area, Sarjapura Primary Health Centre, Anekal taluk, Bangalore district in Karnataka State, south India, over a 3-month period in 2012. The study team consisted of interns, postgraduate students and senior consultants. All persons in the age group 18-60 years were included in the study. A structured questionnaire based on ICHD 2 criteria for migraine, tension type headache

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and chronic migraine in local language was administered. The burden of headache was measured with Headache Attributable Lost Time index (HALT). Derived from the MIDAS (Migraine Disability Assessment Scale), the HALT index measures the number of days lost (complete and less than half the amount of work) due to headache in a three-month interval in the domains of school or workplace and doing household work. It also includes the number of days during a three-month period wherein the family member missed a social event because of headache.<sup>1</sup>

### 3. Results

During the study period of three months, a total of 1255 people were screened in seven villages in the door to door survey. 591 (47.1%) were in the age group 18–30 years and 671 (53.5%) were females. 13.1% (165/1255) of people suffered from headaches. Migraine without aura was seen in 67.3% (111/165), tension type headache in 21.8% (36/165) and chronic migraine was seen in 10.9% (18/165). The population prevalence of migraine without aura was 8.84%, tension type headache was 2.86% and chronic migraine was 1.43%. The mean number of headache days for all the PHDs was 4.26 ( $\pm 1.64$ ) days. On analysing the relationship between the prevalence of headache and variables such as age, gender, educational status, occupational status, marital status and socio-economic status, it was found that headache was significantly associated with the female gender {118(17.6%) of the 671 female respondents having headache [ $X^2=24.87$  and  $p<0.001$ ]} and with the marital status {140(14.5%) of the 965 married respondents having [ $X^2=6.76$  and  $p=0.009$ ]} (Table 1). Table 2 represents the burden of headache as assessed by HALT index. 66.1% (109/165) of the people with headache reported minimal or infrequent impact of headache. The median days lost or impaired in the various domains of HALT index are shown in Table 3.

### 4. Discussion

Migraine and tension-type headaches are reported as the most prevalent disorders of mankind by the “Atlas of Headache Disorders, WHO. The prevalence of migraine in South East Asian region as reported by WHO is 10.9%.<sup>2</sup> The prevalence of PHDs in the current study was 13.1% and migraine without aura was the major headache subtype forming 8.84%. Tension type headache was seen at a much lower proportion in this rural community. Chronic Migraine was seen in 1.43%, similar to previous reports.<sup>3</sup> As reported in all epidemiological studies, females were more affected with PHDs.<sup>4</sup> This may be due to hormonal factors and also may be secondary to the stress, as in Indian households females have multiple roles to perform. People who were married also reported more headaches than unmarried people again suggesting that stress of married life may be

a precipitating factor for primary headache disorder.

PHDs are prevalent in the community and is one of the top neurological disorder both in urban and rural areas.<sup>5</sup> It is interesting to note that a previous large population-based neuro epidemiological survey from the Karnataka region involving different villages also showed that headache sufferers were more in the rural areas than in the urban areas. Prevalence was higher in rural (71.2% [68.4-73.8]) than in urban areas (57.3% [54.5-60.1]) even after adjusting for gender.<sup>6</sup> What makes the rural population more prone to headache is not known. The probable factors may be exposure to sunlight, physical labour, financial stress, stress of family life and lack of easily accessible medical resources and facilities. One of the limitations of the study was that it did not assess the exact incidence of menstrual migraine. We also could not assess the nutritional status of patients with primary headache disorders due to logistic reasons and time constraints. These should be explored in future studies. Evidence from this and other studies suggests that headache should be taken seriously as a public health problem, not only in the developed countries but also developing countries, especially in the rural population.<sup>7</sup>

The HALT index showed that median days lost in the domain of vocation was 4 days, while for household and social activities were 2. Another similar study showed that the proportion of days lost to headache from paid work was 1.1% while overall productivity loss (from both paid and household work) was 2.8%.<sup>8</sup> The above observations show that headache disorders are a major health care problem especially in rural setting and needs urgent attention of medical and governmental agencies. The need of the hour is spreading awareness of the burden of PHDs among public and primary care physicians. Education of the primary care physicians and enabling them in the correct diagnosis and management of PHDs is of utmost importance, to tackle the burden of PHDs in the population. The importance of simple measures like appropriate lifestyle modifications and informed use of cost-effective pharmaceutical remedies should be initiated in the rural areas of developing countries.<sup>1</sup>

#### 4.1. Public health relevance

1. Primary headache disorders are common in developing countries especially in the rural population.
2. Migraine with aura was the commonest subtype among primary headache disorders with chronic migraine seen in 1.43% of population.
3. Primary headache disorders need urgent attention of primary care physicians, community health departments, governmental agencies and policy makers.

**Table 1:** Association of Headache with demographic variables

| Variable                     | Headache                   |            | Chi square (P value)      |
|------------------------------|----------------------------|------------|---------------------------|
|                              | Present (%)                | Absent (%) |                           |
|                              | <b>Age</b>                 |            |                           |
| 18-30 years                  | 65(11)                     | 526(89)    | $\chi^2 = 12.263$ p=0.007 |
| 31-40 years                  | 58(19)                     | 247(81)    |                           |
| 41-50 years                  | 29(11.8)                   | 216(88.2)  |                           |
| 51-59 years                  | 13(11.4)                   | 101(88.6)  |                           |
|                              | <b>Gender</b>              |            |                           |
| Male                         | 47(8)                      | 537(92)    | $\chi^2 = 24.87$ p <0.00  |
| Female                       | 118(17.6)                  | 553(82.4)  |                           |
|                              | <b>Marital status</b>      |            |                           |
| Unmarried /widows            | 25(8.6)                    | 265(91.4)  | $\chi^2 = 6.768$ p=0.009  |
| Currently married            | 140(14.5)                  | 825(85.5)  |                           |
|                              | <b>Occupational status</b> |            |                           |
| Profession/semi profession   | 15(25.9)                   | 43(74.1)   | $\chi^2 = 27.84$ p<0.001) |
| Clerical, shop owner, farmer | 54(10.2)                   | 477(89.8)  |                           |
| Skilled/ semi-skilled        | 27(11.6)                   | 206(88.4)  |                           |
| Unskilled                    | 12(8.1)                    | 136(91.9)  |                           |
| Unemployed                   | 57(20)                     | 228(80)    |                           |

**Table 2:** Grading of impact of headache as measured by HALT index

| Grade(Scores)  | Impact                | Number (N=165) | Percentage |
|----------------|-----------------------|----------------|------------|
| Grade 1(0-5)   | Minimal or infrequent | 109            | 66.1       |
| Grade 2(6-10)  | Mild or infrequent    | 21             | 12.7       |
| Grade 3(11-20) | Moderate              | 16             | 9.7        |
| Grade 4 (+20)  | Severe                | 19             | 11.5       |

HALT index- Headache Attributable Lost Time index

**Table 3:** The median days lost or impaired in the various domains of HALT index

| HALT –Domains  | Activity  | Median days | Inter-quartile range |
|----------------|-----------|-------------|----------------------|
| Vocational     | Days lost | 4.0         | 2 – 8                |
|                | Impaired  | 4.0         | 2 - 6.50             |
| Household work | Days lost | 2.0         | 1 – 5                |
|                | Impaired  | 2.0         | 1 - 5.25             |
| Social events  | Days lost | 2.0         | 1 – 3                |
|                | Impaired  | 2.0         | 1 – 3                |

## 5. Conflict of Interest

The author declares no potential conflicts of interest with respect to research, authorship, and/or publication of this article.

## 6. Source of Funding

None.

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**Cite this article:** Ajay S, Goud BR, Shanbhag DN, Pallan CJ, D'mello PG, Colaço R, Andrade SJ, Varghese N, John SK, Mathew T. The prevalence and burden of primary headache disorders among adults in rural villages of Bangalore District, South India: A community-based study. *IP Indian J Neurosci* 2021;7(4):322-325.