

Original Article

Frequency and Pattern of Primary Headache Disorders at a Tertiary Health Facility in Dhaka, Bangladesh

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Background : Primary headaches are under diagnosed and undertreated, with a significant impact on personal life, social activities and work.

Aim : To determine the frequency and pattern of primary headaches at a tertiary centre in Dhaka, Bangladesh.

Methods : This study was a hospital based cross-sectional descriptive study and conducted at outpatient department (OPD) of neurology in Sir Salimullah Medical College & Mitford Hospital (MH) for duration of one year. A total of 1825 patients were attended to the OPD, of which 551 were diagnosed as primary headache by neurologists were enrolled in this study. Types of primary headache were diagnosed by residents and neurologists according to the criteria of the International Headache Society (2013).

Results : The participants comprised 122 males were 22.1% and 429 females 77.9%. The mean age was 34.78±7.34 years. The overall headache was 30.19% with female predominance (p=0.947). The most common pattern of headache distribution of the study population are migraine (64.4%), then tension-type headache (TTH) (23.4%), chronic daily headache (CDH) (7.6%) and cluster headache (0.6%). Female patients (84.4%) are more suffer in migraine than male (15.6%). In case of TTH female patients (66.7%) are more suffer than male (59.1%). In case of CDH male (60.1%) are more suffering than female (39.9%). In case of cluster male patients (66.7%) are more suffer than Female (33.7%) (p<0.001). The migraine, CDH, and cluster headache are common in age group 30-39 yrs whereas TTH is common in age group 40-49 years (p<0.001). The mean age of onset of migraine was 34.24±7.09 years. TTH was 36.20±7.58 years, CDH was 36.59±8.63 years and cluster headache was 33.91±7.48 years.

Conclusions : The primary headache was common in female among working population, predominantly migraine and tension-type headache. [J Indian Med Assoc 2020; 118(6): 20-5]

Key words : Primary headache, Migraine, Tension-type headache, Chronic Daily Headache, Cluster headache.

Headaches are the most prevalent neurological disorders and among the most frequent symptoms seen in daily practice¹. 50% of the general population

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Editor's Comment :

- Primary headaches which are underdiagnosed and undertreated cause significant work inefficiency, quality of life, and lost workdays.
- The primary headache was common in female than man among working population in between 30-39 years.
- The most common pattern of primary headache distribution is migraine, then tension-type headache.

have headache during any given year, and more than 90% report a lifetime history of headache². It is estimated that 95% of men and 99% of women will have at least one episode throughout their life, provided that about 40% have it quite regularly³.

Primary headache disorders constitute the vast majority of headache disorders, with migraine and tension type headache (TTH) being the most prevalent. Primary headaches cause significant disability with reduced efficiency, quality of life, and lost workdays⁴⁻⁶. The global prevalence among adults

is approximately 10% of migraine, 40% for tension-type headache (TTH) and 3% for chronic daily headache². Worldwide; the current global prevalence of primary headache is 47%; migraine headache, 10%; tension-type headache, 38%; and chronic daily headache, 3%⁵. The lifetime prevalence rates are higher in men, 93% for headache of any kind, 8% for migraine, and 69% for tension-type headache. In women, life time prevalence is 99% for headache of any kind, 25% for migraine, and 88% for tension-type headache⁷.

Migraine prevalence during lifespan is also gender-dependent⁸. Migraine occurs most commonly between the ages of 25 and 55 years and is 3 times more common in females^{5,9}. Despite the fact that it causes significant disability, migraine remains under diagnosed and undertreated. Although typically not as severe as migraine, tension-type headache is far more common, with lifetime prevalence in the general population of up to 80%. There is often a degree of associated disability, and this, combined with the high frequency, produces significant socioeconomic impact⁵.

Trigeminal autonomic cephalgias are rare compared with migraine and tension-type headache. The most common trigeminal autonomic cephalgia is cluster headache which is a relatively rare but extremely painful type of headache, usually strictly one-sided, attacks in cyclical pattern and bouts¹⁰, with a population prevalence of 0.1% and a male/female ratio of 3.5-7:1^{5,9}. Cluster headache is a relatively rare but extremely painful type of headache, usually strictly one-sided, attacks in cyclical pattern and bouts¹⁰.

Chronic Daily Headache (CDH) is a descriptive term and not a diagnosis per se. It is commonly defined as headaches occurring on 15 or more days in a month for at least three months and affects around 4% of the general population¹¹. CDH is widely reported in the literature, yet is not an official diagnosis in the International Classification of Headache Disorders. Chronic daily headaches of long duration include chronic migraine, chronic tension-type headache, hemicrania continua, and new daily persistent headache⁹. The headache may be disabling not only due to its intensity, but also due to the frequency of attacks, which can be almost daily. This syndrome is known as chronic daily headache (CDH), and its prevalence in the overall population is approximately 5%, while in tertiary care centers it ranges from 30 to 90% of the cases^{12,13}. We aimed to determine the frequency and pattern of primary headaches at a tertiary centre in Dhaka, Bangladesh, using the operational diagnostic criteria of the International

Headache Society (IHS)¹⁴.

MATERIAL AND METHODS

This study was a hospital based cross-sectional descriptive study and conducted at outpatient department (OPD) of neurology in Sir Salimullah Medical College & Mitford Hospital (MH) during August 2018 to July 2019 for duration of one year. Patients attend to OPD and out of 1825 patients 551 patients were diagnosed as primary headache were enrolled in this study. The inclusion criterion was age 19 and above and patient attending to OPD of the hospital, whilst the exclusion criterion was refusal to participate in the study.

Their informed written consent was taken in a consent form before collecting data. The headache survey was performed by means of an interview based on a detailed pretested structured assessment questionnaire. The interviews were conducted under the supervision of the neurologists. The headache assessment questionnaire contained demographic data included a description of the current features of headache as well as its characteristics. Details of the research were communicated to the consenting participants at the beginning of the exercise. The participants were given the questionnaires to fill out and recorded in the cases for review the following day.

Diagnostic Criteria :

Headache was diagnosed according to the criteria of the International Classification of Headache Disorders (ICHD-3: Beta Version - 2013)¹⁴.

Migraine was diagnosed in subjects with recurrent, moderate to severe unilateral throbbing headache associated with nausea or vomiting or visual disturbances. The subjects with migraine were not subclassified. Tension-type headache was diagnosed when subjects suffered from bilateral or vertex tightness or pressure-like feeling in the absence of gastrointestinal or visual discomfort.

Details of the diagnostic criteria according to ICHD for migraine and tension-type headaches, cluster headache, hemicrania continua and new daily persistent headache are shown in Appendix.

Proper permission was taken from the concerned departments and local ethical committee.

Exploratory data analysis were carried out to describe the study population where categorical variables were summarized using frequency tables while continuous variables were summarized using measures of central tendency and dispersion such as mean, median, percentiles and standard deviation. All statistical analysis were performed using SPSS 25.0 for Windows (SPSS Inc, Chicago, Illinois, USA) level

of significance was set at 0.05 and p-value <0.05 was considered significant.

OBSERVATIONS AND RESULTS

A total of 1825 patients were attended to the OPD, of which 551 were diagnosed as primary headache and included in this study, giving an enrollment rate of 30.19%. 551 patients with primary headache (429 female and 122 male) were included in the study. The primary headache in males was 22.1% (122/551) and females 77.9% (429/551) (Table 1).

In Table 2 The mean age of the patient group was within the range of 35.07±14.43.

In Table 3 The most common pattern of headache distribution of the study population are migraine (64.4%), then tension-type headache (TTH) (23.4%), Cluster HA (0.6%) and Chronic Daily Headache (CDH) (7.6%).

In Table 4 female patients are more sufferer in primary headache in relation to age than male which are not statistically significant.

In Table 5 Female patients (84.4%) are more suffer in migraine than male (15.6%). In case of TTH female patients (66.7%) are more suffer than male (59.1%). In case of CDH male patients (60.1%) are more suffer than female (39.9%). In case of cluster male patients (66.7%) are more suffer than female (33.3%) which are statistically significant.

In Table 3 The most common pattern of CDH distribution are Chronic migraine(47.6%), then Chronic tension-type headache (TTH) (35.7%), Hemicrania continua (2.4%) and New daily persistent headache (NDPH) (11.9%). In Chronic migraine woman (65%) suffered more than man (35%).

In Table 7 migraine, CDH and Cluster HA are common in age group 30-39 yrs whereas TTH in age group 40-49 years which are statistically significant.

In Table 8 The mean age of onset of migraine was 34.24±7.09 years. TTH was 36.20±7.58 years, CDH was 36.59±8.63 years and Cluster HA was 33.91±7.48 years.

DISCUSSION

Among the population the predominant patient profile found in this outpatient department was women (77.9%) compared with men in between the age group from 20 to 49 years old and majority patients were aged between 30 to 39 years (35.4%) & the mean age of all patients was 34.78±7.34 years had higher prevalent rates for primary headache in this present study as has been previously reported^{15,16}. This has been attributed to the effect of female sex hormones specifically oestrogen.

Table 1 — Sex distribution of the study patients (n=551)

Sex	Frequency	Percentage (%)
Male	122	22.1
Female	429	77.9
Total	551	100.0

Table 2 — Age distribution of the study patients (n=551)

Age group (years)	Frequency	Percentage (%)	Mean ±SD
20-29	177	32.1	34.78±7.34
30-39	195	35.4	
40-49	179	32.5	
Total	551	100.0	
Range	(29.0 – 49.0) years		

Table 3 — Age basis sex distribution (n=551)

Age group (years)	n	Sex		Chi-square test
		Male No. (%)	Female No. (%)	
20-29	177	38(21.5%)	139(78.5%)	$\chi^2= 0.108$ df=2 p=0.947ns
30-39	195	43(22.1%)	152(77.9%)	
40-49	179	41(22.9%)	138(77.1%)	
Total	551	122(22.1%)	429(77.9%)	
Mean ±SD		35.8±14.7	34.9±14.3	

Chi-square test was done, ns= not significant

Table 4 — Pattern of headache distribution of the study patients (n=551)

Pattern of headache	Frequency	Percentage (%)
MIG	377	68.4
TTH	129	23.4
CDH	42	7.6
Cluster HA	3	0.6
Total	551	100.0

Table 5 — Pattern of headache relation to sex (n=551)

Pattern of headache	n	Sex		Chi-square test
		Male	Female	
MIG	377	59(15.6%)	318(84.4%)	$\chi^2= 36.93$ df=3 p<0.001*
TTH	129	43(33.3%)	86(66.7%)	
CDH	42	26(60.1%)	16(39.9%)	
Cluster HA	3	2(66.7%)	1(33.3%)	
Total	551	122(22.1%)	429(77.9%)	

Chi-square test was done, * = significant

Table 6 — Distribution of Patterns of CDH

Patterns of CDH	N=42	Percentage (%)	Sex	
			Male	Female
Chronic migraine	20	47.6	7(35.0%)	13(65%)
Chronic TTH	15	35.7	5(33.3%)	10(66.7%)
Hemicrania continua	2	2.4	1(50%)	1(50%)
New daily persistent headache	5	11.9	2(40%)	3(60%)

Table 7 — Pattern of headache relation to age (n=551)

Pattern of headache	n	Age group			Chi-square test
		20-29 yrs	30-39 yrs	40-49 yrs	
MIG	377	128(34.0%)	135(35.8%)	114(30.2%)	$\chi^2=27.8$
TTH	129	34(26.4%)	45(34.9%)	50(38.8%)	df=6
CDH	42	12(28.6%)	16(38.1%)	14(33.3%)	p<0.001*
Cluster HA	3	1(33.3%)	2(66.7%)	0(0.00%)	
Total	551	177(32.1%)	195(35.4%)	179(32.5%)	

Chi-square test was done, *= significant

Table 8 — Mean age of different headache pattern (n=551)

	N	Mean ±SD	Range
MIG	377	34.24±7.09	21.00 – 49.00
TTH	129	36.20±7.58	22.00 – 49.00
CDH	42	36.59±8.63	22.00 – 49.00
Cluster HA	3	33.91±7.48	22.00 – 49.00
Total	551	34.78±7.32	21.00 – 49.00

We documented a prevalent rate of 68.4 % for migraine in our study at this outpatient clinic. Migraine is the most prevalent type in tertiary care centers, with rates ranging between 35% and 80%¹⁷⁻¹⁹. One meta-analysis had indicated that the prevalence of migraine headache varied between different geographical regions, being lower in Europe than in North America but higher than in Asia and Africa²⁰. Diversity of the population studied and racial differences in genetic vulnerability to migraine may also be contributory²¹.

The well-known female preponderance in patients with migraine was also evident in our study. We found a significantly higher proportion of women with migraine headache, 318(84.4%) compared to men, and 59(15.6%). The higher rates in women are thought to be due to factors such as sensitivity to the oestrogen hormone, genetics, and differences in response to stress and pain perception. Premenstrual migraines are known to occur during or after the time when the female hormones, oestrogen and progesterone, decrease to their lowest levels²². We noted that the prevalent rate of migraine increased with age until the 4th decade when it started to decline. Tekle Haimanot²³ in Ethiopia had also documented a decline after a peak in the fourth decade of life.

The prevalent rate of tension-type headache (TTH) in our study was 23.4%. TTH, whether episodic or chronic (CTTH), was the second most frequent cause of headache, while in the community it is the most common type, with a prevalence ranging from 30 to 80%¹⁴. A Chinese study found a prevalence of 66.9% for TTH in a tertiary care center²⁴. In other studies, the prevalent of TTH was 47.7% in Zimbabwe²⁵, the 25.5%

by Quesada-Vázquez *et al* in Cuba²⁶, and 11.2% reported in Oman²⁷. There has been wide variations and differences in the epidemiology of tension-type headache across different cultures¹². These variations may result from differences in study design, study population, inclusion or exclusion of cases of infrequent episodic TTH, and overlap with probable migraine, cultural and environmental differences, or even genetic factors²⁸. We also found a significantly higher proportion of women with TTH, 86(66.7%) compared to men 43(33.3%) which was consistent with previous study are more common in women than men (23% to 18% respectively)²⁹.

In our present study prevalent rate of cluster headache was 4.2% and male are predominant (66.7%) in comparison to female (33.3%) and male: female ratio is 2:1 age was the respondent in between 19-39 years. Cluster headache affects about 0.1% of the general population at some point in their life and 0.05% in any given year³⁰. The condition usually first occurs between 20 and 40 years of age³¹. More men are affected than women, with a ratio of 3.5:1¹³.

We documented a prevalent rate of 7.6% for CDH in our study at this OPD. CDH was responsible for approximately one-third of the cases, while the prevalence in the community is between 3% and 7%^{32,33} which was consistent with study.

CONCLUSION

Headache is one of the most common symptoms in the general population. Female are more sufferer than man with primary headache in between 30-39 years. The most common pattern of primary headache distribution of the study population is migraine then tension-type headache. These could be diagnosed and managed in primary care or by general and emergency physicians working in acute medicine. There is a great need for addressing this health problem as the frequency and pattern of primary headache was found to be high among the population. There is an immense need to counsel and treat such individuals, as headache significantly affects an individual, family and society.

Appendix : International Classification of Headache Disorders (ICHD-3: Beta Version-2013)

Migraine Headache :

1. ≥ 5 attacks lasting 4–72 hours
2. (ii) ≥ 2 of the following 4
 - (a) Unilateral location
 - (b) Pulsating quality
 - (c) Moderate or severe intensity
 - (d) Aggravation by routine physical activity

3. ≥ 1 of the following
 - (a) Nausea and/or vomiting
 - (b) Photophobia and phonophobia
4. Not attributable to any other disorder

Tension-Type Headache :

1. ≥ 10 attacks lasting 30 minutes to 7 days
2. ≥ 2 of the following 4
 - (a) Bilateral location
 - (b) Pressing/tightening (non-pulsating) quality
 - (c) Mild or moderate intensity
 - (d) Not aggravated by routine physical activity
3. No nausea or vomiting
4. One or either photophobia or phonophobia
5. Not attributed to another disorder.

Cluster headache:

Diagnostic criteria:

- A. At least five attacks fulfilling criteria B–D
- B. Severe or very severe unilateral orbital, supraorbital and/or temporal pain lasting 15–180 minutes (when untreated)¹
- C. Either or both of the following :
 1. At least one of the following symptoms or signs, ipsilateral to the headache:
 - a) Conjunctival injection and/or lacrimation
 - b) Nasal congestion and/or rhinorrhoea
 - c) Eyelid oedema
 - d) Forehead and facial sweating
 - e) Forehead and facial flushing
 - f) Sensation of fullness in the ear
 - g) Miosis and/or ptosis
 2. A sense of restlessness or agitation
- D. Attacks have a frequency between one every other day and eight per day for more than half of the time when the disorder is active

Hemicrania continua (HC):

The ICHD diagnostic criteria for hemicrania continua are:

1. Headache for more than 3 months fulfilling other 3 criteria:
2. All of the following characteristics:
 - a) Unilateral pain without side-shift
 - b) Daily and continuous, without pain-free periods
 - c) Moderate intensity, but with exacerbations of severe pain
3. At least one of the following autonomic features occurs during exacerbations and ipsilateral to the side of pain:
 - a) Conjunctival injection and/or lacrimation
 - b) Nasal congestion and/or rhinorrhea
 - c) Ptosis and/or miosis

4. Complete response to therapeutic doses of indomethacin, although cases of hemicrania continua that do not resolve with indomethacin treatment have been documented.

New daily persistent headache (NDPH) :

The ICHD diagnostic criteria are:

1. Headache that, within 3 days of onset, fulfils criteria 2-4
2. Headache is present daily, and is unremitting, for > 3 months
3. At least two of the following pain characteristics:
 - a) bilateral location
 - b) pressing/tightening (non-pulsating) quality
 - c) mild or moderate intensity
 - d) not aggravated by routine physical activity such as walking or climbing
4. Both of the following:
 - a) no more than one of photophobia, phonophobia or mild nausea
 - b) neither moderate or severe nausea nor vomiting
5. Not attributed to another disorder

LIMITATIONS

This study has small sample size and study populations were confined to only one tertiary care hospital which does not reflect the picture of the entire country. The multicentres data should be needed for the actual prevalence of primary headache..

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