



## Pattern of Presentation of Headache among Attendees of Health Centres Attached to a Tertiary Care Hospital, Dharwad

Prajna Sharma<sup>1</sup>, Lata R Kollur<sup>2</sup>

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### Author's Affiliation:

<sup>1</sup>Assistant professor, Dept of Community medicine, Kanachur Institute of Medical sciences, Mangalore; <sup>2</sup>Asso professor, Dept of Community medicine, SDM college of medical sciences and hospital, Dharwad

### Correspondence

Dr. Lata R Kollur  
kollurl@yahoo.com

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## ABSTRACT

**Introduction:** Despite that headache is felt, at some time, by nearly everybody, it is not known how, or how many of the populations of the world, or how healthcare and other resources are utilized to mitigate their effects. Globally, it has been estimated that prevalence among adults of current headache disorder is 47% in general. This study was conducted to know the pattern, factors triggering and associated with headache.

**Materials and methods:** A time bound cross-sectional study was conducted for a period of two months. Using convenient sampling individuals 10 years and above and had at least one episode of headache in last one month were interviewed.

**Results:** Mean age presenting with headache was 29.26 +/- 12.13 years. Predominant age at onset was <20 years (55.7%). Monthly frequency (47.54%), bilateral location of headache (54.1%) and throbbing nature (59.01%) were more common. Most common triggering factors were sleep disturbance (63.9%) and stress (55.7%). Worsening was seen by any form of exertion (32.8%) and relieving factors included medication (54.1%) and rest (41%).

**Conclusion:** Headache mainly affects the working population (18-40yrs) which reduces their working efficiency. Hence measures have to be taken to prevent and reduce the frequency of headache.

**Key words:** Headache, health centre, triggering factors, relieving factors.

## INTRODUCTION

Among the disorders of nervous system, headache is the most common one. Almost half of the adult population has been estimated to have had a headache at least once within the last year. Even then worldwide, headache disorders are diagnosed appropriately only in minority of people.<sup>1</sup>

Global prevalence among adults of current headache disorder (symptomatic at least once within the last year) is 47%,<sup>2</sup> while fortension type headache (TTH) it is 42%, 11% for migraines (MIG), and 3% for chronic daily headaches (CDH). The global lifetime prevalence for all primary headaches is 64%.<sup>3</sup> Headache on 15 or more days every month af-

fects 1.7-4% of the world's adult population. Headache affects people of all ages, races, income levels and geographical areas, thus becomes a worldwide problem, despite its regional variations.<sup>1</sup>

Migraine on its own was found to be the sixth highest cause worldwide of years lost due to disability (YLD) according to the 2013 update in the Global Burden of Disease Study. Headache disorders collectively were third highest, hence proving that headache is not only painful, but also disabling. Also other illnesses like anxiety and depression are significantly more common in people with chronic headache disorders than in healthy individuals.<sup>1</sup> High-intensity and disabling conomi-

tants such as nausea, vomiting or sensory hypersensitivity contribute to headache's negative impact on the individual.<sup>4</sup>

Headache disorders are most troublesome in the productive years of life (late teens to 50s) hence forming a major public-health concern given the financial costs to society. For example, in the United Kingdom every year some 25 million working- or school-days are lost because of migraine alone; the financial cost of which may be matched by TTH and medication overuse headache (MOH) combined. In one survey, one-third of all neurological consultations were for headache.<sup>1</sup>

Although headache disorders are among the most common of all health disorders, their epidemiology is only partly documented. Most studies focused on either MIG or TTH, as opposed to headache in general.<sup>5</sup> Also research that has focused on frequent headache has been hampered by the lack of a binding definition of what is meant by 'frequent' or 'recurrent'.<sup>6</sup> Furthermore, careful monitoring of the trigger factors of headache could be an important step in treatment, because their avoidance may lessen the frequency and severity of attacks. They may also provide a clue to the etiology of headache.<sup>7</sup>

The main aim of the current study was to provide additional information about the distribution and pattern of headache, factors triggering and associated with headache and to compare these data with findings of recent epidemiological studies from other countries.

**MATERIALS AND METHODS**

A time bound hospital based cross-sectional study was conducted among the attendees of rural and urban health centre attached to the tertiary care hospital, Dharwad.

Present study was conducted for a period of two months. Convenient sampling was used to survey attendees of rural and urban health centre who were 10 years and above and had at least one episode of headache in last one month. Persons willing to participate with prior informed consent and those who fulfill the inclusion criteria were informed regarding the purpose of the study and data was collected by interviewing the subjects using the pre tested proforma in vernacular language and data was recorded. The pre-designed and pre-tested proforma included questions regarding the socio-demographic characteristics of the individual, pattern of headache, aggravating and relieving factors and other associated symptoms.

In the present study, headache frequency was categorized into four groups and the categorization

**Table 1: Socio-demographic characteristics of study participants**

Socio-demographic characteristic	Cases (%)
<b>Sex</b>	
Male	240 (65.6)
Female	126 (34.4)
<b>Occupation</b>	
Agriculture	72 (19.7)
Labourer	30 (8.2)
Housewife	42 (11.5)
Business	33 (9.01)
Student	135 (36.89)
Employee	48 (13.1)
Others	6 (1.6)
<b>Location</b>	
Rural	144 (39.35)
Urban	222 (60.65)
<b>Marital status</b>	
Unmarried	135 (36.89)
Married	222 (60.65)
Widow	7 (1.91)
Divorced	2 (0.55)
<b>Education</b>	
Illiterate	24 (6.6)
Primary	65 (17.76)
Secondary	71 (19.39)
Preuniversity	103 (28.14)
Graduate	96 (26.2)
Postgraduate	7 (1.91)

**Table 2: Pattern of headache**

Headache characteristics	Cases (%)
<b>Age at onset</b>	
<20 years	204 (55.7)
20-35 years	126 (34.4)
36-50 years	30 (8.2)
>50 years	6 (1.7)
<b>Frequency of headache</b>	
Daily	16 (4.37)
Weekly	62 (16.93)
Monthly	174 (47.54)
<Monthly	114 (31.14)
<b>Prevention of daily activity</b>	
Yes	300 (82)
No	66 (18)
<b>Location of pain *</b>	
Unilateral	138 (37.71)
Bilateral	198 (54.1)
Occipital	24 (6.56)
Behind the eyes	18 (4.93)
Around the ears	6 (1.64)
<b>Type of headache</b>	
One type	152 (83.06)
More than one type	31 (16.94)
<b>Type of pain*</b>	
Throbbing	216 (59.02)
Stabbing	30 (8.2)
Tight/pressure	42 (11.4)
Shooting	30 (8.2)
Dull	24 (6.6)
Burning	6 (1.6)

(\* Multiple answers)

was based on the previous records. Participants were categorized as 'less than monthly' if they reported a maximum of five headache episodes in the last 6 months. 'Monthly' if the individual had experienced headache at least once a month, 'weekly' if headache had occurred at least once a week and 'daily' if they reported headache on 15 or more days in a month for at least three months.<sup>8,9,10</sup> 'Frequent or recurrent' headache has been defined as headache occurring 'once a week or more'.<sup>6</sup>

Descriptive statistics like mean, standard deviation, frequencies and percentages were calculated. Further, Chi-square test was applied to find out association between two attributes. Statistical significance was set at 0.05% level of significance (p < 0.05)

**RESULTS**

A total of 366 individuals fulfilling the inclusion criteria were included in the study. The mean age of the participants was 29.26 + 12.13 and most of them were males 240 (65.6%) compared to 126 (34.4%) females. Most of them were students 135 (36.89) followed by 72 (19.7%) participants involved in agriculture and 42 (11.5%) were housewife. Of the 366 participants, 222 (60.65%) were living in urban slums and only 144 (39.3%) were from rural area. The socio-demographic characteristics of the study participants are given in table I.

In our study, the first episode of headache was seen before 20 years of age in 204 (55.7%) participants followed by 126 (34.4%) when they were 20-35 years old. Frequent or recurrent headache was seen in 78 (21.30%) individuals and in 300 (82%) of them their headache hampered their daily activities. In most of them headache was bilateral 198 (54.1%), 138 (37.71%) had unilateral headache and in 216 (59.02%) the headache was throbbing type. Further details on pattern of headache are given in table II.

With medication headache was usually mild 336 (91.8%) and the mean duration of headache was 9.02hrs but without medication 120 (32.8%) had severe headache, 234 (63.9%) of them had moderate headache and mean duration of headache was 39.12hrs.

Major factors triggering the headache were sleep disturbance 234 (63.9%) and stress 204 (55.7%). Headache was worsened mainly on exertion 123 (33.6%). Most common medical condition associated was hypertension 26 (7.1%). Medication was used by 209 (57.1%) individuals to get relieved of their headache and 6 (1.64%) used preventive medication. (Table III, Table IV)

**Table 3: Factors triggering headache**

Characteristic	Cases (%)
<b>Triggering factors*</b>	
Stress	204 (55.7)
Sleep disturbance	234 (63.9)
Missing a meal	72 (19.6)
Weather change	138 (37.7)
Flickering/ glaring light	9 (2.46)
Alcohol	12 (3.2)
Certain food	48 (13.1)
Certain smell	6 (1.6)
<b>Associated symptoms*</b>	
Nausea	123 (33.61)
Vomiting	48 (13.1)
Stomach discomfort	25 (6.83)
Loss of appetite	66 (18.03)
Sensitivity to nose	60 (16.39)
Dizziness	63 (17.21)
Sensitivity to light/ running nose	37 (10.11)
Yawning	12 (3.27)
Excessive fatigue	84 (22.95)
Tearing	90 (24.59)

(\* Multiple answers)

**Table 4: Factors worsening, relieving and medical conditions associated with headache**

Characteristics	Cases (%)
<b>Factors worsening*</b>	
Any kind of exertion	123 (33.6)
Bending over/ lifting objects	27 (7.37)
Straining/ coughing/ sneezing	90 (24.5)
Standing up suddenly	24 (6.6)
Cold temperature	33 (9.01)
Hot temperature	75 (20.49)
<b>Relieving factor*</b>	
Medication and rest	13 (3.55)
Good diet	6 (1.6)
Only medication	197 (53.83)
Only rest	150 (41)
<b>Associated medical condition</b>	
Sinusitis	14 (3.83)
Allergic rhinitis	10 (2.73)
Diabetes mellitus and hypertension	12 (3.28)
Only hypertension	26 (7.1)
Nothing specific	304 (83.06)

(\*Multiple answers)

When comparing socio-demographic factors and frequency of headache, it was seen that older people (>44years), those who are unemployed, those living in rural areas and those who are single has increased frequency of headache and was statistically significant (p value <0.05). Also it was seen that headache associated with sinusitis and triggered by weather changes, flickering/ glaring of light and certain smell were frequent and was statistically significant (p value <0.05). (Table V)

**Table 5: Comparing socio-demographic and other characteristics of headache with frequency of headache**

Characteristics	Headache		p value
	Frequent	less frequent	
<b>Age</b>			
10-44	54 (71.1)	250 (86.2)	<b>0.0017</b>
>44	22 (28.9)	40 (13.8)	
<b>Sex</b>			
Female	36 (47.4)	90 (31)	0.142
Male	52 (68.4)	188 (64.8)	
<b>Occupation</b>			
Employed	76 (100)	260 (89.7)	<b>0.033</b>
Unemployed	12 (15.8)	18 (6.2)	
<b>Location</b>			
Rural	48 (63.2)	96 (33.1)	<b>0.00081</b>
Urban	40 (52.6)	182 (62.8)	
<b>Marital status</b>			
Married	34 (44.7)	188 (64.8)	<b>&lt;0.0001</b>
Single	54 (71.1)	90 (31)	
<b>Education</b>			
Illiterate	6 (7.9)	18 (6.2)	0.909
Literate	82 (107.9)	260 (89.7)	
<b>Age at onset</b>			
<35	38 (50)	127 (43.8)	0.331
>35	6 (7.9)	12 (4.1)	
<b>Intensity of pain</b>			
Mild	0 (0)	6 (2.1)	0.125
Moderate	30 (39.5)	87 (30)	
Sever	14 (18.4)	46 (15.9)	
<b>Associated medical condition</b>			
Nothing specific	70 (92.1)	234 (80.7)	-
Sinusitis	6 (7.9)	8 (2.8)	0.089
Allergic rhinitis	2 (2.6)	8 (2.8)	0.823
DM & HT	5 (6.6)	7 (2.4)	0.136
Only HT	8 (10.5)	18 (6.2)	0.372
<b>Triggering factors</b>			
Stress	46 (60.5)	158 (54.5)	0.452
Sleep disturbance	46 (60.5)	188 (64.8)	<b>0.0089</b>
Missing a meal	22 (28.9)	50 (17.2)	0.149
Weather changes	24 (31.6)	114 (39.3)	<b>0.0205</b>
Flickering/glaring light	6 (7.9)	1 (0.3)	<b>&lt;0.001</b>
Alcohol	6 (7.9)	6 (2.1)	0.0725
Certain foods	3 (3.9)	45 (15.5)	<b>0.0013</b>
Certain smell	9 (11.8)	6 (2.1)	<b>0.0025</b>

Frequently=Occuring at less than a week interval  
 Less frequently=Occuring at more than a week interval  
 DM=Diabetes mellitus; HT=hypertension

**DISCUSSION**

Headache being the most prevalent and disabling disorder, yet neglected by most of the individuals including the health workers. They are under recognised, under diagnosed and under treated and this is mainly because of the diverse presentation and ethiology of headache.

In the present study all the individuals more than 10 years who had headache were included. This age group was included because they were able to give valid answers to the questionnaire. Of these 65.57% were males and 34.42% were females. In a

study done by Kulkarni GB et al<sup>11</sup> 49% were males and 51% were females which was similar to the study done by Albuquerque RP et al<sup>12</sup> (males-46.7%, females-53.3%) and Gabmann J et al<sup>6</sup> (males- 45.8%, females-54.2%).

In the present study 4.37% had headache daily, 16.93% had at least one episode of headache weekly, 47.54% had monthly and 31.14% had 5 episodes of headache in last 6months (<monthly). In a study done by Albuquerque RP et al<sup>12</sup>, 15.6% had daily headache, 36.6% had weekly headache and 47.8% had monthly headache. In a study done by Zhang Y et al,<sup>3</sup> 18.7% had headache everyday, 18.11% had chronic headache (>15day/month), 21.56% had episodic (>1day/month and <15day/month) and 41.62% had occasional headache (<1day/month).

Prevention of daily activity was seen in 18% of the individuals in the present study whereas in the study done by Zhang Y et al,<sup>3</sup> it was seen in 48.55%. This high percentage may be due to the difference in the age group included in the study (>60years) and hence the disability maybe due to some other reasons related to the increasing age. In our study more than one type of headache was seen in 16.94%, unilateral headache was seen in 37.71% and bilateral in 54.1. While in study done by Zhang Y et al,<sup>3</sup> 39.48% had more than one type of headache, 48.95% had unilateral and 34.87% had bilateral headache.

In our study only 57.1% took medication for headache and 1.64% took prophylactic medication while in a study done by Zebeholzer K et al,<sup>13</sup> medication was used by 90.9 % of the patients and prophylactic medication by 34%. Similarly in a study done by Prencipe M et al,<sup>5</sup> 87.8% took medication of which 45.9% had taken them regularly, and 41.9% had taken them only when the headache pain interfered with their activities. In our study only 3.3% had mild headache, 63.9% had moderate and 32.8% had severe headache. This finding was in contrast to the study done by Prencipe M et al,<sup>5</sup> where 60% had mild, 30.8% moderate and only 9.2% had severe headache and maybe because only >65years were included in this study.

In a study done by Robbins L<sup>14</sup> precipitating factors for migraine headache were stress (62%), weather changes (43%), missing a meal (40%), and bright sunlight (38%). In another study done by Chabriat H,<sup>15</sup> most frequent precipitating factors (reported at least once by more than 10% of subjects) were fatigue and/or sleep, stress, food and/or drinks, menstruation, heat/cold/weather, and infections.

In a study done by Zhang Y et al,<sup>3</sup> headache was associated with nausea/vomiting (16.18%), photo-

phobia (31.80%), lacrimation (0.58%) and was worsened by physical activity (20.1%).

## CONCLUSION

Our study was conducted to know the pattern of headache and was seen that the mean age of headache was 29.26 +/- 12.13 years, more prevalent among males (65.6%) and those residing in urban areas (60.7%). Age at onset was <20 years in most of them. Bilateral location of headache and throbbing nature were more common. Most common triggering factors were sleep disturbance and stress; predominantly associated with nausea, dizziness and loss of appetite; worsened on exertion and relieved on taking medication and rest. Headache is one of the leading causes for decreased work efficiency and absenteeism as it mainly affects the working population. Hence, attention is required to this common but neglected entity.

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