A survey of headache among nursing students in a Nigerian university

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Abstract

Objectives: Headache is a common neurological disorder associated with a significant disease burden particularly among young people. Data on headache among undergraduate students in Nigeria are still scanty. The main objectives were to determine the 1-year prevalence of headache and headache subtypes among a cohort of nursing undergraduate students, to identify trigger factors and assess mode of treatment of acute attacks among the affected students.

Methods: This was a cross– sectional descriptive study carried out over a 2-month period from September to October 2011 among nursing students of the Ladoke Akintola University of Technology, Osogbo Nigeria, who had recurrent headaches (unrelated to febrile illness or any underlying disease) in the past one year. Data were collected using a self – administered questionnaire. Demographic variables, age of onset of headache, past medical, family and social histories were obtained.

Results: A total of 213 out of 289 nursing students returned completed questionnaires giving a participation rate of 73.7%. Headache was reported by 90 students (42.3%) with higher prevalence in men (44.8%) compared to women (41.8%). Migraine headache was the commonest headache subtype constituting 26.8% .Common triggers of headache attacks included sleep deprivation (65.6%), physical and mental fatigue (53.3%). Only 8.9% of students affected by headache sought medical assistance during acute attack.

Conclusions: Our study found a relatively high proportion of migraine headache among nursing students with headache in this Nigerian University. Awareness of appropriate prophylactic and therapeutic medications was dismally low.

Keywords: Prevalence, Headache, Nursing students & trigger factors

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Une enquête sur les maux de tête parmi les étudiants en soins infirmiers dans une université Nigériane

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Resume

Objectifs: Le mal de tête est un trouble neurologique courant associé à une charge de morbidité importante, en particulier chez les jeunes. Les données sur les maux de tête chez les étudiants de premier cycle au Nigéria sont encore rares. Les principaux objectifs étaient de déterminer la prévalence sur un an des maux de tête et des sous-types de maux de tête parmi une cohorte d'étudiants de premier cycle en sciences infirmières, d'identifier les facteurs déclencheurs et d'évaluer le mode de traitement des crises aiguës chez les étudiants affectés.

Méthodes: Il s'agit d'une étude descriptive transversale menée sur une période de 2 mois, de septembre à octobre 2011, auprès d'étudiants en sciences infirmières de l'Université de technologie Ladoke Akintola, Osogbo Nigeria, présentant des maux de tête récurrents (non liés à une maladie fébrile ou à une maladie sous-jacente).) au cours de la dernière année. Les données ont été collectées à l'aide d'un questionnaire auto-administré. Les variables démographiques, l'âge d'apparition du mal de tête, les antécédents médicaux, familiaux et sociaux ont été obtenus.

Résultats: Au total, 213 étudiants infirmiers sur 289 ont retourné des questionnaires remplis, ce qui donne un taux de participation de 73,7%. Des maux de tête ont été signalés par 90 étudiants (42,3%) avec une prévalence plus élevée chez les hommes (44,8%) par rapport aux femmes (41,8%). La migraine était le sous-type de maux de tête le plus courant, constituant 26,8%. Les déclencheurs communs des crises de maux de tête comprenaient le manque de sommeil (65,6%), la fatigue physique et mentale (53,3%). Seulement 8,9% des étudiants touchés par un mal de tête ont demandé une assistance médicale lors d'une crise aiguë.

Conclusions: Notre étude a révélé une proportion relativement élevée de céphalées migraineuses chez les étudiants en soins infirmiers souffrant de maux de tête dans cette université nigériane. La prise de conscience des médicaments prophylactiques et thérapeutiques appropriés était extrêmement faible.

Mots-clés: Prévalence, maux de tête, étudiants en soins infirmiers et facteurs déclenchants

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INTRODUCTION

Based on the report of the Global Burden of Disease Study 2013, headache disorders rank third among the global causes of disability, measured in years of life lost to disability (YLDs) (1). The World Health Organization (WHO) estimated the prevalence of current headache disorder (i.e. symptomatic at least once within the previous year) to be about 50%.Between half to three quarters of adults aged 18-65 years in the world have had headache in the previous year and among those individuals, 30% or more have reported migraine. Headache occurring on 15 or more days every month affects 1.7-4% of the world's adult population (2).

Headache is a common neurological disorder found among university students with prevalence ranging between 46% and 96.8% (3, 4, 5). Several studies have assessed the burden of primary headache among adolescents and young adults especially in Western Countries(6).The German DMKG headache study which assessed headache prevalence among adolescents found prevalence of 69.4% with 4.4 % of the adolescents suffering from frequent headache(6). Headache was found to be prevalent among first year undergraduates in Turkey (7). Out of the 765 participants, 60% reported one or more headache episodes in the previous year and it was more prevalent among women (71.5%) compared to men (48.7%). Another study done among 588 medical students (318 men and 270 women) in Athens (8) found chronic headache prevalence of 38% among men and 50.3% among women.

In Africa, Adokounou et al (9) found an overall prevalence of migraine of 14.2% among students in Benin Republic. An Ethiopian study reported a migraine prevalence of 9.8% with a higher frequency among women (14.3%) than men (6.9%) (4). In Nigeria. Ojini et al (3) studied a 1-year prevalence, clinical features and mode of treatment of headache among medical students of the University of Lagos, Nigeria. Headache prevalence was found to be 46.0% and was significantly higher in women than in men (62.8% vs. 34.). Ogunyemi (10) reported chronic headache among 61% of 448 female respondents and 69% of 1308 male students at the University of Ilorin in the middle belt of the country. Ofovwe et al (11) reported a 13.5% prevalence of migraine among secondary school students in Nigeria. It negatively impacts the academic, family, social and leisure activities of these students resulting in reduced productivity and academic performance (12).

While population- based studies on headache in Nigeria are scarce (13), only few studies on specific groups like medical students, health workers and secondary school students are available (3,11,14,15). To the best of the authors' knowledge, none is available in Osun State South west Nigeria. Data on headache from both the general population and specific subgroups provide information on the burden, distribution, and trigger factors of the disease which in turn is necessary for planning effective healthcare policy on headache.

Our study aimed at determining the 1-year prevalence of headache, the frequency of the clinical subtypes of headache as defined by the International Society of Headache III Beta (16), trigger factors and modes of treatment among undergraduate nursing students of Ladoke Akintola University of Technology.

MATERIALS AND METHODS

This study was a cross-sectional descriptive study carried out over a period of two months from 1st of September to 31st of October 2011, among nursing students of the College of Health Sciences of the Ladoke Akintola University of Technology, Osogbo. This comprised the clinical students in their third to fifth years of study.

The following formula was used to calculate the sample size for the study; $n=Z^2P(1-P)/d^2$ Where n is the sample size, Z corresponds to level of confidence, P is expected prevalence which was obtained from a previous headache prevalence study conducted by researchers in Nigeria(3), and d is precision (corresponding to effect size).Based on this formula, given that P is 46%(0.46) ,Z=1.96 and d= 0.05 then N=Sample size number will be $N=1.96^2 \times 0.46 (1-0.46)/0.05^2 = 381$. A convenience sampling method was therefore utilized to enroll prospective participants in view of the limited size of the studied population.

A well-structured questionnaire was developed to get information on demography, the 1- year prevalence of headache, clinical characteristics, trigger factors and modes of treatment. The questionnaire was pre-tested among the medical students of the same institution. The sensitivity and specificity of the questionnaire was further tested by conducting face- to- face interviews to corroborate diagnosis made from the questionnaires and it yielded a positive predictive value of 95% and negative predictive value of 100%.

The questionnaires were given to the participants during working hours in their

classrooms in the college, the goals of the research were fully explained to the students by the principal investigator and completed questionnaires were collected on the spot. The principal investigator was always present in the classrooms whenever the questionnaires were being filled for any clarification. Students who were unwilling to participate and those absent from school were excluded from the study.

The diagnosis of migraine, tension-type headache and cluster headache were based on International Classification of Headache Disorders (ICHD)-3Beta (11). Data analyses were carried out using Statistical Package for Social Sciences (SPSS) version 16.0 (SPSS Chicago Inc, IL, USA). The prevalence of headaches and the frequencies of the various headache subtypes, among the students were compared. Proportions were compared by gender and headache subtype using x^2 test, level of significance was set at P-value less than 0.05. The study was carried out in accordance with the code of ethics of the World Medical Association (Declaration of Helsinki) for experiments involving human beings. Informed consent was also obtained from all the study participants.

RESULTS

Two hundred and thirteen out of the 289 nursing students that received the questionnaires took part in the survey giving a participation rate of 73.7%. The 213 students who completed the questionnaires comprised 184 (86.4%) females and 29 (13.6%) males. Majority of the respondents were Yoruba 206(96.7%), the main ethnic group in this geographical space. Igbo and Igala students comprised the remainder contributing to 5(2.4%) and 2(0.9%) of participants respectively. The socio-demographic variables of participants are shown in Table 1. Of those surveyed, 90 respondents had suffered at least one episode of headache in the past one year, giving a one-year prevalence of 42.2%. Though more female (77) suffered headache, the prevalence was higher among the male population (44.8%) compared to female (41.8%). This was however not statistically significant (See Table 2). The mean age of students who had experienced at least one headache attack within the previous 1-year was 24±4.8 years. It was 23±2.1 and 23± 2.7 years respectively among the male and female students with headache (Table 2).

The overall prevalence of migraine headache was 26.8% and was slightly higher in male (27.1%) than female (26.6%). The overall

prevalence of tension-type headache and cluster headache were 15% and 0.5%. Tension-type headache was commoner in women (15.2%) while cluster was found in one male respondent. Migraine without aura (MO) comprised 21.1%. Two subtypes of this group (MO); pure menstrual migraine and menstrually related migraine exclusively found in female comprised 2.2% and 13.0% respectively.

Migraine with aura (MA) was significantly (P< 0.01 more prevalent among the male students (27.6%) compared to the female (2.2%). Twelve (13.3%) of headache sufferers had history of refractive error. Family history of headache was present in 6 students (6.7%), who all had migraine headache. The most common trigger factors of headache attacks included sleep deprivation (65.6. %) and mental/physical fatigue. This is illustrated in Table 3.

Only 8.9% of respondents in the headache group sought medical care, 66.7% self-medicated, while 33.3% treated their headaches with bed rest as shown in table 4. Majority used paracetamol (84.4%) while 25.6% and 16.7% used ergot derivatives and non-steroidal anti-inflammatory drugs respectively during attacks of headache. Only 1 (1.1%) was on preventive medication (Amitriptyline). This is shown in Table 5.

DISCUSSION

A small number of studies have been carried out in Nigeria regarding the prevalence of headache (3, 8-10). None has focused its searchlights on a predominantly female cohort like in our study, more so considering menstrual migraine. In this survey, headache was found to be relatively common among nursing students at the Ladoke Akintola University, Nigeria with an overall prevalence of 42.3%. This is comparable to the study done by Ojini et al who found an overall prevalence of 46% among medical students at the University of Lagos (3). While Oshinaike et al (15) found a lower prevalence of 39.3% among staff of a Teaching hospital in Nigeria, Ofovwe et al reported prevalence of 19.5% among secondary school students in Benin City (11). A higher prevalence of 88% was however reported by Ikenna Onwuekwe et al (14) among hospital workers in Southeast Nigeria. Theirs was a six-month prevalence so a better recall rate may justify the higher value observed in the study.

A three-month prevalence of 74.5% was reported by Andrusbal et al (17), a six-month prevalence of 58.7% by Ghorbani et al (18) and

one- year prevalence of 67.22% by Birru (4).

In this study, the gender specific prevalence of headache was 44.8% for male and 41.9% for female but was not statistically significant. This might not be unconnected to the small sample size among the male and a predominantly female population. Studies on headache done in Nigeria showed higher prevalence of headache among women compared with their male counterparts (3,8,9) though this was not statistically significant in one study in South east Nigeria (14).

Findings from our study revealed that migraine (all types inclusive) was the commonest type of headache encountered (63.3%) which is in contrast to global prevalence reports which ranks tension type headache as the most prevalent. This may be ascribed possibly to the skewed preponderant female proportions of the studied population and the age distribution of the studied population. It is however comparable to study results by Zebenholzer et al who found migraine type to be more common, 48.5% in their study (19)

In this study, 26.6% of females and 27.6% of males had migraine headache. This is comparable to what was reported by Celik et al (8); prevalence of 29.3% in female and 19.9% in male which contradicts report of variation in migraine prevalence by race (20).

Susceptibility to migraine very likely depends on genetic factors and to some extent environmental factors (21). Up to 90% of people with migraine attacks have a family history of migraine (22). The six students who reported family history of headache in this study had migraine headache though the headache subtype in their relatives could not be validated for obvious reasons. A positive family history among migraneurs have been reported in other studies (3,23).

Another important risk factor, which seems to influence migraine headache, is hormonal changes. Menstrual migraines have been found to occur in 40-60% of women migraineurs (24). Pure menstrual migraine is defined as migraine without aura that occurs exclusively during the 5-day peri-menstrual period of day -2 to day +3 while menstrually related is migraine without aura occurring peri-menstrually in 66% of the cycles but also at other times of the month. It can occur outside the menstrual periods (25). Pure menstrual migraine accounts for 14% and menstrually related migraine being 46% (26). Menstrual migraine occurrence has been established beyond doubt. It

has been found to be related to a fall in oestrogen level during the luteal phase. Menstrual migraines appear to be more severe, longer in duration, and more resistant to standard acute and prophylactic treatments than other migraine headaches (24). In our study, 13% of the female population had menstrually related migraines while 2.2% had pure menstrual migraine.

The prevalence of migraine without aura (MO) and migraine with aura (MA) was 21.1% and 5.6% respectively. Migraine with aura was significantly more common in males compared to females (P< 0.01). According to the population study on migraine by Rasmussen et al (27), the lifetime prevalence of MO was 8% (M:F ratio 1:7) while the lifetime prevalence of MA was 5% (M:F ratio 1:2). Women, but not men were significantly more likely to have MO than MA. The disparity is likely due to the highly specific population considered in our study.

Tension-type headaches were the second commonest type of headaches seen in our study. This is however in contrast to global prevalence reports. Tension headaches are the most prevalent type of headaches affecting most individuals at some point of their lives (28). Tension headaches have a greater impact than any other headache on the socio-economy of any society due to its high prevalence and wide spectrum of disability (29). From a study by Ojini et al (3), prevalence of tension-type headache was higher than that of migraine (18.1% vs. 6.4%). In the study among first year undergraduates in Turkey (8), the one - year prevalence of tension-type headache and migraine was found to be 11.0% and 6.4% respectively. In the German DMKG headache study, 4.5% suffer from tension type headache while migraine was found to be 2.6% (6).

ICHD 3Beta describes cluster headache as headache attacks of severe intensity, strictly unilateral pain which is orbital, supraorbital, temporal or in any combination of these sites, lasting 15–180 minutes and occurring from once every other day to eight times a day. The pain is associated with ipsilateral conjunctival injection, lacrimation, nasal congestion, rhinorrhea, forehead and facial sweating, miosis, ptosis, and/or eyelid edema, and/or with restlessness or agitation (11).The only person diagnosed (1.1%) as having cluster headache in this study was a male. A meta-analysis of population-based studies on cluster headache revealed a 1-year prevalence of 53 per 100,000 with a male to female ratio of 4.3 (30).

Common triggers of headache such as insomnia and stress were found in this study.

Similar observations were reported by Adokounou (9) and Ojini (3) their respective studies.

A major finding from this study was that self-prescription and over-the-counter prescription of simple analgesics was common practice. Less than 10% of the affected subjects sought medical assistance during the headache episodes. This is even though the College of Health Sciences is attached to a teaching hospital that runs a daily staff clinic and a weekly neurology clinic. Only one of the participants was on prophylaxis for migraine while none had used a triptan for acute migraine attacks because it is not readily available. Appropriate prophylaxis improves quality of life in migraine patients (31). Our study, by its design has considerable limitations that should be kept in mind while interpreting the results. Aside the diagnostic step, all details were based on self-reporting hence the study might be affected by reporting bias. Moreover, the study was also prone to recall bias since a significant number of the questions require recalling of past experiences. In addition, the study was naturally biased towards under-representing the men due to the population selected. It was skewed towards a female population and results observed may therefore not be a true representation of the general population necessitating call for studies in the latter group. Though we sub-classified the migraine forms, we did not address the subtypes of tension and cluster headaches. However, these shortcomings did not affect the main objective of the study.

CONCLUSION
In conclusion, our study revealed that headache was relatively common among nursing students of this Nigerian University. Migraine headaches, all types inclusive were the commonest type of headache. This is contrast with global reports which rank tension headache ahead of migraine. Menstrual migraine was relatively common among female migraineurs from this study. Health education on early detection/avoidance of triggers and prompt presentation for treatment will help minimize the lost years due to disability and assist in proper management of the headaches. The practice of self-medication and analgesic abuse must be discouraged.

Conflict of interests: The authors declare no conflict of interest.

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Table 1. Socio-demographic variable and history of headache among study population (n=213)

Variable	Total		Percentage of Total	Headaches YES	NO	Percentage with Headache
Sex	Male	29	13.6%	13	16	14.4%
	Female	184	86.3%	77	107	85.6%
Age	18 – 21	33	15.4%	19	14	21.1%
	22–25	102	47.9%	59	43	65.6%
	26 – 29	65	30.5%	10	55	11.1%
	>29	13	6.2%	2	11	2.2%
Ethnicity	Yoruba	206	96.7%	87	119	96.7%
	Igbo	5	2.4%	2	3	2.4%
	Hausa	-	0.9%	1	1	0.9
	Others	2				
Marital status	Married	17	7.9%	8	9	8.89%
	Single	196	92.1%	82	114	91.1%
Religion	Muslim	127	59.6%	53	73	58.9%
	Christian	86	40.4%	37	50	41.1%
	Others		-			

Table 2: Prevalence of headache subtypes in the study population

Variable	Overall (n=213)	Male (n=29)	Female (84)	X^2	P value
All headaches	90(42.3%)	13(44.8%)	77(41.8%)	0.01	0.92(NS
Mean age(years)	24±4.8	23±2.1	23±2.7		
Migraine(All types inclusive)	57(26.8%)	8(27.6%)	49(26.6%)	<0.01	1.0 (NS)
Migraine without aura	45(21.1%)	4(13.8%)	41(22.3%)	0.63	0.43(NS)
Pure menstrual migraine	4(1.9%)	NA	4(2.2%)	-	-
Menstrually-related migraine	24(11.3%)	NA	24(13%)	-	-
Migraine with aura	12(5.6%)	8(27.6%)	4(2.2%)	25.9	<0.01(S)
Tension type headache	32(15%)	4(13.8%)	28(15.2%)	<0.01	1(NS)
Cluster headache	1(0.5%)	1(3.4%)	0(0%)	1.13	0.29(NS)

NA- Not available. NS-Not significant and S- Significant

Table 3: Trigger factors of headache attacks

Trigger factors *	Frequency n=90
Insomnia/ Sleep deprivation	59 (65.6%)
Mental and physical fatigue	48 (53.3%)
Hunger	4 (4.4%)
Ingestion of chocolate/Cheese	2 (2.2%)
Smoking	2 (2.2%)
Alcohol	1 (1.1%)

*Multiple entries allowed

Table 4: Mode of treatment adopted by medical students with headache

Mode of treatment	No (%) of students n= 90
Sought medical assistance	60 (66.7%)
Self- Medication	8 (8.9%)
No medication	(13.3%)
Bed rest	30 (33.3%)
Cold compress	2 (2.2%)

*Multiple entries allowed

Table 5: Headache remedies usage pattern among the affected students (n=90)

DRUGS	NUMBER OF STUDENTS (N =90)
Simple analgesics e.g. Paracetamol	76(84.4%)
Non -Steroidal Anti-Inflammatory Agents	15((16.7%)
Sedatives	4(4.4%)
Ergot derivatives eg Cafergot	23(25.6%)
Preventive medications	1(1.1%)
Triptans	0(0%)
Combination Analgesics	0(0%)
Herbal Medicines	0(0%)