

FREQUENCY AND PATTERN OF HEADACHE IN MEDICAL RESIDENTS AND NON-MEDICAL STUDENTS IN A TERTIARY CARE TEACHING HOSPITAL IN NORTH INDIA

Ruchika Tandon¹, Sanjeev Kumar Bhoi², Jayantee Kalita³, Usha Kant Misra⁴

¹Assistant Professor, Department of Medicine, King George's Medical University, Lucknow, India.

²Assistant Professor, Department of Neurology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India.

³Professor, Department of Neurology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India.

⁴Professor and HOD, Department of Neurology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India.

ABSTRACT

BACKGROUND

Headache is quite prevalent in general population. Few studies have been done on medical residents and comparison between headache prevalence and types in medical and non-medical student groups is quite lacking. This institute having medical residents as well as non-medical students, provides an opportunity to study and compare frequency and pattern of headache in these student groups. The study was aimed at finding out the type and frequency of headache, disability due to headache and treatment practices followed by these two student groups and the effect on the quality of life of our work force resulting from headache.

MATERIALS AND METHODS

Headache characteristics were studied in 200 medical residents and non-medical students who had at least one episode of headache of at least moderate intensity in the last 1 year using structured questionnaire.

RESULTS

Headache occurred in 81% students (79.9% of males and 83.9% of females), of whom, 81.82% were medical, 77.14% were non-medical, 79.65% were married and 82.76% were unmarried. Episodic tension-type headache (TTH) was most frequent headache type and migraine without aura was uncommon. More males had TTH than females (55.6% versus 39.3%) and migraine was more common in females (39.3% versus 20.1%). Common triggers for headache in medical students were stress, lack of sleep and in non-medical students were stress, sunshine and loud noise. Only 10.5% students were on prescription drugs while 69.8% were self-medicating.

CONCLUSION

Headache is almost as frequent in medical as in non-medical students and it affects the quality of life of our work force.

KEYWORDS

Headache, Migraine, Tension-type Headache, Medical Residents, Non-Medical Students, Migraine Triggers.

HOW TO CITE THIS ARTICLE: Tandon R, Bhoi SK, Kalita J, et al. Frequency and pattern of headache in medical residents and non-medical students in a tertiary care teaching hospital in North India. J. Evid. Based Med. Healthc. 2018; 5(8), 631-638. DOI: 10.18410/jebmh/2018/129

BACKGROUND

Headache is one of the most common neurological complaints of the young population and it affects the quality of life due to limitation of daily activities.¹ Its life time prevalence is quite high (82.7% to 93%) in the general population.^{2,3} Migraine and tension-type headache (TTH) are the two most common types of headache. Various studies have shown prevalence of migraine to be 2.4%- 6% in males and 3.6%-15% in females and that of tension-type headache the corresponding figures were 11.1%- 63% in

males and 11.8%- 86% in females.²⁻⁴ Few studies have been done on some specific groups of population like nurses and medical and university students which have found prevalence of TTH to be between 12.2% and 22.64% and of migraine to be between 2.4% and 33.8%.⁵⁻¹⁰ The studies on such specific groups can be applied to specific population as well. The prevalence of headache among medical students ranges from 46% to 98.3% in various studies.⁶⁻¹² The comparison between the prevalence and types of headache in medical and non-medical student groups is also quite lacking. This Institute being a tertiary care super speciality hospital, having medical residents (pursuing postgraduate and postdoctoral courses) and as well as non-medical (basic science) students, provides an opportunity to study the frequency and pattern of headache in medical residents as well as non-medical students. Hence, the study was designed to find out and compare the frequency and types of headache in medical residents and non-medical students and the disability caused by headache and the treatment practices followed by these two student groups,

Financial or Other, Competing Interest: None.

Submission 25-01-2018, Peer Review 29-01-2018,

Acceptance 12-02-2018, Published 13-02-2018.

Corresponding Author:

Dr. Usha Kant Misra,

*Professor and HOD, Department of Neurology,
Sanjay Gandhi Postgraduate Institute of Medical Sciences,
Lucknow- 226014, India.*

E-mail: drukmisra@rediffmail.com, ukmisra@sgpgi.ac.in

DOI: 10.18410/jebmh/2018/129



so that we can apply this information to this specific population.

MATERIALS AND METHODS

The study was conducted in the Department of Neurology on the medical residents pursuing medical or surgical postgraduate degree courses and non-medical students undergoing Doctor of Philosophy (PhD) courses from August 2011 to April 2013. It was a cross sectional study.

Headache was defined as present in those who had an episode in the last 1 year and in whom the headache was of at least moderate intensity. All those giving consent for the study were included. This institute has around 190 medical residents and 45 non-medical students. All the study participants were interviewed personally by the investigator and a written questionnaire having 26 points was filled, for collecting information regarding their demographic profile (age, sex, educational qualification, subject being studied, and marital status) and history of headaches with regard to onset of headache, number of headaches in last three months, duration of headache, severity, location and type of headache, night awakenings, features associated with headache, aggravating factors like stress, sunshine, change in weather, travel, missed meals, fatigue, sexual activity, loud noise, lifting weights, smoke, dust, certain smells, perfumes, coughing, straining or bending over, certain foods like cheese, alcohol, chocolate, Chinese foods, relation to menstrual periods, birth control pills, pregnancy and relieving factors like rest, massage, exercise, pressing head, hot or cold compress, quiet and darkness, warm shower. Also, family history, history of associated medical disorders and trauma and investigations and treatment history, including the use of prescription drugs and self-medication was taken. Inquiry was also made, regarding the effect of headache on work and lifestyle including missing of work, household work and leisure activities due to headache and regarding decreased productivity at work and household work due to headache. (Appendix 1). This questionnaire was compiled using MIDAS (Migraine Disability Assessment)

Questionnaire, Imigran Recovery Migraine Questionnaire and some other websites like tolianeurology.com and optfunction.com.^{13,14} The students were classified on the basis of ICHD-II Diagnostic Criteria for Migraine into tension-type (chronic, frequent episodic and infrequent episodic), and migraine (with and without aura).¹⁵ Those whose headache did not fit into any of these categories were classified as non-specific headache. Those who did not have headache in past 1 year or had only mild headache were classified as having no headache. The diagnosis of headache was made by all the investigators.

Different groups compared included males and females, medical and non-medical students, those having emergency duties and those who did not have emergency duties, those having migraine and those having tension-type headache.

Mean, median and standard deviation of age and age at onset of headache was calculated. Frequency and percentage of different parameters was calculated and for comparing between the different study-groups, the Chi-square tests were employed. The data was analysed using Microsoft IBM SPSS version 20 (Statistical Package for the Social Sciences).

RESULTS

Two hundred and thirty medical residents and non-medical (PhD) students were given the headache questionnaire. Out of these, 200 students completed the questionnaire. Mean age of subjects was found to be 29.64 ± 2.95 years. Out of 200, 162 subjects (81%) had headache. The mean age of onset of headache in these subjects was 21.52 ± 5.637 years and 144 (72%) were males and 56 (28%) were females. Of 144 males, 115 (79.9%) had headache while of 56 females, 47 (83.9%) had headache. There were a total of 35 (17.5%) non-medical students and 165 (82.5%) medical residents; 113 (56.5%) were married and 87 (43.5%) were unmarried.

The demographic profile of different subjects and the frequency and percentage of headache in different students is shown in Figure 1.

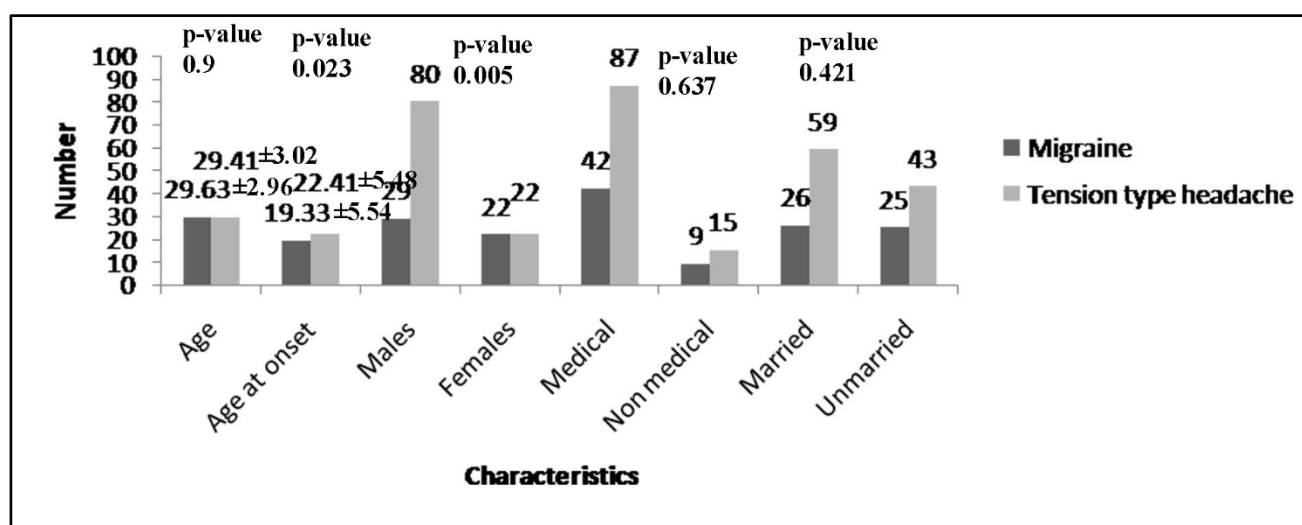


Figure 1. Demographic and Clinical Characteristics of Students with Headache

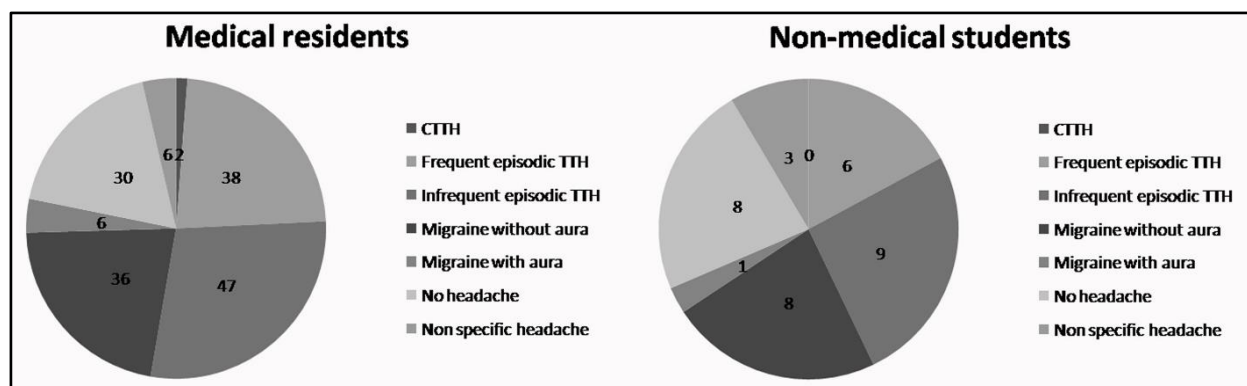


Figure 2. Frequency of Different Types of Headaches in Medical and Non-Medical Students

Childhood onset (<21 years) of headache was found in 107 (53.5%) people.

The types of headache in different study subjects are depicted in Figure 2. The most frequent type of headache in medical residents as well as non-medical students was infrequent episodic tension-type headache (28.5% versus 25.7%).

Family history of headaches was found in 81 (50%) people.

A total of 61 (30.5%) people had headache for less than 1 day/ month indicating a lesser frequency; while 102 (51%) had headache for more than 1 day/ month indicating a greater frequency and 37 (18.5%) had no headache. Out of these, 52 (31.5%) medical graduates had headache for less than 1 day/ month and 84 (50.9%) had headache for more than 1 day/ month and 9 (25.7%) non-medical students had headache for less than 1 day/ month and 18 (51.4%) had headache for more than 1 day/ month.

An average of 0.27 day of work was missed by those who had headache and on an average of 3.65 days, the productivity at work was diminished by one-third or more due to headache. On 0.93 day on an average, the students were not able to attend to their household chores due to headache and on 1.93 days, they had a diminished productivity at household work by one-third or more, which they attributed to headache; 0.72 day was of missing of leisure activities because of headache in the last three months.

Stress (in 95 (70.37%)) and lack of sleep (in 54 (40%)) were the most common factors triggering headache episodes in the medical residents and in non-medical students, the common triggers were stress (in 17 (62.96%)), sunshine (in 8 (29.63%)) and loud noise (in 7 (25.93%)). On the other hand, rest and sleep were the most common relieving factors for headache in both the student groups (Table 1).

Sl. No.	Aggravating Factors	Number and Percentage of Aggravating Factors in Medical Residents	Number and Percentage of Aggravating Factors in non-Medical Students	Relieving Factors	Number and Percentage of Relieving Factors in Medical Residents	Number and Percentage of Relieving Factors in Non-medical Students
1	Lack of sleep	54 (40%)	3 (11.11%)	Rest	114 (84.44%)	20 (74.07%)
2	Stress	95 (70.37%)	17 (62.96%)	Massage	25 (18.52%)	12 (44.44%)
3	Sunshine	26 (19.26%)	8 (29.63%)	Exercise	2 (1.48%)	12 (44.44%)
4	Weather change	13 (9.63%)	2 (7.41%)	Pressing head	19 (14.07%)	2 (7.41%)
5	Travel	8 (5.93%)	2 (7.41%)	Hot or cold compress	0 (0%)	1 (3.7%)
6	Hunger	37 (27.41%)	3 (11.11%)	Quiet and darkness	24 (17.78%)	7 (25.93%)
7	Fatigue	54 (40%)	6 (22.22%)	Warm shower	2 (1.48%)	2 (7.41%)
8	Sexual activity	1 (0.74%)	0 (0%)	Food	3 (2.22%)	0 (0%)
9	Loud noise	21 (15.56%)	7 (25.93%)	Sleep	93 (68.89%)	17 (62.96%)
10	Lifting weights	5 (3.7%)	0 (0%)	-	-	-
11	Smoke	5 (3.7%)	5 (18.52%)	-	-	-
12	Dust	4 (2.96%)	1 (3.7%)	-	-	-
13	Certain smells	12 (8.89%)	2 (7.41%)	-	-	-
14	Perfumes	9 (3.67%)	1 (3.7%)	-	-	-
15	Coughing	1 (0.74%)	0 (0%)	-	-	-
16	Straining or bending	4 (2.96%)	1 (3.7%)	-	-	-
17	Certain food items	3 (2.22%)	1 (3.7%)	-	-	-

Table 1. Aggravating and Relieving Factors for Headache in Medical Residents and Non-medical Students

Also, in those having emergency duties, the most common type of headache was infrequent episodic tension-type headache found in 30 (27.5%) of students and only 2 (1.8%) students experienced chronic tension-type headache. Similar results were observed in the non-emergency duty group, with the infrequent episodic tension-type headache being the most common headache type found in 26 (28.6%) students. Migraine with aura was, however, the most infrequent type, observed in only 1 (1.1%) student. None of these differences in between the two study groups were of any significance (Table 2).

Types of Headache	All Subjects	Emergency Duties Group	No Emergency Duties Group	p-value of Difference between Emergency Duties and no Emergency Duties Group using Chi-square Tests
Chronic tension-type	2 (1.0%)	2 (1.8%)	0 (0%)	0.194
Frequent episodic tension-type	44 (22%)	25 (22.9%)	19 (20.9%)	0.727
Infrequent episodic tension-type	56 (28%)	30 (27.5%)	26 (28.6%)	0.869
Migraine without aura	48 (24%)	28 (25.7%)	20 (22%)	0.995
Migraine with aura	3 (1.5%)	2 (1.8%)	1 (1.1%)	0.091
No headache	38 (19%)	19 (17.4%)	19 (20.9%)	0.536
Non specific	9 (4.5%)	3 (2.8%)	6 (6.6%)	0.332

Table 2. Different Types of Headache in Those having Emergency Duties and Those having no Emergency Duties

Out of 11 (6.79%) students, who got investigated for headache, 7 (5.19%) were medical residents and 4 (14.82%) were non-medical students.

Out of 162 (135 medical and 27 non-medical) students who had headache, only 17 (10.5%) (17 (12.59%) and 0 non-medical) were on prescription drugs while 113 (69.8%) (105 (77.78%) medical and 8 (29.63%) non-medical) were undergoing self-medication (p-value 0.001).

DISCUSSION

Headache was found to be common in medical residents and non-medical students of Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow with an overall prevalence of 81%. Several previous studies, which have chosen medical students as the target population for headache, have also shown a high prevalence of headache, ranging from 46% to 98.3%.⁶⁻¹²

In the present study, migraine was more frequent in females and tension-type headache in males which could be due to the fact that females being more resilient in dealing with the stressors, have less of tension-type headaches. In comparison to the previous studies, which have shown prevalence of migraine to be between 2.4%- 6% in males and between 3.6%- 15% in females and that of tension-type headache to be between 11.1%- 63% in males and between 11.8%- 86% in females. 2-4 the present study showed a very high prevalence of headache.

Migraine was almost equal in medical residents and non-medical students. There was no significant difference in headache frequency between medical graduates and non-medical students which might be because non-medical students in SGPGI due to living in the same environment as medical residents behave like medical students.

Migraine was more frequent in unmarried individuals than in married individuals and tension-type headache was more frequent in married individuals in comparison to unmarried individuals.

Most frequent type of headache in medical residents as well as in non-medical students was infrequent episodic

tension-type headache. Migraine with aura was infrequent in this study also, like in the previous studies. The previous studies have also shown tension-type headache to be more frequent than migraine headache in medical and university students.^{5,9,16-18} except for one study which showed the prevalence of migraine to be higher in medical students in comparison to tension-type headaches.¹⁹ This might be because tension-type headache is the most frequent headache in general population.²⁰

Very few days of work, household work or leisure activities were missed due to headache in last three months. So, inspite of higher prevalence of headache in this population, most of the people did not take leave. This might be due to a natural selection bias that medical residents had a higher skill of coping with their headache or it might be possible that only those people who had higher coping skills entered higher education. There was no significant difference between those who had emergency duties and those who did not have emergency duties, contrary to what was expected as most people said that stress and sleep deprivation were related to their headache. This might be due to natural selection again.

The most common trigger factor for headache in medical residents were stress and lack of sleep and in non-medical students were stress and sunshine and loud noise while the most common relieving factor for headache in medical residents as well as non-medical students were rest and sleep. Similar triggers for headache have been shown previously.²¹⁻²⁶ Previous studies have also linked sleep deprivation to headaches.^{27,28}

Most of the medical residents undergo self-medication and only a few consult physicians for headache. Some previous studies also show similar facts.^{4,29}

Strength of this study lies in a written questionnaire as well as interview of all the subjects and in the study of medical as well as non-medical students in the institute.

Limitation of this study is a small sample size as partly due to lack of cooperation and lack of willingness to share personal information and partly because of lesser number of

total students due to SGPGI being a super speciality hospital. The lack of willingness to share personal information was the reason for drop out of 30 study participants. This information can, however be extended to different super speciality centers and by subsequent investigators over years.

CONCLUSION

Headache is frequently seen among medical residents and non-medical students and it affects the quality of life of our work force.

REFERENCES

- [1] Silberstein SD. Migraine. *Lancet* 2004;363(9406):381-391.
- [2] Ho KH, Ong BK. A Community-based study of headache diagnosis and prevalence in Singapore. *Cephalalgia* 2003;23(1):6-13.
- [3] Rasmussen BK, Jensen R, Schroll M, et al. Epidemiology of headache in a general population--a prevalence study. *J Clin Epidemiol* 1991;44(11):1147-1157.
- [4] Aurangzeb S, Tariq M, Gul A, et al. Frequency of various types of headaches in postgraduate medical students of a tertiary care hospital. *Pak J Neurol Sci* 2008;3(1):1-5.
- [5] Kurt S, Kaplan Y. Epidemiological and clinical characteristics of headache in university students. *Clin Neurol Neurosurg* 2008;110(1):46-50.
- [6] Ojini FI, Okubadejo NU, Danesi MA. Prevalence and clinical characteristics of headache in medical students of the University of Lagos, Nigeria. *Cephalalgia* 2009;29(4):472-477.
- [7] Deleu D, Khan MA, Humaidan H, et al. Prevalence and clinical characteristics of headache in medical students in Oman. *Headache* 2001;41(8):798-804.
- [8] Amayo EO, Jowi JO, Njeru EK. Migraine headaches in a group of medical students at the Kenyatta National Hospital, Nairobi. *East Afr Med J* 1996;73(9):594-597.
- [9] Mitsikostas DD, Gatzonis S, Thomas A, et al. An epidemiological study of headaches among medical students in Athens. *Headache* 1996;36(9):561-564.
- [10] Ibrahim NK, Alotaibi AK, Alhazmi AM, et al. Prevalence, predictors and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. *Pak J Med Sci* 2017;33(2):270-275.
- [11] Noor T, Sajjad A, Asma A. Frequency, character and predisposing factor of headache among students of medical college of Karachi. *J Pak Med Assoc* 2016;66(2):159-164.
- [12] Menon B, Kinnera N. Prevalence and characteristics of migraine in medical students and its impact on their daily activities. *Ann Indian Acad Neurol* 2013;16(2):221-225.
- [13] Tolia BM. Migraine questionnaire. *Tolianeurology.com*. 30 March, 2013.
- [14] Irving T. Headache-Migraine questionnaire. *optfunction.com*. 30 March, 2013.
- [15] International Headache Society. The International Classification of Headache Disorders, 2nd Edition. *Cephalalgia* 2004;24 Suppl 1:9-160.
- [16] Amayo EO, Jowi JO, Njeru EK. Headache associated disability in medical students at the Kenyatta National Hospital, Nairobi. *East Afr Med J* 2002;79(10):519-523.
- [17] da Costa MZ, Soares CB, Heinisch LM, et al. Frequency of headache in the medical students of Santa Catarina's Federal University. *Headache* 2000;40(9):740-744.
- [18] Monteiro JM, Matos E, Calheiros JM. Headaches in medical school students. *Neuroepidemiology* 1994;13(3):103-107.
- [19] Almeida CM, Lima PA, Stabenow R, et al. Headache-related disability among medical students in Amazon: a cross-sectional study. *Arq Neuropsiquiatr* 2015;73(12):1009-1013.
- [20] Rasmussen BK, Jensen R, Schroll M, et al. Interrelations between migraine and tension-type headache in the general population. *Arch Neurol* 1992;49(9):914-918.
- [21] Holm JE, Lokken C, Myers TC. Migraine and stress: a daily examination of temporal relationships in women migraineurs. *Headache The Journal of Head and Face Pain* 1997;37(9):553-558.
- [22] Mollaoglu M. Trigger factors in migraine patients. *J Health Psychol* 2013;18(7):984-994.
- [23] Houle TT, Butschek RA, Turner DP, et al. Stress and sleep duration predict headache severity in chronic headache sufferers. *Pain* 2012;153(12):2432-2440.
- [24] Yadav RK, Kalita J, Misra UK. A study of triggers of migraine in India. *Pain Medicine* 2010;11(1):44-47.
- [25] Bhoi SK, Kalita J, Misra UK. Metabolic syndrome and insulin resistance in migraine. *J Headache Pain* 2012;13(4):321-326.
- [26] Lebedeva ER, Kobzeva NR, Gilev DV, et al. Psychosocial factors associated with migraine and tension-type headache in medical students. *Cephalalgia* 2017;37(13):1264-1271.
- [27] Inamorato E, Minatti-Hannuch SN, Zukerman E. The role of sleep in migraine attacks. *Arq Neuro-Psiquiatr* 1993;51(4):429-432.
- [28] Blau JN. Sleep deprivation headache. *Cephalalgia* 1990;10(4):157-160.
- [29] Birru EM, Abay Z, Abdelwuhab M, et al. Management of headache and associated factors among undergraduate medicine and health science students of University of Gondar, north west Ethiopia. *J Headache Pain* 2016;17:56.

Appendix 1.

Date:

Sl. No.

Headache Questionnaire

Name : _____ Age (yrs.) : _____

Sex (Male / Female): _____ CR No. _____

Educational Qualification: (MD Std. / DM Std. /Ph.D Std./PDF/ M.Ch std./ SR) _____

Subject: _____ Marital Status (Married / Unmarried): _____

Address: _____

Phone No. : _____ Mobile No. _____

1. Since when are you having headache?

2. How many headaches did you experience in the last 3 months?

3. How long do your headaches usually last? (<2 hrs. /3-4 hrs. /5-12 hrs. /12-24 hrs. /several days /1 wk or longer)

4. How painful are your headaches? (0-10)

5. Where are your headaches located? (Behind right eye /right temple / above right eyebrow/back of head on right / behind left eye/left temple / above left eyebrow /back of head on left /behind both eyes /both temples/above both eyebrows /back of head on both sides/whole head/

6. How old were you you're your headaches started?

7. How would you describe the type of headache? (throbbing /pressure /dull /tight band /other)

8. Do your headaches awaken you at night? (never / sometimes / often)

9. Do any of these occur during headache? (nausea / vomiting / diarrhea/ bothered by light / bothered by noise / blurred vision /coloured lights or stars or lines in front of eyes / loss of vision /seizures /weakness of arm or leg / loss of consciousness /speech difficulty /numbness or tingling /

10. Do any of these increase your headache? (stress / sunshine / change in weather / air travel / missed meals / fatigue / sexual activity / loud noise / lifting weights / smoke / dust / certain smells / perfumes / coughing, straining or bending over / certain foods like cheese, alcohol, chocolate, Chinese foods)

11. Do any of these decrease your headache? (rest / massage / exercise / pressing head / hot or cold compress / quiet and darkness / warm shower)

12. In case of female do your headaches change with following?
(menstrual periods / birth control pills / pregnancy / other hormonal drugs)

13. Do any of your family members have headache? If yes, who?

14. Did you ever have a head or neck injury requiring medical treatment? If yes, when?

15. Have you been diagnosed to have a health disorder? (high BP, angina, heart failure, irregular heart beat, stroke, TIA, peripheral vascular disease, liver or kidney disease, epilepsy)

16. List all past tests for headache?

17. List all past treatments for headache?

18. Are you taking any prescription drugs for headache? If so which and how many times in last month?
19. Are you taking any over the counter medicines for headache? If so which and how many times in last month?

20. How would you rate your general health in last month? (excellent, good, fair, poor)

21. How many days in last 3 months did you miss work due to headache?

22. How many days in last 3 months was your productivity at work reduced by half or more due to headache?

23. On how many days in last 3 months did you not do household work due to headache?

24. On how many days in last 3 months was your productivity in household work reduced to half or more due to headache?

25. On how many days in last 3 months did you miss family, social or leisure activities because of your headache?

26. Is headache more before night shifts, after night shifts or in between?
