



## IMPACT OF ACUTE MIGRAINE HEADACHE AMONGST UNIVERSITY STUDENTS IN NORTH-EASTERN NIGERIA

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### ABSTRACT

Migraine is markedly disabling medical condition. Unfortunately the problem is poorly recognized and the majority of headache sufferers have not sought medical help even when their problem is severe. The aim of this study is to evaluate the impact of migraine headache in university students and suggest a simple school policy on headache that can be introduced to reduce this impact. One hundred and five students with migraine among 1000 students having headache that met the International Headache Society (IHS) diagnostic criteria for migraine and attends University of Maiduguri as a full time student from May, 2010 to December, 2011 and from whom informed consent was obtained were evaluated for this disorder using a structured study questionnaire. Thirty-seven (35%) had less than 25% reduction in their academic performance due to migraine attack, while 45% had between 25% and 50% reduction in academic performance. Thirteen (12%) and 10 (9.5%) had 50-75% and greater than 75% reduction in their academic performance respectively. Thirty-three (51%) of the science students had 25-50% reduction in their academic performance, whereas 18 (45%) of the art students had less than 25% reduction in their academic performance. Migraine can be triggered by examination and non examination related factors such as the influence of diet/drug, hunger, sleep deprivation, physical and emotional stress. The significant reduction in academic performance among school students requires an urgent intervention such as the development and introduction of school policy for migraine and troublesome headache.

**Keywords:** Acute Migraine, Students, Nigeria

### INTRODUCTION

Migraine is a vascular headaches associated with changes in the size of the arteries within and outside of the brain<sup>1</sup> resulting in the influx of some neuropeptides mediating the attacks of severe headache<sup>2,3</sup>. The impact of these headaches on students (patients) and their families is tremendous, with many patients reporting frequent and significant disability<sup>4</sup>. Ojini et al<sup>5</sup> reported a one year headache prevalence in Nigeria as 46% among medical students at University of Lagos out of which migraine accounted for 6.4%. The highest incidence of migraine has been reported to occur between the ages of 20 and 35 years<sup>6</sup> with female preponderance<sup>7</sup>. Available data indicates that majority of students in the University of Maiduguri fall within the age category of 20 and 30 years<sup>8</sup>. Harmattan and high humidity usually experienced in Northern Nigeria triggers migraine headache<sup>8</sup> resulting in the negative impact on the quality of life, social functioning and productivity among the susceptible individual<sup>9</sup>. However, to the best of our knowledge, there were no records to substantiate the negative impact of acute migraine attack on the overall student performance in our institution. Therefore, this study was embarked upon in order to evaluate the impact of acute migraine on student academic performance.

### METHODOLOGY

From May, 2010 to December, 2011, one thousand consecutive consented students of University of Maiduguri, Nigeria having headache were studied using structured study questionnaire. The study was approved by the Research committee of the University. Pregnant women, patients with clinical evidence of an organic disease known to cause headache and those that declined to give their consent for the study were excluded. Personal interviews using a structured study questionnaire were conducted individually with the 1000 students (100 students per Faculty). General, physical

and neurological examinations were also conducted by the investigator to authenticate the type of headache present.

**Statistical Analysis of Data:** Results were expressed as mean  $\pm$  standard error of the mean. The data were analyzed using statistical analysis software (SAS) system version 16. Chi-square and Fisher's Exact Test were used for the categorical variables. P values less than 0.05 were considered significant.

### RESULT

Among the one hundred students each from the selected five Science and five Art based faculties, 56.3% of the study population were male, while 43.7% were female. Out of the 100 students from the faculty of Engineering 70 were male and 30 female, while 60 and 40 were male and female respectively from the College of Medical Science. Forty five, 58 and 72 were males from faculties of Pharmacy, Science and Veterinary Medicine respectively, whereas 55, 42 and 28 were females from the respective faculties. In the faculties of Art, Education, Law, Management and Social Sciences, there were 39, 49, 68, 60 and 42 males respectively (Table 1).

The distribution of headache types among the study subjects were tension headache (538), chronic daily headache (295), migraine (105) and cluster headache (62). Three hundred and twenty, 158, 45 and 40 were males among those that have respective headache types above (Table 2).

Fourty three percent of the studied population were male, while 57% were female. The mean ages for male and female were  $30 \pm 5.6$  and  $29 \pm 7.1$  years respectively. The ages of the patients studied ranged from 18 - 69 years with largest number of patients falling within the age group 20-29 years. There was no statistical significant difference between the mean ages for male and female ( $p > 0.05$ ) (Table 3).

The migraine triggers among the study subjects were either examination related or examination independent. Before, during and after examination can trigger migraine attacks

among the science and art students. There is a statistical significant difference in migraine precipitated by pre examination tension between science and art students ( $p < 0.05$ ). Those migraine triggers unrelated to examination observed among the study subjects include; non-specific cause ( $p < 0.05$ ), physical exertion ( $p > 0.05$ ), emotional stress ( $p > 0.05$ ), hunger/fasting ( $p < 0.05$ ), effect of diet/herb/drug ( $p < 0.05$ ) and sleep deprivation ( $p < 0.05$ ) (Table 4).

Table 5 shows the percentage reduction in academic performance due to migraine headache. Thirty-seven (35%) had less than 25% reduction in their academic performance due to migraine attack, while 45% had between 25% and 50% reduction in academic performance. Thirteen (12%) and 10 (9.5%) had 50-75% and greater than 75% reduction in their academic performance respectively. Thirty-three (51%) of the science students had 25-50% reduction in their academic performance, whereas 18 (45%) of the art students had less than 25% reduction in their academic performance (Table 5).

## DISCUSSION

The predominance of males over females with episodes of headache observed in this study could be attributed to the decline in western education among women in northern Nigeria even before the country's independence in 1960. Religion and cultural influences may be responsible for the decline in the participation of women in acquiring formal western education in the region. The distribution of tension and chronic daily headache among the study subjects was found to be significantly higher than those having migraine or cluster headache. This agrees with several literatures reports in which migraine was found to be significantly lower when compared with other headache types<sup>6, 10, 11</sup>. In this study females were afflicted more with the disease compared to males and this agrees with several other related studies<sup>7, 10, 12</sup> in which females predominate. The hormonal changes in females during menstruation and ovulation may be responsible<sup>13</sup>. It is noteworthy that approximately 59% of the students with migraine were in their 20s and 30s which correspond to a large segment of the productive age. The finding of Timothy et al<sup>13</sup> was significantly higher than the present study in which 74% were in their 20s and 30s.

The significant attack of migraine headache among university students has a significant impact upon their productivity and quality of life both at home and school. Apart from the fact that the problem is poorly recognized, majority of headache sufferers do not sought for medical help even when their problem is severe. These could be due to stigmatization and associated truancy behavior. This finding is consistent with several literature reports<sup>4, 5, 9</sup> that associated migraine with varying disabilities. It is evident from the result of this finding that examination has a significantly higher impact among science than art students which may be due to decrease or relative lack of practical equipment, skilled technical and academic staff. Art students gets their migraine head pain triggered by examination independent factors such as effect of diet/drug, hunger and sleep deprivation significantly higher than among science students ( $p < 0.05$ ). Physical exertion and emotional stress ( $p > 0.05$ ) trigger migraine attack equipotent among science and art students. These could be attributable to environmental factors and relative lack of some basic amenities that can forester academic progress within the study environment.

Eighty-two (78%) of the migraine subjects studied had greater or equal to 50% reduction in productivity in school. Their physical functioning, energy levels, emotional well

being, general health and academic performance were all poorer in students with migraine than those without<sup>[14]</sup>. Majority of the remaining 23 (22%) had their courses changed or had been dropped out of school because of the migraine headache. This agrees with other studies that showed a negative impact of migraine on the life of migraineurs<sup>4, 15, 16, 17</sup>. Appropriate antimigraine therapy significantly improved the quality of life of patients with varying disability<sup>14</sup>. The significant reduction in academic performance among school students requires an urgent intervention such as the development and introduction of school policy for migraine and troublesome headache<sup>17, 18</sup> as recommended in this study.

## CONCLUSION

Migraine can be triggered by examination and non examination related factors such as the influence of diet/drug, hunger, sleep deprivation, physical and emotional stress. The significant reduction in academic performance among school students is enormous and thus requires an urgent intervention such as the development and introduction of school policy for migraine and troublesome headache.

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Table 1: Distribution of the study subjects based on faculty

Faculty/College	Number/Percentage	
	Male	Female
<i>Science base course</i>		
Engineering	70	30
Medical Science	60	40
Pharmacy	45	55
Science	58	42
Veterinary Medicine	72	28
<i>Art base course</i>		
Art	39	61
Education	49	51
Law	68	32
Management Science	60	40
Social Science	42	58
<b>Total</b>	<b>563</b>	<b>437</b>

Table 2: Distribution of types of headache among study subjects

Type of headache	Male	Female	Total
Tension	320	218	538
Chronic Daily	158	137	295
Migraine	45	60	105
Cluster	40	22	62
<b>Total</b>	<b>563</b>	<b>437</b>	<b>1000</b>

Table 3: Age and Sex distribution of study migraine subjects

Age (years)	Number / Percentage		Total
	Male	Female	
10-19	02	05	07
20-29	16	23	39
30-39	11	12	23
40-49	06	12	18
50-59	06	04	10
60-69	04	04	08
<b>Total</b>	<b>45</b>	<b>60</b>	<b>105</b>

Table 4: Distribution of migraine triggers among subjects studied

Period of attack	Faculty (No. / %)		P-value ( $\chi^2$ )
	Science (n = 65)	Art (n = 40)	
<i>Exam dependent</i>			
A	39 (60)	10 (25)	p<0.05
B	18 (28)	07 (18)	NS
C	10 (15)	07 (18)	NS
D	15 (23)	12 (30)	NS
E	28 (43)	21 (53)	NS
F	22 (34)	10 (25)	NS
<i>Exam independent</i>			
G	14 (22)	20 (50)	p<0.05
H	60 (92)	38 (95)	NS
I	49 (75)	35 (88)	NS
J	29 (45)	26 (65)	p<0.05
K	08 (12)	13 (33)	p<0.05
L	31 (48)	27 (68)	p<0.05

A = two weeks before exams or exam time table released, B = exams period, C = two weeks after exams, D = pre exam result, E = post exam result, F = continuous assessment test, G = non specific, H = physical exertion, I = emotional stress, J = hunger/fasting, K = diet/herb/drug, L = sleep deprivation, NS = not significant

Table 5: Percentage reduction in academic performance among migraine subjects

Migraine Impact*	Number / Percentage		Total
	Science	Art	
<25%	19 (29)	18 (45)	37
25-50%	33 (51)	12 (30)	45
51-75%	08 (12)	05 (12.5)	13
>75%	05 (8)	05 (12.5)	10
<b>Total</b>	<b>65</b>	<b>40</b>	<b>105</b>

\*= % reduction in student academic performance

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