



Prevalence of Different Types of Headache and Migraine Disability Assessment: A Cross Sectional Study among University Students

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Abstract

Objective: This study aims to assess the disability caused by migraine in students. It also evaluates the frequency of different types of headaches, their triggering factors, associated symptoms and warning symptoms.

Methodology: This was a cross-sectional descriptive study done for a year at various medical and non-medical institutes of Karachi. Total 805 students participated in this study. A self-administered questionnaire was structured and explained to the students. The questionnaire was filled under supervision of a vigilant trained researcher to assist students if they had any query. The questionnaire inquired about frequency, site, severity, triggering influences, associated complains and disability caused in daily activity by headache. The incomplete forms were excluded from the study. The analysis was done using SPSS version 17.

RESULTS: From 805 students, 798 experienced headaches (99.1%). Majority students were agonized by Probable Tension Type headache 235(29.4%) followed by probable Migraine with Aura in 124(15.4%). Sleep deprivation (66.2%) followed by mental stress, sound, heat and hunger were major aggravating-factors. Flashing of light in eye (10%) and tingling sensation in periphery (8%) were chief warning complains. Eye pain 346(43.3%)

and weakness 245(30.7%) were mostly associated with headache. Headache affected the educational performance of 274 students (35.4%) along with limiting their physical activity 439(55%). Grade –I (little or no disability) was found in 212(26.3%) while 102(12.7%) had grade-4 or severe disability. Migraine with aura was more disabling than without aura.

Conclusion: This study concluded that university students experience multiple headache related problems. Common types found to have were probable tension type headache and migraine. Sleep deprivation, stress and hunger commonly worsen the scenario. Migraine with aura cause disability for daily activities.

Keywords: headache, migraine, disability, tension type headache.

Introduction

Headache is a highly prevalent disabling affliction [1] with two main subtypes of Tension Type headache (TTH) and Migraine [2]. Scale of this global problem can be assessed by a meta- analysis which revealed prevalence of migraine to be 10% and that of TTH 38% [3]. Worldwide community based surveys demonstrated lifetime prevalence of migraine to be 12%-18%, which was both age and gender dependent [4] while data on 1year prevalence rate showed 7% prevalence of migraine and

that of TTH was 18% [5]. Asian countries reported a lower range of prevalence (1%-22%) [3] in contrast to higher percentage of 9.6%-24.6% in European countries [6]. Female population has been the usual sufferer of this disorder [7-9]. Migraine is a major disability inducing disease ranked by WHO amongst top 20 disabling disorders [10].

The target population of our study is university students who mostly encounter this troublesome condition [9]. Data on the epidemiology of migraine in nationwide studies is essential to apprehend the distribution and burden of the disease among university students. A survey based on Brazilian university students estimated prevalence of migraine to be 25% and TTH 32.9% [11]. A similar study on medical students elucidated 14.2% of the students with migraine while this percentage was still higher for TTH 44.2% [12]. International Headache Society (IHS) classifies migraine into migraine without aura (MWOA) and migraine with aura (MWA) discriminated primarily on the basis of "aura" symptoms. In MWA, headache is followed by typical aura symptoms of visual and sensory disturbances along with dysphasic speech [2]. The ubiquity of migraine did not fall low in Pakistan accounting for 7% of the students with MWA and 28% with MWOA [13].

Clinical features of migraine are studied well in many western countries but such documentation is lacking in Pakistan. Migraine was found to be associated with pulsatile pain (85%), light sensitivity (80%), sound sensitivity (76%), Nausea (73%), blurred vision (44%) and vomiting (29%) [14]. Certain triggers for migraine were reported by the sufferers. Stress was the major trigger in most cases (79.7%) followed by missing meals (57.3%) and weather (53.2%) [15]. Both clinical and population based surveys have supported migraine as a cause of absenteeism from work and low productivity in a

substantial proportion of population. It warrants special consideration among university going students as they need constant attention and good performance. Epidemiological data revealed that academic performance declined by 62.7% in university students suffering from migraine [12].

It adversely affects academic, social, family and leisure life [9]. Many researchers have used MIDAS Questionnaire to evaluate the impact of migraine [1, 16]. The MIDAS Questionnaire has shown to be highly reliable, accurate, consistent with patient symptoms and related to physicians' clinical judgment. [17] MIDAS is a convenient scoring system that requires less questions and provides valuable information on days lost from work. [18]

Despite of such enormity of disability, migraine is still under estimated by physicians and even the sufferers [11]. Our study is based on the estimation of disability induced by migraine in university population which is the first of its kind in Karachi. This study also intends to assess the frequency of different types of headache, their triggering factors, associated and warning symptoms accompanying these headaches in university students.

Materials And Methods

Study Design

This was a descriptive, cross-sectional survey done in medical and non-medical universities of Karachi including DOW Medical College(DMC), Sindh Medical College(SMC), NED university of engineering and Technology(NED) and Institute of Business Management(IOBM) conducted for a year from April 2014 to March 2015. The convenient sampling technique was used.

Study Population

Total 850 students from these universities were approached. Out of these, 805 students gave consent and

were included in this study. This was a questionnaire based study. A self-administered questionnaire was formed and distributed to be filled by students with the help of trained interviewer available for queries. Questionnaire inquired about socio-demographic status, headache type, frequency, severity, site, aggravating factors, associated symptoms, warning symptoms and disability in carrying out daily activities. Standardized questionnaire was based on International headache society and second part of questionnaire based on MIDAS. Headache-related disability was assessed by MIDAS Questionnaire. The students who filled incomplete questionnaire, had fever or any illness leading to headache were not included in the study.

Statistical Analysis

Data was analyzed in Software SPSS version 17. The Chi-square test was used to compare the nominal variables and ANOVA to compare the continuous variables. Post-hoc analysis (Bonferroni test) was performed to assess multiple comparisons between the different types of headaches considering the MIDAS value.

Results:

Most of the participants in our study were in the age group 19-21 years (59%). Out of 805 students, 444(52.7%) constituted females and 361(42.2%) constituted males. There was equal number of medical and non-medical students. Majority of the population belonged to middle class families.

In our study, 798 out of 805 students (99.1%) had headache. Majority of the participants reported 3 or more attacks in the last three months that lasted for 30 minutes to four hours without medication. Lack of sleep was the chief triggering factor of the headache. Others were mental stress (53.4%), sound (35%), heat (31.1%) and hunger (25.8%). Hunger and lack of sleep were the important triggers among females as shown in table 1.

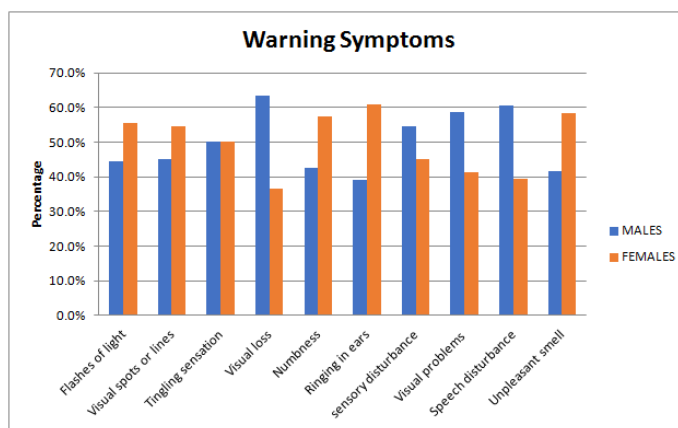
Table.1 Triggering Factors

Factor	Total	Males	Females	P value
Sound	282	110(39%)	171(61%)	.028*
Light	178	79(44.38%)	99(55.6%)	.857
Routine activities	93	36(38.7%)	57(61.3%)	.440
Lack of sleep	529	222(41.96%)	307(58.03%)	.027*
Mental stress	430	177(41.16%)	253(58.8%)	.048*
Reading	147	53(36.05%)	94(63.94%)	.146
Certain smells	130	49(37.7%)	81(62.3%)	.196
Certain foods	47	20(42.55%)	27(57.44%)	.926
Hunger/fasting	208	71(34.13%)	137(65.86%)	.001*
Travel	166	57(34.33%)	109(65.66%)	.033*
Heat	251	112(44.6%)	139(55.3%)	.783
Weather change	108	49(45.3%)	59(54.6%)	.908

Where p value <0.05 is considered significant.

In 179(22.4%) of the participants, headache was generalized with a dull/constant low-grade character of pain while some reported a mix pattern. Majority said that their headache was relieved by sleep while in some taking tea/caffeine was the ultimate relieving factor. There were no warning symptoms before headache in 505(63.2%) of the students while some said they had a feeling of flashes of light that lasted for 5 to 30 minutes before they had an attack of headache. Ringing in ears 51(6.3%) was the prominent warning symptom among females 31(60.8%) as shown in figure 1.

Figure 1. Warning Symptoms of Headache.



Most of the participants had associated symptoms along with headache which were usually eye pain 346(43.3%), weakness 245(30.7%), dizziness 210(26.3%) and nausea 190(23.7%). Nausea and weakness were more associated with females as shown in table 2. Majority of the participants 274(35.4%) said that headache “sometimes”

affected their educational performance while in 439(55%) of the student’s headache limited their routine physical activities. Family history was seen in 273(34.2%).

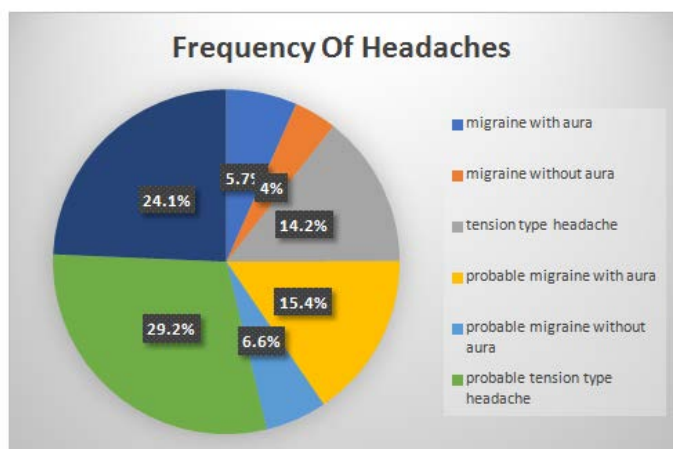
Table 2: Associated Symptoms of Headache

ASSOCIATED SYMPTOMS	Total	Males	Females	p value
Dizziness	183	75(40.9%)	108(59.01%)	.192
Nausea	165	54(32.7%)	111(67.3%)	.000*
Vomiting	79	33(41.8%)	46(58.2%)	.644
Neck pain	174	70(40.2%)	104(59.8%)	.136
Numbness	42	20(47.6%)	22(52.4%)	.955
Tingling sensation	30	13(43.33%)	17(56.7%)	.905
Weakness	214	83(38.8%)	130(61.2%)	.011*
Eye pain	307	144(46.9%)	163(53.1%)	.790
Scalp tenderness	37	13(35.1%)	24(64.9%)	.361
Vision change	54	22(40.74%)	32(59.2%)	.662
Double vision	34	15(44.11%)	19(55.88%)	.940
Ringling in ears	44	19(43.18%)	25(56.8%)	.876
others	17	10(58.8%)	7(41.2%)	.572

Where p value <0.05 is considered significant.

MIDAS questionnaire addressed the impact of migraine. Out of 798 headache sufferers, 212(26.3%) had Grade –I (little or no disability) i.e. they had to miss 1-5 days/month due to headache whereas 102(12.7%) had grade-4 or severe disability (21 or more workdays lost). A larger part of the students 235(29.4%) suffered Probable Tension Type headache while 124(15.4%) had probable Migraine with Aura and 194(24.1%) had unclassified other types of headache. Figure 2.

Figure 2. Frequency of Headache



We compared disability caused by different types of headaches using ANOVA. Migraine with aura was more disabling than migraine without aura (p value .037), tension type headache (p value .000) and other unclassified headaches (p value .000) as shown in table 3.

Table 3: MIDAS Disability groups

(I) types of headache short	(J) Types of headache short	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
migraine with aura	migraine without aura	.729*	0.271	0.037	0.03	1.43
	tension-type headache	.831*	0.200	0.000	0.32	1.35
	other unclassified headache	.776*	0.168	0.000	0.34	1.21
migraine without aura	migraine with aura	-.729*	0.271	0.037	-1.43	-0.03
	tension-type headache	0.101	0.252	0.978	-0.55	0.75
	other unclassified headache	0.047	0.227	0.997	-0.54	0.63
tension-type headache	migraine with aura	-.831*	0.200	0.000	-1.35	-0.32
	migraine without aura	-0.101	0.252	0.978	-0.75	0.55
	other unclassified headache	-0.055	0.134	0.977	-0.40	0.29
other unclassified headache	migraine with aura	-.776*	0.168	0.000	-1.21	-0.34
	migraine without aura	-0.047	0.227	0.997	-0.63	0.54
	tension-type headache	0.055	0.134	0.977	-0.29	0.40

The mean difference is significant at the 0.05 level.

Discussion

This cross-sectional study estimated the prevalence of different types of headaches among the university students of Karachi. It showed that 10.6% of the students suffered from migraine. A study done in Lahore (Punjab) by Bokhari et al [13] reported the incidence rate of migraine to be 34.8% in college going girls of Lahore. Another survey in India reported prevalence of migraine to be 42% [1] Study done in US showed crude prevalence of migraine to be 12.35% [14]. Olajumoke Oshinaike et al had documented a higher rate of 18.9% [19] whilst prevalence of migraine estimated in another study was 7.2% [9]. In our study, Migraine with aura was found in 53 (6.6%) of the participants and migraine without aura in 32 (4.0%) of the participants. In another study, the frequency of MWA was 11.0% and 23.1% were MWOA in female population [20] Shahrakai et al reported migraine without aura 4.29% and migraine with aura 2.86% [21]. It is evident that there is a variation in the prevalence of migraine among different regions around the globe. This may be due to different socioeconomic,

climatic, nutrition's habits or any stressor which could prompt migraine headache factors. The estimated TTH prevalence of 14.3% is much lower than reported previously 44.2% in Iran [12] and 32.9% in Brazil [11].

Headache experienced by majority of our study population was generalized dull aching character. Other characteristics of pain that were reported in the past studies were sharp stabbing type [22], pulsatile or throbbing type [1, 14]. There was no warning symptom before headache in 63.5% of the students while 26.9% said that they had visual problems that lasted for 5-30 minutes. Ringing in ears was the prominent symptom among females. Other warning symptoms included altered or tingling sensation which was seen in 3.3% of students. In our study family history of migraine was seen in 34.2% students, while previous studies report it to be 59%[16] ,10%[12] ,20.16%[22] ,68.57%[23]. A strong genetic basis of migraine is evident from this.

In addition to pain, associated symptoms were common. Eye pain (47.3%), weakness (30.7%), dizziness (26.3%) and neck pain (24.6%) were the most common accompanying symptoms. Other symptoms experienced were photophobia, phonophobia, nausea and vomiting [1, 22]. These accompanying symptoms increase the disability of the patient and are usually more problem some for the patient. These associated symptoms, known as migraine variant, when more prominent than the headache, it makes the diagnosis difficult and delay the Management.

Among our research subject, 107(13.8%) students believed that headaches "always" interfered their studies, 119(15.4%) said headaches "usually" interfered their academic performance, 274 (35.4%) reported that headaches "sometimes" affected their educational performance and 183(23.6%) of the subjects expressed that "rarely" they felt that headaches affected their studies.

The remaining 92(11.9%) students reported that headaches "never" affected their educational performance. Our findings are consistent with Bindu Mennon according to which College absenteeism was documented in 22% students with days ranging between 1 and 20 days, while 23% had decreased productivity of their work by half [1]. Headache limited the routine physical activity in 443(57.1%) of the students. Another study done showed 62.7% decrease in productivity [9]. Study done in Canada reported that regular activities were limited in 78% of migraine attacks and 38% of tension-type headaches [24]. This reveals that migraine adversely affects the life of the sufferers.

MIDAS questionnaire addressed the impact of migraine. Migraine with aura was more disabling than migraine without aura, tension type headache and other unclassified headaches with significant p value=0 .000. One study reported that the most common headache was tension type (77.6%) in general population, followed by migraine (61.8%). Majority cases of migraine were seen in outpatient clinic (79.8%), while tension type was less common in these settings 20.4% [25]. It is because TTH is less debilitating than migraine, so it was as expected [26]. Another study in consistent with our study stated that full time employment was less likely for patients with continuous migraine headache and they are more prone to occupational disabilities. These patients also suffer more risk of having anxiety, depression, cardiovascular disease and stroke [27].

The asset of this study is that frequency and various associated symptoms of headache have been studied. However, this study is not free of biases. There may be recall bias from students participating in this study. There may also be difference in severity and nature of headache based on student's perception. We however believe that the objectives were largely achieved, though a

community-based study will be needed to validate our findings.

Conclusion

This study concludes that university students experience probable tension type headache followed by migraine. This can be due to over stress of academic performance on students irrespective of field of study. Migraine without aura was less destabilizing than with aura which affected daily activity of students. Eye pain, nausea, dizziness and weakness were most frequent complains associated with headache.

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