

Original Article

Prevalence and Clinical Characteristics of Headaches among Undergraduate Students in Three Tertiary Institutions in Ilorin, Nigeria

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ABSTRACT

Objective: Headache is a common chronic neurologic disorder with huge economic and psychosocial impact. In comparison with other neurological disorders, there is limited data on primary headache, especially from sub-Saharan Africa. This study was done to fill in the gap and provide recent information on headache among Nigerian undergraduate students. **Methodology:** Quota sampling was used to select students from three tertiary educational institutions within Ilorin, the capital of Kwara state. Two-stage self-administered questionnaires developed from the guideline of the International Society of Headache were used to harvest information. **Results:** A total of 1500 students participated in the study. The mean age of the students was 20.9 ± 3.1 years, with male:female ratio of 1.6:1. A total of 356 students have frequent headache within previous 1 year, given the headache frequency of 23.7%. Fifty-three students (3.5%) had headaches on almost daily basis, 84 (5.6%) had ≥ 4 attacks/week, 145 (9.7%) had $\leq 2-3$ attacks/month, and 123 (8.2%) had 1-3 attacks every 3 months. Close to 75% indicated that it limits their daily activity frequently. One hundred and eighty-seven (12.5%) students fulfilled the criteria for tension-type headache, 36 (2.4%) for migraine headache, and 133 (8.9%) had nonclassified headaches. The most frequent headache-associated symptoms are photophobia – 100 students (6.7%), phonophobia – 159 students (10.6%), while 62 students (4.1%) had nausea and vomiting. None of the students had seen a physician for proper headache diagnosis. Majority (90.2%) used none prescription over-the-counter analgesia (acetaminophen) for symptomatic treatment of their aches. **Conclusion:** Headache is a common complaint among Nigerian undergraduate students and it limits the daily activity of majority of the sufferers. Students need proper education regarding treatment to alleviate their suffering and forestall complication, especially those associated with analgesic overuse.

KEYWORDS: Headache, migraine, prevalence, tension-type headache, undergraduates

Date of Acceptance:
18-May-2017

INTRODUCTION

Headache is one of the leading complaints seen in medical outpatient clinics and it is responsible for several visitations to the neurologist and general medical practitioners.^[1] It accounts for close to 4% of doctors' total appointments per year.^[2] The burden of recurrent headaches is huge on the individual and the society at large.^[3-5] Primary headache accounts for a significant number of absenteeism from work and equally a major

causes of years lived with disability. Headache has been reported to affect sufferer's family, love and sex life, and almost it affects work^[6,7] and accounts for avoidance or outright cancelation of social and family activities of proband of migraine patients.^[8]

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How to cite this article: Sanya EO, Desalu OO, Aderibigbe SA, Kolo PM, Mustapha AF, Adeyanju OA. Prevalence and clinical characteristics of headaches among undergraduate students in three tertiary institutions in Ilorin, Nigeria. Niger J Clin Pract 2017;20:1411-6.

Access this article online	
Quick Response Code:	Website: www.njcponline.com
	DOI: 10.4103/njcp.njcp_383_16

Available evidences seem to suggest that a majority of people with primary headache resides in the low- and middle-income countries.^[9] However, only limited numbers of publications on headaches are from the low-income countries, especially Africa; this has resulted in gap in knowledge of the impact of headache from the region. Most of the available information on headaches are from the high-income countries^[10] and they seem to suggest wide variation in prevalence rates. Presently, there are limited population-based studies regarding the epidemiology and experiences of headache in the developing countries, especially sub-Saharan Africa.^[9-11] Unfortunately, many of the factors that can influence headache experience such as social, financial, and cultural factors are very common in resource-poor settings.^[11,12] There is a possibility that headache sufferers will experience greater impact from the disease in developing countries than in the developed ones.

There is a huge advantage in studying headache characteristics and frequency among a well-defined population which university students provide. Most of the existing population-based studies on headache involving young adults have been on medical students with certain peculiar characteristics different from other students in the university.^[8] Therefore, looking at headache profile among nonmedical undergraduates is desirable. This study was carried out among students from different faculties from three tertiary institutions within Ilorin metropolis of Kwara state, Nigeria, to determine the prevalence and headache characteristics.

METHODOLOGY

Study design

This was a descriptive cross-sectional study carried out among students in three tertiary educational institutions within Ilorin, the capital of Kwara state in the Middle Belt region of Nigeria. The participating institutions were University of Ilorin, Kwara State University, and Kwara State Polytechnic. Majority of the students reside in hostels within the institution. The study was conducted between June and August 2014.

Participants' selection

The students were approached by trained interviewers and informed about the study. Consent was obtained from each student and those who were willing were recruited to participate in the study. Quota sampling was used to select the study participants. This sampling method was used to ensure equal and proportionate representation of students irrespective of institution, faculty, and year of study. This is because student population and sociodemographic variables (e.g., age group, sex, year, and course of study) varied greatly

among the three universities due to enrollment pattern as they have different ownerships (federal, state, and private). Using quota sampling thus improves the representation of each stratum within the population, ensuring that there is over- or underrepresentation. At the first stage, the number of students per institution was allotted based on the school's entire students' population and enrollment. In the second stage, the students in each institution were divided into subgroups using faculty and course of study. The third stage involved subgrouping students based on the year of study population and sex. The students who declined to participate were excluded from the study. The questionnaires are self-administered and were given to the willing participants in the lecture theaters while waiting for lecturer or at relaxation halls.

Survey instruments

We used two phases to administer the questionnaires to the participating students. The first phase used survey instrument that specifically requested about students' sociodemographic variables and occurrence of frequent headaches in students (>4/years). During the second phase, the survey instruments (questionnaire) consist of headache-specific question developed from the guideline of the International Society of Headache and had been used in previous studies.^[13-15] It contains information on headache frequency and characteristic, its severity and family history in the first-degree relative. It also requested information on the impact of headache on students' daily physical activity, whether they have seen a doctor on account of the headaches and treatment/medications being used.

Data analysis

The collected data were inputted into a computer and analyzed using Statistical Package for Social Sciences (SPSS) Computer Software Version 21 (SPSS Inc., Chicago, IL, USA). Frequency tables were generated for the categorical variables, and Chi-square test was used to determine the level of significance between two or more variables. The mean was used to determine the measure of central tendency of the continuous variables. $P < 0.05$ was considered statistically significant.

Case definition

Migraine, tension-type headache (TTH), and other subtypes of headaches were defined based on criteria recommended by the International Headache Society (IHS) Guideline.^[13,14]

RESULTS

Demographic characteristics

Out of the 1600 questionnaires distributed, a total of 1500 were completed and returned, given a response

rate of 93.4%. The mean age of the respondents was 20.9 ± 3.1 years. Seven hundred and ninety-one respondents were males (52.7%) and 709 were females (47.3%). Six hundred and thirteen (40.9%) of them were in their 1st year of study. A total of 127 (35.6%) of the undergraduates gave a family history of migraine [Table 1].

Table 1: Demographic characteristics (n=1500)

Characteristics	Frequency (%)
Mean age (mean±SD)	20.9±3.1 years
Sex	
Male	791 (52.7)
Female	709 (47.3)
Marital status	
Single	145 (9.7)
Married	44 (2.9)
Divorce	1 (0.1)
Family history of headache	127 (8.5)
Year of study	
1	613 (40.9)
2	439 (29.3)
3	264 (17.6)
≥4	184 (11.3)
Smoking	52 (3.5)
Alcohol	154 (10.3)
Recurrent headaches in 1 year	356 (23.8)

SD=Standard deviation

Table 2: Headache characteristics (n=356)

Characteristics	Frequency (%)
Location	
Unilateral	58 (16.3)
Bilateral	33 (9.3)
Frontal	128 (40.0)
Occipital	5 (1.4)
Severity	
Mild	172 (48.3)
Moderate	107 (30.1)
Severe	46 (12.9)
Limitation of daily activities	
Yes	263 (73.9)
No	93 (26.1)
Frequency	
0-1 attack/3 months	123 (34.6)
2-4 attacks/month	145 (40.7)
≥Daily	84 (23.6)
Nausea/vomiting	62 (17.4)
Photophobia	100 (28.1)
Phonophobia	159 (44.7)
Drugs used for headache	
Acetaminophen	321 (90.2)
NSAID	10 (2.8)
Herbs	2 (0.6)

NSAID=Nonsteroidal anti-inflammatory drug

Headache characteristics

The result showed that 356 of the participants (23.8%) reported recurrent headaches within 1 year. Fifty-three students (3.5%) experienced headache almost on daily basis, 84 (5.6%) had headache four or more times per week, 145 (9.7%) had headaches 2–3 times in a month while 123 (8.2%) had headaches 1–3 times in 3 months. In terms of severity, 172 (11.5%) classified their headaches as mild, 107 (7.1%) classified their headaches as moderate while 46 (3.1%) had severe headache. Fifty-eight students (3.9%) reported their headache to be unilateral in location, 33 (2.2%) had bilateral headaches, and 128 (8.5%) had frontal headaches. One hundred students (6.7%) had their headache associated with photophobia, 159 students (10.6%) had phonophobia, while 62 (4.1%) had nausea and vomiting. A total of 263 of the 356 students who experienced frequent headaches had their daily physical and school activities limited by headache [Table 2].

Table 3: Comparison of some clinical characteristics by headache subtypes

Characteristics	TTH (%)	Migraine (%)	Other headache (%)	P
Sex				
Women	108 (15.2)	24 (3.4)	87 (0.31)	
Men	79 (10.8)	12 (1.5)	46 (5.81)	
Age group (years)				
≤20 (208)	113 (54.3)	25 (12.0)	70 (33.7)	0.08
21-25 (128)	65 (50.8)	7 (5.5)	56 (43.8)	
26-30 (16)	6 (37.5)	4 (25.0)	6 (37.5)	
31-35 (4)	3 (75.0)	0	1 (25.5)	
Severity				
Mild (204)	187 (91.2)	4 (2.0)	13 (3.7)	0.001
Moderate to severe (152)	0	32 (88.9)	120 (78.9)	

TTH=Tension-type headache

Table 4: Comparison of headache subtypes, frequency, and severity among grades of undergraduates

	100	200	300	≥400	P
Prevalence					
Tension HA (187)	94	54	25	14	0.27
Migraine (36)	22	5	6	3	0.26
Others (133)	41	30	26	36	0.31
Severity					
Mild (172)	86	48	23	15	0.87
Moderate (106)	50	25	18	14	
Severe (46)	21	13	7	5	
Frequency					
0-1/3 months	59	38	14	12	0.67
2-4/month	68	33	26	18	
Daily	29	14	8	3	

HA=Headache

Headache subtypes

Thirty-six respondents (2.4%) fulfilled criteria for migraine headache, 187 (12.5%) for TTH, and 133 (8.9%) had nonclassified headaches. Two-third of the students with migrainous headaches were female and one-third were male. Similarly, more females compared to males had TTH (57.5% vs. 42.5%). Based on age, TTH was the most prevalent head subtype reported by 60.4% of students below 21 years followed by migrainous headache in 69.5% of students. The other headache types by their age and sex distribution are shown in Table 3. Majority of the students (90.2%) used acetaminophen to treat their headaches while 2.8% used other types of nonsteroidal analgesics for their pain. None of the students had seen a physician for a proper diagnosis of their headache; similarly, none was on antimigraine prophylactic medications.

DISCUSSION

This cross-sectional study on primary headaches among undergraduate students found 1-year prevalence of all-type headache to be 23.8%. The prevalence of the subtypes showed TTH to be the most common (12.5%), followed by migraine (2.4%), and unclassified headache (8.9%). Based on headache severity, close to 11.5% had mild headache, 7.1% had moderate headache, and 3.1% had severe headache [Table 4]. Female respondents had higher prevalence of primary headache in this study similar to what had been previously reported and this has been attributed to the female sex hormone estrogen.^[4,7]

The prevalence of headache in this study falls within the wide range of 28%–92.3% reported in previous publication.^[3] However, this value is much lower than 46.0% reported among medical students in Lagos^[15] and 54.0% among undergraduates in University of Ilorin three decades earlier.^[12] Outside Nigeria, a much higher prevalence of 74.5% had been documented among Brazilian undergraduates.^[16] It is possible that the study design and small population sizes in previous studies with small power of study could have accounted for the wide discrepancy with ours.

Our result also showed that TTH was the most common primary headache subtype, a finding similar to what had been documented those among children and adults from other parts of the world.^[8,17,18] We found migraine prevalence in this study to be lower than 6.4% and 9.6% that had been previously documented among medical students in western^[15] and South-South^[11] regions of Nigeria, respectively. When compared with values from other countries, ours is higher than 2.4% reported from Greece.^[17] However,

much higher prevalence rates exist in literature such as 27.9% among Kuwaitis medical students,^[19] and 39.6% from Athens.^[20] The rigorous and strenuous medical program could possibly account for the higher prevalence of headaches among medical students. It is equally possible that recall bias due to background medical knowledge could explain the high headache prevalence in medical students. The result of this study did not show any relationship between headache subtypes, frequency, and severity with students' faculty and level of study.

On the role of sex and headaches, several studies have found women to be significantly affected by primary headaches than men,^[4,10,16,21] and the findings of our study are in tandem with this view. Our study found female-to-male prevalence ratio for all-type headache to be 1.6:1 and the sex prevalence for TTH to be 15.2% among women and 10.9% among men. For migraine, the prevalence was 3.4% in women and 1.5% in men. The findings of Ojini *et al.* from Southwestern Nigeria showed similar sex prevalence for TTH between men and women, while migraine was three times more common in women than men.^[16] From the USA, Lipton and Stewart found migraine prevalence in women to be 8.8% and 3.9% in men.^[10] Despite the several reasons that have been given for the higher rates of headache among women, well-established factors include increase in estradiol level during menstruation, difference in response to stress and pain as well as genetic predisposition.^[22,23]

We found positive family history of headache to be 35.7% among this cross section of undergraduate Nigerian students, which is higher than 22.0% reported earlier from Southwestern Nigeria.^[15] Nearly, one-third of these students with TTH (31.6%) had positive family history of headaches compared to 58.3% in those with migraine. In sharp contrast, higher proportion of Brazilian undergraduate students (79.9%) reported a positive family history of headache.^[17] It is plausible that the differences resulted from the fact that students might be unaware of headache in some family members since headache attacks may not be dramatic in presentation.

Only 3.5% of undergraduate students in the studies indicated smoking cigarette and 10.3% took alcohol regularly. Although some studies have suggested that alcohol and smoking are risk factors for headache among students,^[24] the inference from our result is that headache frequency is unlikely to have any relationship with regular intake of alcohol and cigarette among Nigerian students. Similarly, none of these students have seen a physician on account of their headache

either for proper diagnosis or treatment, with most of them (90.2%) indicated to have used simple analgesics such as acetaminophen for acute treatment of the aches. This observation is similar to what had been reported in some earlier studies,^[11,15] where only 4.6% of students were reported to have sought medical assistance for their headache and 68.2% used nonprescription drugs.^[26] This behavior is important because prolonged use of analgesia for frequent headaches has been variously reported to predispose to the development of analgesic-induced headache, which will further worsen headache severity and frequency.^[25]

Observation from our study is that the number of students who participated in the study decreased with higher level in schools. Part of the reasons for this is the fact that greater number of students who decline to participate in study where those in the senior levels. The reason given for their disinterest in study is the busy school schedule.

Part of the limitations of this study is the semi-structure pattern of survey instrument which has limited option and restricted use of words for answers. Also, being a questionnaire-based study, some students could have given answers based on what they perceive the research might be interested in. Part of the strengths of this study is its relatively large sample size which increases the study power.

CONCLUSION

The result of this cross-sectional study has demonstrated that headache is a frequent complaint among Nigerian undergraduates similar to what had been obtained elsewhere. Physical and school activities were reported to be affected by headaches in the sufferers. Use of alcohol and cigarette smoking may not be the strong risk factors for headache among these students. They need to be assisted on how to receive diagnosis and treatment. This will go a long way to reduce their suffering and possibly prevent complications that could arise from frequent analgesic use.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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