IBOM MEDICAL JOURNAL
Vol.13 No.2 May - Aug., 2020. Pages 101 - 109
www.ibommedicaljournal.org

Pattern and characterization of headache among adult patients visiting the neurology clinic in Benin City Nigeria

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Abstract

Context: Headache is one of the commonest reasons for neurology clinic consultation worldwide, but there is a dearth of knowledge regarding the pattern and characteristics of headache in parts of the southern region of Nigeria.
Objectives: This study aims to describe the pattern and characteristics of headaches among adult patients attending a neurology clinic.
Material and Methods: This was a cross-sectional study, done at the neurology clinic, Central Hospital Benin City. Adults with headache complaints were consecutively recruited using a structured questionnaire. Demographics of participants, headache characteristics, investigations and treatment were captured, while SPSS version 21 was used for data analysis
Results: During the 7-month study period (February to September 2018), three hundred and sixty-eight patients attended the neurology clinic, of which one hundred and ten were recruited (29.9%, 110/368).
The mean age of participants was 52.0(16.5) yrs. Headache was commoner in the female (69.1%) than the male (30.9%) participants. About half of the patients had 1-5 episodes of headaches in the previous six months, with majority of them attributing stress (47.3%), noise (31.8%), fatigue (28.2%) and lack of sleep (20.0%) as the main triggers of their headache. Reduced work productivity was observed in 52% of respondents, while 50.2% of participants self-treated themselves with the majority (64.5%), of them taking acetaminophen for their headache
Conclusion: There is the need for a greater public awareness on headache to stem the self-treatment behavior that was observed, which would enable a more holistic care of the headache condition.

Key words; Cross-sectional study, headache, stress, self-medication, work productivity.

Introduction

Headache involves pain in the head and is a common symptom in the population, affecting people of all ages, races, income levels and geographical areas.[1] It can arise from various disorders ranging from a trivial ailment to the most severe disabling organic pathologies.[2,3]
Primary headache disorders such as migraine, tension type headache, cluster headache and the so called chronic daily headache syndrome can cause substantial levels of disability leading to reduce quality of life, absenteeism from work and loss of productivity.[4, 5.] Headache can also be caused by or occur secondarily to a long list of other conditions, the most common of which is medication overuse headache. Global burden of disease 2010, showed that tension type headache and migraine are the second and third most prevalent disease globally[6, 7,] and have been labeled distinct entities by the international headache societies.[8] Headache is perhaps the commonest neurological disorder, yet throughout the world, headache has been and

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continues to be underestimated in scope and scale and has remained under-recognized, under-diagnosed and under-treated. [1,9]

Worldwide, it is estimated that 50% of people practice self-medication without seeking care from a doctor leading to inappropriate management and sometimes analgesic abuse causing treatment failures.[10] Moreover in some African communities, headache is considered as a relatively trivial condition compared to other more basic and demanding socio-economic problems.[3] The burden of headache is very large; it is one of the commonest reasons for visiting the neurology clinic worldwide. About 45million persons in the United States are sufferers of chronic headache. Repeated headache attacks and in particular the constant fear of the next one damage family life, socio economic life and employment.[1] Globally the prevalence of headache disorders in general, in the adult population is 46%, for migraine 11%, for tension type headache 42%, and for chronic daily headache 3%.[9] Studies from Africa put the prevalence rates of migraine between 3% - 6.9%, chronic tension type headache 1.7% and in general 20%.[3] Several studies have been done on headache disorders worldwide, but there is scanty data on this globally disabling disease in sub-Sahara Africa in general and in Nigeria in particular. We are not aware of any study from the south-south region of Nigeria that has looked at the epidemiology of headache. In this study we determined the pattern and characteristics of headache among adults attending the neurology clinic, by examining the frequency, triggers, temporal profile, and disability of headaches as well as its associated comorbidities. It is hoped that this study would bridge the knowledge gap and provide insight into the care of sufferers of headaches.

Materials and method

This was a cross sectional study done in the outpatient Neurology Clinic at the Central Hospital, Benin City between February to September 2018. Adult patients eighteen years and above visiting the neurology clinic with a chief complaint of headache were consecutively recruited for the study. Informed consent was obtained from participants or relatives. A face to face interview using a structured questionnaire was done by the authors and residents of the neurology unit who had earlier been trained on it. The questionnaire utilized was designed based on the review of the literature on headache.[2, 3,4,8,9] It has five sections, these are; 1. Demographics which includes the age, gender, ethnicity, occupation, marital status, religion and educational status. 2. The characteristics of the headache which includes number of episodes in past six months, duration, usual time of day, severity, usual location, nature, predisposing conditions, warning signs, presence or absence of other symptoms such as fever, nausea, vomiting, diarrhea, confusion, numbness in arms and legs, and clinical signs of cranial sympathetic dysfunction such as nasal congestion, redness of the eyes, sinusitis, lacrimation, ptosis and eyelid edema. 3. Management received such as self-medication, never received treatment, being managed by a health worker. 4. Investigations done for the headache which includes laboratory and imaging study. 5. Treatment received such as antimalarial, ergotamine, acetaminophen, tramadol etc., and measures employed to obtain relief from the headache including use of eye glasses, relaxation, cold compress, eating, and massage were recorded. This study was approved by the Ethics and Research Committee Central Hospital Benin City. Data analysis: was done using SPSS version 21. Mean, median, standard deviation and range were used to summarize continuous variables while frequency and percentage described categorical variables. Student's t test for comparison and chi-square for association respectively. Level of $P \leqslant 0.05$ was considered as significant.

Results

A total of 368 patients attended the neurology clinic during the 7-month study period (February to September 2018) of which one hundred and ten patients were recruited (29.9%, 110/368). The mean age was 52.0 + 16.5 years with a range of 18 to 89 years. There were 76 (69.1%) females and 34 (30.9%) males. The main ethnic group were the Binis. Eighty-four (76.4%) of the patients were married while 15 (13.6%) were singles. Those who had secondary education were the highest of the study group which constituted 40.9%, followed by tertiary education 35.5% and primary education 18.2%. Table 1. There was a higher prevalence of headache amongst the females patients as 69.1% of

Table 1. Demographics of 110 patients attending the headache clinic

Variable	Frequency (n=110)	%
Sex		
Female	76	69.1%
Male	34	30.9%
Age (years)		
< 30	16	14.5%
30 – 39	13	11.8%
40 – 49	19	17.3%
50 – 59	30	27.3%
60 – 69	19	17.3%
70 and older	13	11.8%
Ethnicity		
Bini	64	58.2%
Ibo	15	13.6%
Ishan	15	13.6%
Etsako	4	3.6%
Urhobo	3	2.7%
Others	9	8.2%
Marital status		
Married	84	76.4%
Single (Never Married)	15	13.6%
Widowed	10	9.1%
Separated/Divorced	1	0.9%
Religion		
Christian	109	99.1%
Muslim	1	0.9%
Educational status		
None	5	4.5%
Primary	20	18.2%
Secondary	45	40.9%
Tertiary	40	36.4%

the study population were females and 30.9% of them males. About half of the patients (50%), had 1-5 episodes of headaches, a third (31.8%), had 6-10 episodes, while 9.1% and 8.2% had 11-15 and 16-20 episodes respectively. 4.5% of patients experienced their headaches for several weeks, 10.9% had theirs for days, 41.8% had theirs for hours, 39.1% for minutes while 3.6% for few seconds. Table II.

The usual time of day for headache was in the afternoon in 25.5% of the subjects, night for 21.8%, morning for 16.4%, while 22.7% had no particular time for experiencing the headaches. However headache was continuous in 18.6% of the study population. Majority of the patient (46.4%) had headache of moderate severity but was mild in 30% and severe in 23.6%, though not intense enough to wake patient from sleep in 61.8% of the subjects. Table II.

Table 2: Pattern and characteristic features of the headache

Associated symptoms*	**Frequency (n=110)**	**%**
Fever	23	20.9%
Vomiting	18	16.4%
Confusion	18	16.4%
Nasal congestion, redness of eyes, sinusitis or allergies	15	13.6%
Nausea	14	12.7%
Numbness in arms and legs	4	3.6%
Diarrhea	3	2.7%
Drooping of the eyes	1	0.9%
Preceding factors		
Stress	52	47.3%
Noise	35	31.8%
Fatigue	31	28.2%
Lack of sleep	22	20.0%
Hunger	14	12.7%
Accident, Illness or infection	11	10.0%
Family problem	7	6.4%
Menstrual flow	6	5.5%
Hot weather	6	5.5%
Exercise	2	1.8%
School	1	0.9%
Odours	1	0.9%
Commonest nature		
Dull	33	30.0%
Aching	33	30.0%
Throbbing/Exploding	22	20.0%
Sharp	16	14.5%
Tightness	5	4.5%
Grinding	3	2.7%
Usual location		
Fore head	56	50.9%
All over the head	30	27.3%
Right side of the head	12	10.9%
Back of head	7	6.4%
Comorbid chronic medical condition		
Hypertension	77	70.0%
Refractive errors	5	4.5%
Cervical Spondylosis	2	1.8%
Brain tumors	2	1.8%
Effect of headache on daily activities		
No significant disability	66	60.0%
Mild disability	17	15.5%
Moderate disability	18	16.4%
Severe disability	9	8.2%
Headache related work absenteeism		
Yes	24	21.8%
No	86	78.2%
Reduced productivity		
Yes	57	51.8%
No	53	48.2%
Warning signs*		
Dizziness	23	76.7%
Irritability	14	46.7%
Tiredness/Sleepiness	14	46.7%
Eye problems	11	36.7%
Mood swings	10	33.3%
Hyperactivity	4	13.3%

* Multiple responses allowed

Table 3: Comparison of headache characteristics based on gender

Variables	Female (N=76)		Male (N=34)		P
No. of episodes in the past 6 months					0.852
1-5	38	50.0%	18	52.9%	
6-10	25	32.9%	10	29.4%	
11-15	6	7.9%	4	11.8%	
16-20	7	9.2%	2	5.9%	
Duration					0.971
Seconds	3	3.9%	1	2.9%	
Minutes	30	39.5%	13	38.2%	
Hours	31	40.8%	15	44.1%	
Days	9	11.8%	3	8.8%	
Weeks	3	3.9%	2	5.9%	
Usual time of day					0.767
Morning	11	14.5%	7	20.6%	
Afternoon	18	23.7%	10	29.4%	
Night	18	23.7%	6	17.6%	
Continuous	10	13.2%	5	14.7%	
No Particular time	19	25.0%	6	17.6%	
Severity					0.453
Mild	23	30.3%	10	29.4%	
Moderate	37	48.7%	14	41.2%	
Severe	16	21.1%	10	29.4%	
Effect on ADL*					0.356
Mild disability	10	13.2%	7	20.6%	
Moderate disability	16	21.1%	2	5.9%	
No significant disability	47	61.8%	19	55.9%	
Severe disability	3	3.9%	6	17.6%	
Intense enough to wake from sleep	26	34.2%	16	47.1%	0.200
Headache related work absenteeism	13	17.1%	11	32.4%	0.074
Reduced Productivity	39	51.3%	18	52.9%	0.875

*ADL, Activity of daily living

The effect of headache on activities of daily living was not significant in 60% of the subjects, only 8.8% of the subjects had a disabling headaches while 16.4% of them had moderate disability. A large number of the patients (86) did not suffer from headache related work absenteeism and accounting for 78.2% of the patient, although about half (51.8%) of them had reduced productivity while 48.2% did not. Stress was the leading predisposing factor for headache in 47.3% of the respondents, followed by noise 31.8%, fatigue 28.2%, lack of sleep 20%, and hunger 12.7%. Warning signs were present in 27.2% of the respondents and these included dizziness (76.7%), irritability (46.7%), tiredness/sleepiness (46.7%), eye problems (36.7%), mood swings (38.3%), and hyperactivity (13.3%). Presence of associated symptoms during the headache were, fever which occurred in 20.9% of the patients followed by vomiting and confusion in 16.4%, nasal congestion, redness of eyes,

Table 4: Management and relief measures for headache

Treatment sources		%
Self	62	56.4%
Health worker	45	40.9%
No treatment received	3	2.7%
Investigations done*		
Laboratory check	22	20.0%
Imaging	11	10.0%
Eye Check	8	7.3%
Treatment received*		%
Acetaminophen	69	64.5%
Anti-malarial	40	37.4%
NSAIDs	38	35.5%
Relaxation	18	16.8%
Food	7	6.5%
Tramadol	7	6.5%
Eye Glasses	2	1.9%
Ergotamine	1	0.9%
Relief measures*		
Sleeping	57	51.8%
Relaxation	52	47.3%
Cold Compress	27	24.5%
Eating	7	6.4%
Moving around	4	3.6%
Massage	3	2.7%
Vomiting	2	1.8%
Antihypertensive drug	1	0.9%
Multiple responses allowed*		
NSAIDs, non-steroidal anti-inflammatory drugs		

sinusitis or allergies in 13.6% and nausea in 12.7% of the patients. Table II. The nature of the headache was reported as dull and aching in 30.0% of the patients, it was throbbing/exploding in 20.0%, sharp in 14.5%, a feeling of tightness in 4.5% and grinding in 2.7%. The location of headache was in the forehead in 50.9% of the patients, while 27.3% had headache all over the head, in 10.9% it was on the right side of the head and at the back of the head in 6.4%. Table II.

Hypertension was the leading comorbid chronic medical condition in 70% of the respondents. While refractive errors, cervical spondylosis and brain tumors constituted less than 10%. Table II. The management of headache was by self-medication in most cases and this constituted 56.4% and by a health worker in 40.9%. No treatment was received in 2.7% of the cases. Table IV. The mean age of participants who self-medicated was 50.4 years while that of other respondents was 54.0 years, (P = 0.272). There was no significant association between gender and self-medication (P = 0.783). More than half of both female respondents (57.9%) and male respondents (52.9%) gave a history of self-medication for their headaches. Respondents with less severe headaches were more likely to self-

medicate (P < 0.001) The median pain score for patients who self-medicated was 5, which was lower than that of respondents who did not self-medicate (P < 0.001) There was no significant association between duration of headaches and self-medication (P = 0.3610). The median pain score for both male and female participants was 5, (P = 0.359).Other aspects of management included, Laboratory blood investigations in 20%, imaging (CT and MRI) in 10.0% and eye check in 7.3%. Acetaminophen (over the counter drug) was the commonest treatment received in 64.5% of the respondents, followed by antimalarials (37.4%) and 35.5% had non-steroidal anti-inflammatory drugs (NSAIDs). Other relieving measures included sleeping 51.8%, relaxation 47.3%, cold compress 24.5% eating (food) 6.4%. Moving around, massage, vomiting, use of antihypertensive drugs accounted for about 10% of the relief method. Table IV.

Discussion

Our study describes the pattern, characteristic, previous management and relief measures for headache among adult patients presenting for the first time in our neurology clinic. Our results showed that headache affects more females than males. This finding agrees with reports of several other studies[11, 12, 13, 14,] in which females were more affected than males. The biggest reason is attributable to fluctuations in hormones. Estrogen is a hormone that has been closely linked to headaches and this hormone fluctuation is much more prevalent in women, with changes in the level of estrogen occurring during menstruation, ovulation and pregnancy. Other reasons include genetics, and differences in threshold to stress and pain perception which is lower in females than the males[15, 16] We note that the incidence of headache was evenly distributed across the various age groups but with peak incidence in the age group 50-59. This is in contrast to other studies[13, 14, 17] where headache was more prevalent in younger age groups 18-45yrs in both gender.

The study showed that, adults 50yrs and older had a higher headache frequency (56.4%) than the younger population (43.6%). This finding agrees with studies done in Malaysia[18] which reported a much higher figure 94.3% and a lower figure from Thailand 33%.[19] Although difficult to establish, ethnic differences, marital status, and higher education level may have contributed to the observed differences. Majority of our respondents probably had primary headaches, although there was no attempts in this study to differentiate between the various types of which include tension type headache, migraine, cluster headache and the so called chronic daily headache syndrome which can cause substantial levels of disability. Majority of our patients suffered 1-5 episodes of headache in the past 6 months. Most headaches were of short to moderate duration, lasting from minutes to hours. This result is similar to findings reported in a study among health workers in Enugu[20] but in contrast to the longer duration of headaches noted in a Turkish study[21]. Other headache characteristics e.g. usual time of day, periodicity, severity and nature of pain, associated symptoms, usual location of pain, precipitating and relieving factors and medication used were also examined in this study. Distribution of these variables followed more or less a similar pattern to that of European studies and of developing countries like Pakistan [22, 23]. In this study, the most common associated symptom of headache were fever, vomiting, confusion, and nausea, but in a study conducted by Momayyezi et al in Yazd,[24] the most common, symptoms reported were nausea (55.6%), vomiting (40.7%) and photophobia (85.2%) which are significantly different from present study. None of the respondents volunteered a history of seizure associated with their headaches. Stress probably related to challenges both at work and at the home front played the greatest trigger in this study. Other triggers which include noise, fatigue, lack of sleep, hunger, family problems, hot weather, accident or ill health, menstrual flow in women also played a role and were consistent with other studies.[25, 26, 27.]

The nature of headache was dull and aching in 30% of the patients, but was throbbing and exploding in 20% in marked contrast to the throbbing headaches recorded in 80% of patients in some studies.[28, 29] Of interest is the low rate of headache related work absenteeism. Absenteeism refers to missed days of work, leave of absence and work disability. Though headache was of moderate severity, there was no significant disability considering the effect of headache on daily activities. This could explain the

very low rate of absenteeism in this study. A similar negligible rate of absenteeism was also recorded by Tonia Onyeka.[20] though this was among hospital health workers. Only 41% of the study population were managed by a health worker. The majority 56.4% had opted for self-medication before visiting the neurological clinic. This finding is essentially similar to the figure obtained in a Turkish study where 54.6% of the study particular practiced self-medication.[21] Some of the reasons for self-medication includes, ignorance on the part of headache-sufferers of effective treatment and prophylaxis for headache, perception of headache as a trivial health issue, and high tolerance to pain.[28, 29, 30] Other reasons include lack of adequate health facilities, very low economic power and the preference by African patients to consult alternative medicine practitioners for pain relief may also be contributory. In our study, respondents with less severe headache were more likely to self-medicate and this was statistically significant $P<0.001$.

The headache sufferers in this study reported using medications for relief of headache. The drug most commonly used was acetaminophen (64.5%). This finding is similar to that of hospital workers in Enugu, in south east Nigeria[20] where a higher percentage 83.8% was reported. A high percentage of our patients also reported the use of antimalarials and NSAIDs as seen in the Turkish study.[21] Similarly, studies from India[25] and Ardebil (2004) also reported the massive use of pain killers as treatment for headache. Sleep (51.8%) and relaxation (47.3%) were the leading alternative relieving factors utilized in this study. These lifestyle modifications to manage headache was also reported by participants in studies from Enugu[20] and India.[25]

It is worthy of note that 70% of the participants in this study had hypertension as a comorbid chronic medical condition that may cause headache, but only one patient (0.9%) received antihypertensive drugs. This is in contract to 8.5% of participants who had hypertension in the Enugu study [20] although it was not stated if those patients received antihypertensive as a relieving treatment for headache.

Limitations: This study did not address distinct entities of headache even though most patients probably had primary headaches. The study covered only a 6 month period, more over the small sample size calls for a larger study where the focus on the types and classification of headaches can be emphasized. However these short comings do not affect the main purpose of the study.

Conclusion

This study shows that about 30% (110/368) of patients attending the neurology clinic in Benin City had headache complaints. It is quite a prevalent condition, affecting the female than the male patients. Though headache was of moderate severity in these patients, there was no significant disability, and there was a low rate of headache related work absenteeism. Stress both at work and at the home front played the greatest trigger in this study. More than half of the respondent gave a history of self-medication.

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