Factors associated with migraine among medical students at the University of Parakou (Benin)

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Abstract

Introduction: The prevalence of migraine in the student population is high with a significant impact on performance. The purpose of this study was to determine the factors associated with migraine among medical students at the University of Parakou.

Method: This is a descriptive, cross-sectional analytical study that involved medical students enrolled in the 2013-2014 academic year. The latter were subjected to a questionnaire describing the characteristics of migraine complemented by an evaluation scale. The data was analyzed by EPI Info software version 3.5.3. The Chi 2 test allowed comparisons with a significance level of 5%.

Results: A total of 209 students including 132 (63.2%) males were included. Students aged 20 to 25 accounted for 56.9% of the population. The prevalence of migraine was 13.4% (95% CI [9.1 - 18.8]). It was significantly higher among those under 18 years of age (p = 0.049), girls (p = 0.009), students living with family, guardianship or co-location (p = 0.002); during the first two years of study and at the end of the cycle (p = 0.04).

Conclusion: The prevalence of migraine in the student population is high and multifactorial etiologies; prevention measures to prevent school failure.

Key words: Migraine, students, medicine, Parakou

Introduction

Migraine is a disease that has a significant impact on patients' lives, both human (quality of life), socio-economic (total or partial inability to work) and psychological (including depression). It affects a large number of people. In industrialized countries, the prevalence of migraine has been estimated at between 8% and 14% [1]. It is 17.3% in France, 10 to 13% in the United States and 22.1% in Brazil [2,3,4]. In Africa, available studies indicate 5% in Tanzania, 10.1% in Mali and 6.4% in Nigeria [5,6,7].

In Benin, the prevalence of migraine in the general population is 3.3%[8]. It is five times higher in the Parakou student population, at 15.1% in 2011[9], which implies an increased risk among students. Migraine can affect the student, negatively influencing academic performance. The purpose of this study was to determine the factors associated with migraine among medical students at Parakou University in 2014.

Materials and Methods

We carried out a descriptive cross-sectional study that took place over a period of 2 months from April 28 to May 18, 2014. It concerned all medical students enrolled for the 2013-2014 academic year; a simple random draw sampling was carried out from the numbered list of students regularly enrolled. The selected students were subjected to a questionnaire completed with a 2008 migraine assessment scale[10]. The latter specified the socio-demographic characteristics of students, the factors that trigger migraine and its impact on students' experiences. Migraine was defined according to diagnostic criteria based on those of the International Headache Society (IHS) 2004[1]. The data were analyzed by the EPI Info software version 3.5.3. The chi2 test allowed the comparison of proportions. The factors associated with migraine were investigated by logistic regression. All tests were interpreted with a significance threshold of 5%.

Results

- Socio-demographic characteristics

Out of a total of 209 students, 132 (63.2%) are male, i.e. a sex ratio of 1.7. Students aged 20 to 25 years; those enrolled in 4th year and those living alone were the most numerous with proportions of 56.9%, 32.1% and 49.8% respectively.

The socio-demographic characteristics of the students are summarized in Table I.

Tableau I : Caractéristiques sociodémographiques des étudiants

variable	Number	Pourcentage (%)
Age (Year)		
< 18	14	6,7
18 – 20	46	22,0
20 – 25	119	56,9
25 – 30	30	14,4
Marital status		
Single	204	97,6
Married	1	0,5
Cohabitation	2	1,0
Others	2	1,0
Living environnement		
Familial	32	15,3
Guardianship	14	6,7
Colocation	56	26,8
Alone	104	49,8
Others	3	1,4
Année d'étude		
1st year	60	28,7
2nd year	24	11,5
3rd year	19	9,1
4th year	67	32,1
5th année	16	7,7
6 th année	9	4,3
7th année	14	6,7

- Prevalence of migraine

The prevalence of migraine is 13.4% (95% CI [9.1 - 18.8]). It was significantly higher among those under 18 ($p = 0.049$), girls ($p = 0.009$) and students living alone ($p = 0.002$). The prevalence of migraine has declined in the first three years of medicine; it went from 25 to 5.3%. But from the 4th year this prevalence has increased again by 6 to 14.3%. Table II shows the prevalence of migraine as a function of sociodemographic factors.

Tableau II: Prévalence de la migraine selon les facteurs sociodémographiques

	Migraine		Total	P
	No (%)	Yes (%)		
Age (year)				
< 18	9 (64,3)	5 (35,7)	14	
18 – 20	38 (82,6)	8 (17,4)	46	
20 – 25	107 (89,9)	12 (10,1)	119	0,049
25 – 30	27 (90,0)	3 (10,0)	30	
Marital status				
Single	177 (86,8)	27 (13,2)	204	0,427
Married	1 (100,0)	0 (0,0)	1	
Concubinage	2 (100,0)	0 (0,0)	2	
Other	1 (50,0)	1 (50,0)	2	
Living environnement				
Familial	27 (84,4)	5 (15,6)	32	
Guardianship	12 (85,7)	2 (14,3)	14	
Colocation	53 (94,6)	3 (5,4)	56	0,002
Alone	88 (84,6)	16 (15,4)	104	
Others	1 (0,0)	2 (100,0)	2	
Année d'étude				
1st year	45 (75,0)	15 (25,0)	60	
2nd year	21 (87,5)	3 (12,5)	24	
3rd year	18 (94,7)	1 (5,3)	19	
4th year	63 (94,0)	4 (6,0)	67	0,04
5th year	13 (81,2)	3 (18,8)	16	
6th year	9 (100,0)	0 (0,0)	9	
7thyear	12 (85,7)	2 (14,3)	14	

- Factors associated with migraine after logistic regression

In our study, age below 18 years p = 0.0098 RP = 4.982 [1.077-12.567], female sex p = 0.008 RP = 4.289 [1.461-12588], living environment are the factors associated with the migraine. In Table III these factors are described.

Tableau III : Factors associated with migraine

Variable	p	RP	CI$_{95\%}$	
Age				
< 18	0,0098	4,982	1,077	12,567
18 – 20	0,653	1,715	0,163	18,031
20 – 25	0,693	1,476	0,214	10,188
Gender				
Female	0,008	4,289	1,461	12,588
Living Environnement				
Family	0,000	3,68E+09	9,01E+08	1,50E+10
Guardianship	0,000	1,75E+10	1,02E+09	2,99E+11
Colocation	0,000	7,84E+09	1,66E+09	3,71E+10
Alone	0,000	2,08E+09	2,08E+09	2,08E+09

Discussion

- The prevalence of migraine

In our study, the prevalence of migraine was 13.4%. It is similar to that of Adoukonou et al [9] or 14.2% among students at the University of Parakou. Our prevalence is lower than that found in Pakistan, the USA and Kuwait at 21%, 24.8% and 27.86% respectively [11,12,13]; but stronger than those of Falavigni et al. [4] in Brazil (6.9%), from Gu et al. in China [14] (7.91%) and Fuh et al. [15] in Taiwan 12.2%. Even lower prevalences were observed by Sanya et al. in Nigeria [16] or 2.4%. These low prevalences observed among medical students in these countries may be related to several factors:

- socio-cultural realities, academic systems and curricula may not be the same;

- teaching materials available would allow better learning and perhaps extra-academic activities would promote relaxation and thus fight against stress.

- the year of study

In our study, the prevalence of migraine has declined in the first cycle of medicine (25% in the first year against 5.3% in the third year); it started up again at the beginning of the second cycle (6% in the 4th year compared to 14.3% in the thesis year). No results corroborate those of Gu et al. [14]; the high prevalence of migraine among Grade 1 students may be due to their immersion in the student world; the realities differ from the college, the hourly masses, the number and the density of the subjects differ. Moreover, there is a risk of exclusion in the second year; all of these factors cause stress and could explain the high prevalence of migraine. The decline in mid-cycle migraine prevalence may be due to students adapting to their new living conditions.

- the framework of life

Multivariate analysis shows an association between migraine and the living environment. Colocation, family, and solo students are 7.84, 3.68, and 2.08 times more likely to experience migraine, respectively. The work of Lebedeva et al. [24] in Russia had not found a link between family life dissatisfaction and migraine. However, community life may not provide a favorable climate for studies, increasing the risk of migraines: the noisy environment related to the presence of a third person preventing quality sleep, the existence of family worries, pressures related to 'entourage concerned with the success of the student could increase the anxiety of the student. Anxiety could trigger migraine attacks [25]. But living alone can also exacerbate feelings of lack of support and lead to migraine anxiety. Future studies should be able to deepen the impact of the living environment on the occurrence of migraine; what seems undeniable is that the environment of the individual plays a role in the genesis of migraine attacks [26].

Migraine is a reality in the student community; the risk is a disruption of schooling and an increase in the failure rate. Further studies should be conducted to assess the impact of migraine attacks on student education.

Conclusion

The prevalence of migraine among Parakou medical students is high, especially among young students. Associated factors are both individual and environmental. Prevention programs must be put in place; As soon as the baccalaureate is obtained, it will be necessary to educate future

students about the student world, the teaching methods to facilitate their adaptation and to avoid breaking the school curriculum.

References

1- Headache Classification Committee of the International Headache Society. The international classification of headache disorders. Cephalalgia 2018 ; 38(11): 1-211.

2-Henry P, Michel P, Brochet B, Dartigues JF, Tisson S, Salomon R
A nationwide survey of migraine in France: prevalence and clinical features in adulty. Cephalalgia 1992; 12: 229 – 37

3-Scher AI, Stewart, WF, Ricci JA, Lipton RB
Factors associated with the onset and remission of chronic daily headaches in a population-based study. Pain 2003; 106 : 81-89.

4-Falavigna A, Teles AR, Velho MC, Vedana VM, Silva RC, Mazzocchin T, et al. Prevalence and impact of headache in undergra- duate students in Southern Brazil. Arq Neuropsiquiatr 2010; 68: 873-877.

5-Dent, W., Spiss, H.K., Helbok, R., Matuja, W.B.P., Scheu- nemann, S. and Schmutzhard, E. Prevalence of mi- graine in a rural area in South Tanzania: A door-to-door survey. Cephalalgia 2004; 24 : 960 – 6.

6-Diallo H, Maiga Y, Koné M, Kayentao K, Diallo S, Camara M
Migraine et qualité de vie en milieu scolaire dans le district de Bamako au Mali revue neurologique 2016 ;172 (1) :A115

7-Ogunyemi AO. Prevalence of headache among Nigerian university students. Headache 1984; 24 :127 – 30.

8-Houinato D, Adoukonou T, Ntsiba F, Adjien C, Avodé DG Preux PM. Prevalence of migraine in rural community in South Benin. Cephalalgia 2010; 30 : 62-67.

9-Adoukonou T, Tognon-Tchegnonsi F, Kouna P, Alabi A, Houinato D, Preux P M. Prevalence of migraine among university students at Parakou, Benin: A cross-sectional study. World Journal of Neuroscience 2014 ;4 :1-7

10- Radat F, Lanteri-Minet M
Evaluation de la migraine. La Revue du praticien 2008 ; 58 : 616-24

11-Noor T, Sajjad A, Asma A. Frequency, character and predisposing factor of headache among students of medical college of Karachi. JPMA J Pak Med Assoc. 2016;66(2):159-64.

12-Johnson H, Guhl G, Arora J, Walling A.
Migraine in students of a US medical school. Fam Med. 2014;46(8):615–619.

13- Al-Hashel JY, Ahmed SF, Alroughani R, Goadsby PJ. Migraine among medical students in Kuwait University. J Headache Pain. 2014;15:26.

14- Gu X, Xie Y. Migraine attacks among medical students in Soochow University, Southeast China: a cross-sectional study. J Pain Res. 2018;11:771–81.

15- Fuh JL, Wang SJ, Lu SR, Liao YC, Chen SP, Yang, C.Y. Headache disability among adolescents: a student population-based study. Headache 2010; 50: 210-218.

16- 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(11):1411–6.

17- Khairoalsindi OA, Saber WK, Althubaiti NA, Alshareef EF, Almekhlafi MA. Primary headache characters and coping strategies among medical students of Umm Al-Qura University in the Western Region of Saudi Arabia. Neurosci Riyadh Saudi Arab. 2018;23(4):308–13.

18-Brandes JL. The influence of estrogen on migraine: a systematic review.
JAMA 2006;295(15):1824–18

19-Adoukonou T, Houinato D, Adjien C, Avodé DG, Preux PM. Prévalence de la migraine dans une population de travailleurs à Cotonou au Bénin.
African Journal of Neurological Sciences 2009 ; 28 :16-23.

20-Wang X, Sun J, Xing Y, Zhou H, Zhao Y, Zhu Y. The prevalence and awareness of migraine among university students in Harbin, China.
J Oral Facial Pain Headache 2015;29(4):384–389.

21 Ojini FI, Okubadejo NU, Danesi MA. Prevalence and clinical characteristics of headache in medical students of the University of Lagos, Nigeria. Cephalalgia 2009;29(4):472–477

22 Yazdanparast M, Abrishamizadeh AA, Mahboobi H, et al. Prevalence of and factors associated with migraine in medical students at BandarAbbas,Southern Iran, in 2012. Electron Physician 2013;5(3): 679–684.

23 Ghorbani A, Abtahi SM, Fereidan-Esfahani M, et al. Prevalence and clinical characteristics of headache among medical students, Isfahan, Iran J Res Med Sci. 2013;18 (Suppl 1): S24–27.

24-Lebedeva ER, Kobzeva NR, Gilev DV, Kislyak NV, Olesen J. Psychosocial factors associated with migraine and tension-type headache in medical students. Cephalalgia Int J Headache 2017; 37(13):1264–71.

25-Chen C-Y, Yu N-W, Huang T-H, Wang W-S, Fang J-T. Harm avoidance and depression, anxiety, insomnia, and migraine in fifth-year medical students in Taiwan. Neuropsychiatr Dis Treat. 2018;14:1273–80.

26- Ulrich V, Gervil M, Kyvik KO, et al. Evidence of a genetic factor in migraine with aura: A population-based Danish twin study. Ann Neurol 1999; 45: 242–246.