Research Article

Socio-Professional Impact of Migraine in Brazzaville, Congo- 🔓

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ABSTRACT

Introduction: Migraine is a chronic disease evolving through recurrent attack; it constitutes a frequent reason of consultation in neurology. It has a significant impact that can affect all spheres of life. Thus, it is one of the most disabling primary headaches.

Objective: To evaluate the impact of migraine in population of Brazzaville.

Patients and method: Prospective cross-sectional, door-to-door. This study took place from March 1st to July 31st, 2018, for a period of five months, in the city of Brazzaville. Regarding all subjects over 18 years old, living in Brazzaville for over ten years. We used the HIS criteria for migraine diagnosis, the HIT-6 scale and the MIDAS score for assessment of impact and loss of productivity respectively. The statistical analysis was performed using SPSS 20.0 software for Mac.

Results: The prevalence of migraine was 11, 3% in Brazzaville, with 6% definite migraine and 5, 3% of probable migraine. Women are more affected than men respectively 63, 5% and 36, 5%. According to the impact, 69, 6% of subjects had a MIDAS grade 1 and 2, 30, 4% of subjects had a MIDAS grade 3 and 4. According to HIT-6, 42, 6% of subjects have a mild to moderate impact, 57, 4% have a significant impact to major. The important impact factors were: pulsatile headache, intensity and aggravating factors.

Conclusion: Migraine is a public health problem because of its frequency and its important impact. However, it remains underdiagnosed and ignored by the general population. This ignorance is responsible of a bad care and a high rate of self-medication.

Keywords: Migraine; Impact; Brazzaville

INTRODUCTION

Migraine is a common reason for consultation in neurology. It is one of the most disabling primary headaches [1]. It mainly affects young adults in full occupational activity, with attack usually starting at puberty with a clear decrease of symptoms after 50 years. The frequency of attack is estimated at more than two per month, in 40-50% of cases [2]. The diagnosis of migraine is essentially clinical, according to the criteria defined by the International Headache Society (IHS), recently updated in 2018 [1,3]. Several studies have been conducted in Western and African countries on the epidemiology of migraine [4-7]. In the Global Burden of Disease Survey, published in 2010, migraine was ranked as the third most common disorder and the seventh leading cause of disability in the world [8]. In 2015, it was ranked as the third leading cause of disability among people under 50 years [9]. This ranking is obviously linked not only to its high prevalence, but also to its considerable socio-economic impact [10]. According to the WHO, migraine is ranked among the top twenty disorders in the world that cause significant disability with considerable economic impact [11].

In the Congo, and more specifically in Brazzaville, the impact of migraine in the general population has not been studied to date, which has justify our interest in this study. The aim of our work is to evaluate the loss of productivity and the socio-professional impact of migraine in Brazzaville.

PATIENTS AND METHOD

It was a cross-sectional, door-to-door study conducted between March 1st and July 31st, 2018, in the 9 districts of Brazzaville, the political and administrative capital of the Republic of Congo. Have been included, all subjects of at least 18 years, living in Brazzaville and having clearly expressed their consent. Not included were all subjects with a considerable cognitive or physical disability that did not allow them to answer the survey and those from others localities living in Brazzaville for less than ten years. We excluded all subjects who partially answered the survey. Subjects were selected by random cluster sampling. The field survey was conducted by students in the final year of medical school who were trained prior to the various headache classifications. For all cases of migraines, the diagnostic confirmation was made, according to the criteria of ICHD 3, by 2 neurologists participating in the study. The investigators went door-to-door in all the districts of Brazzaville for filling in the questionnaire. Certain migraine was retained when all criteria A, B, C, D and E of migraine with or without aura were filled. Probable migraine patients were those who met all but one of the diagnostic criteria and did not meet the criteria for another type of headache. The loss of productivity and the socio-professional impact were assessed respectively by the Migraine Disability Assessment (MIDAS) score and the Headache Impact Test 6 scale (HIT-6).

The MIDAS score was used to evaluate the productivity loss related to migraine during the last three months. This loss of productivity was measured for working life, domestic life and social life by evaluating the number of days of activity lost in each of these three domains, as well as the number of days for which productivity was halved. The result of the MIDAS survey has been grouped into 4 grades:

- Grade 1: less than 6 days of lost productivity per quarter; which corresponds to little or no severity.

- Grade 2: between 6 and 10 days; discreet severity.

- Grade 3: between 11 and 20 days; moderate severity.

- Grade 4: more than 20 days; severe severity.

We considered two groups, group 1 corresponding to grades 1 and 2 and group 2 corresponding to grades 3 and 4.

The HIT-6 scale was used to measure the degree of headache-related disability, comprising 6 questions (3 first assessing the impact of the attack and 3 last assessing the overall impact) and 5 identical answer items: never, rarely, from time to time (sometimes), very often and all the time (constantly) rated respectively 6, 8, 10, 11 and 13. The score obtained goes from 36 (zero impact) to 78 (maximum impact). A total of less than 55 is indicative of a mild or moderate impact, while a score greater than 55 indicates a significant impact to major. We considered two groups, low to moderate impact (≤ 55) and significant to severe impact (> 56).

The Microsoft Excel version 2016 software was used for data logging. Statistical analysis was performed with SPSS 22.0 for Mac software. The numbers were compared by Pearson's Chi-2 test or Fisher's test, and mean by the Student's t-test or the Whitney-Mann test according to the normality of the distribution. The relationship

between quantitative variables was determined by the Pearson or Spearmann correlation according to the normality of the distribution. A simple and then multiple logistic regressions were carried out to determine the factors associated with the loss of productivity and the socio-professional impact of migraine. Variables with $p \leq 20\%$ in simple logistic regression were included in the multiple regression. The threshold of significance has been set at 5%.

Ethical considerations were respected: The study was done anonymously. The subjects of the survey were interviewed individually. The information collected is confidential, coded and identified by a number. Informed consent was obtained for each subject interviewed.

RESULTS

During the study 1048 subjects were selected for interview, of which 31 (3%) refused to continue the interview. A total of 1017 subjects were interviewed, representing a participation rate of 97%. Among the subjects interviewed, there were 288 (28.3%) with history of headache. According to IHS diagnostic criteria, a migraine was diagnosed in 115 (39.9%) of the 288 subjects, but the prevalence of migraine among general population was 11.3% (11300 per 100,000 inhabitants).

Certain migraine was established in (53.0%) subjects and the probable migraine in 54 (27.0%) cases.

The mean age of migraine patients was 34.3 ± 11.7 years [18 - 63 years]. The sex ratio was 0.57, or 42 (36.5%) men and 73 (63.5%) women, with a significant difference ($p = 0.024$).

Regarding employment status, informal sector workers are the most represented as well as single persons and those with secondary education (Table 1).

According to the professional activity, the mean working time and overtime were respectively 8.2 ± 2.7 [3 to 20] and 2 ± 0.7 [0.5 to 3].

The mean MIDAS score was 12.4 ± 17.4 [0-120]. The different rank of MIDAS, on migraine productivity loss are presented in figure 1.

The mean HIT-6 scale was 56.9 ± 7.9 [40-73]. The low to moderate impact was found in 49 (42.6%) cases, and significant to severe impact in 66 (57.4%) cases.

The univariate analysis of the factors related to the severity of the socio-professional impact of migraine according to the MIDAS
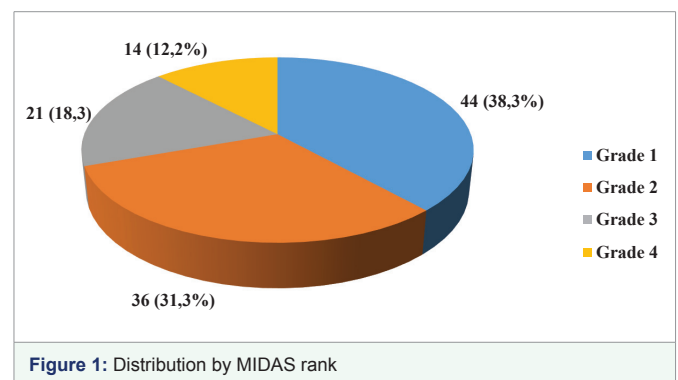

Figure 1: Distribution by MIDAS rank

Table 1: Socio demographic factors related to the severity of migraine by MIDAS.

	Grade 1 and 2	Grade 3 and 4	OR (CI 95%)	p
	n (%)	n (%)		
Âge*	35,0 ± 11,7 [18-63]	32,8 ± 11,8[18-56]	0,98 (0,95-1,02)	0,359
Female gender	47 (58,8)	26 (74,3)	2,03 (0,84-4,89)	0,115
Leaseholder	40 (50,0)	21 (60,0)	1,50 (0,67-3,36)	0,324
Socioeconomic level				
Low	08 (10,0)	01 (2,9)	3,22 (0,42-13,06)	0,356
Middle	49 (61,3)	18 (51,4)	2,94 (0,34-25,18)	0,325
High	23 (28,7)	15 (42,9)	5,22 (0,59-46,07)	0,137
Very high	-	01 (2,9)	-	1,000
Alcohol intake	51 (63,7)	19 (54,3)	0,67 (0,30-1,51)	0,340
Smoking	08 (10,0)	04 (11,4)	1,161 (0,32-4,14)	0,818
Drug addicts	01 (1,3)	01 (2,9)	2,32 (0,14-38,24)	0,555
History of headache	48 (60,0)	22 (62,9)	1,13 (0,50-2,56)	0,498
Duration of migraines*	6,1 ± 2,9 [3,5-10,9]	6,2 ± 2,6 [2,8-10,8]	0,99 (0,95-1,05)	0,882
Âge when migraine onset*	26,8 ± 10,1 [14-54]	24,7 ± 10,8 [12-51]	0,98 (0,94-1,02)	0,318
Certain migraine	38 (47,5)	23 (65,7)	2,12 (0,93-4,83)	0,074
Auras	31 (38,8)	18 (51,4)	1,67 (0,75-3,73)	0,208
Follow up	03 (3,8)	05 (14,3)	4,28 (0,96-19,02)	0,056
Self-medication	71 (88,8)	26 (74,3)	0,21 (0,06-0,77)	0,019
Analgesics	49 (61,3)	22 (62,9)	1,06 (0,45-2,52)	0,893
NSAIDs	48 (60,0)	19 (54,3)	0,76 (0,33-1,76)	0,527

*Mean ± SD [extreme]; MIDAS = Migraine Disability Assessment; OR = Odds-Ratio; CI = Confidence Interval.

score and the HIT-6 scale are shown in tables 2-5. Table 6 represent the multivariate analysis of factors associated with the severity of migraine.

DISCUSSION

The confirmation of diagnosis of migraine was made by neurologists from the University hospital of Brazzaville, according to the criteria of the third version of the International Classification of Headache Disorders (ICHD-3 beta version) proposed in 2013 [1], the final version published in 2018 does not modify the diagnostic criteria for migraine [3]. The unique aspects of this study is that it is the first to assess the prevalence and impact of migraine in the general population in Congo.

The MIDAS score is a specific migraine score that assesses its impact in terms of lost productivity. This loss of productivity is measured for working life, domestic life and social life. This score is very well accepted by patients because it reflects the real concern of migraine sufferers. It has been validated in French, especially to assess the impact of migraine disease in the face of the clinician's judgment

and the migraine agenda. This objective approach to migraine disease is very useful in clinical practice [12,13].

The HIT-6 scale is a brief and reliable scale, which assesses the impact of headaches more comprehensively. It was developed from the Headache Impact Test (HIT) digital scale, available only on the internet. The HIT-6 scale has the advantage of integrating a very broad conception of disability, by sweeping several domains, namely; the severity of the pain during the attack, the restrictive nature of the attack (desire to lie down and inability to perform the activities of daily life). The last three areas evaluated include such diverse topics as fatigue, emotional awareness and work capacity. Although subjective, this scale is reliable, has been translated and validated in French, and widely used in clinical practice [14,15]. It has been recommended by the French Society for the study of migraines and headaches. It is also used in evaluating the efficacy of treatments [12,16].

The concomitant use of these two tools is necessary because although they have similarities they are complementary.

Migraine is a paroxysmal neurological disorder that can have

Table 2: Clinical factors related to the severity of migraine by MIDAS.

	Grade 1 and 2	Grade 3 and 4	OR (CI 95%)	p
	n (%)	n (%)		
Site				
Unilateral	32 (40,0)	12 (34,3)	0,78 (0,34-1,79)	0,562
Rocking	14 (17,5)	14 (40,0)	3,14 (1,29-7,64)	0,012
Other	42 (52,5)	11 (31,4)	0,42 (0,18-0,96)	0,039
Pulsatile	56 (70,0)	31 (88,6)	3,32 (1,06-10,45)	0,040
Intensity				
Low	01 (1,3)	-	-	1,000
Moderate	38 (47,5)	10 (28,6)	0,43 (0,18-1,02)	0,054
Severe	41 (51,2)	25 (71,4)	1,46 (0,23-5,37)	0,157
Continuous evolution	10 (12,5)	04 (11,4)	0,90 (0,26-3,11)	0,872
Duration 4-72H	68 (85,0)	32 (91,4)	1,88 (0,49-7,14)	0,352
Frequency				
Daily	-	04 (11,4)	-	0,999
Weekly	17 (21,3)	13 (37,1)	2,20 (0,88-5,51)	0,093
Monthly	17 (21,3)	02 (5,7)	0,34 (0,07-1,63)	0,176
Irregular	46 (57,5)	16 (45,7)		0,113
Associate symptoms				
Nausea	17 (21,3)	12 (34,3)	1,93 (0,81-4,66)	0,142
Vomiting	03 (3,8)	02 (5,7)	1,56 (0,23-9,75)	0,637
Phonophotophobia	50 (62,5)	25 (71,4)	1,50 (0,63-3,55)	0,356
Aggravating signs	49 (61,3)	25 (71,4)	1,58 (0,67-3,74)	0,296
Triggering factors				
Stress	57 (71,3)	24 (68,6)	0,88 (0,37-2,09)	0,772
Hormone	5 (6,3)	05 (14,3)	2,50 (0,68-9,27)	0,170
Food	17 (21,3)	08 (22,9)	1,10 (0,42-2,85)	0,848
Sensory	41 (51,2)	26 (74,3)	2,75 (1,15-6,60)	0,024
Sleep disorders	19 (23,8)	11 (31,4)	1,47 (0,61-3,55)	0,390
Sunshine	26 (32,5)	15 (42,9)	1,56 (0,69-3,53)	0,288

MIDAS = Migraine Disability Assessment; OR = Odds Ratio; CI = Confidence Interval; H = Hours.

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MIDAS = Migraine Disability Assessment; OR = Odds Ratio; CI = Confidence Interval; H = Hours.

a significant impact on different spheres of life. This impact was measured from the more specific MIDAS score and the more global HIT-6 scale. For the MIDAS score, a moderate to important impact (grades 3 and 4) was found in 30.4% of migraine patients. After multivariate analysis, the pulsatile nature of migraine (OR: 4,193, 95% CI: 1,093-16,045, $p = 0,036$) and moderate intensity compared with severe intensity were associated with lower impact (OR: 0,318; at 95%: 0.115-0.878, $p = 0.027$). In Nigeria, results similar to ours were noted, including moderate to severe disability (grades 3 and 4) found in 36.6% of migraine patients [17]. This same trend has also been found in Turkey [18]. In 2002 in France, Henry et al [19], found a MIDAS grade 1 and 2 in 1.6% of migraine patients; moderate to severe impact (MIDAS 3 and 4) than in 12% of migraine patients. The high MIDAS score was associated with the frequency, duration and tolerability of attack (intensity). Cultural differences, socio-economic status and access to health services may explain this discrepancy. Indeed in our study the majority of the subjects had no follow-up. Adequate management of migraine would improve the quality of life of the subjects and reduce the professional impact [20].

Regarding the HIT-6 scale, we found 57.4% of migraine patients with significant to severe impact. The pulsatile character (OR: 7.238, 95% CI: 1.952-26.839, $p = 0.003$), the presence of aggravating factors (OR: 3.509, 95% CI: 1.117-11, p 025 = 0.032) and the fact that to be a leaseholder (OR: 3,398, 95% CI: 1,160-9,955, $p = 0,026$) were associated with a greater impact of migraine. However, the moderate intensity of migraine compared with the severe one had a lower impact (OR: 0.235, 95% CI: 0.083-0.665, $p = 0.006$).

Severe pain of any kind may be responsible for attentional dysfunction, memory and executive functions, so the more severe the pain, greater be dysfunction [21]. Severe intensity implies a greater handicap. For Nachit-Ouinekh et al. [22], in 2004, the HIT-6 scale correlated with the severity and intensity of headaches. Although these two tools have a different approach to the impact of migraine, a correlation has been found between the two [23,24].

The association found with the pulsatile nature, the increase in intensity, the presence of aggravating factors and the stress that would be linked to being a tenant, suggest a specific and adequate management of these factors, underpinned by a good diagnosis and a

correct evaluation of the characteristics of the migraine. Thus, a good therapeutic strategy should take into account the disability caused by migraine, for satisfactory clinical results as reported Shin et al [25]. Hence the importance of these tools, of use and interpretation easy and fast. Maiga et al. [26] in Maly, found a lower migraine-related productivity loss of 4.7%.

Table 4: Clinical factors related to migraine by HIT-6.

	light to moderate impact	significant to severe impact	OR (CI 95%)	p
	n (%)	n (%)		
Site				
Unilateral	18 (36,7)	26 (39,4)	1,12 (0,52-2,40)	0,772
Rocking	08 (16,3)	20 (30,3)	2,23 (0,89-5,60)	0,088
Other	27 (55,1)	26 (39,4)	0,53 (0,25-1,12)	0,096
Type pulsatile	31 (63,3)	56 (84,8)	3,25 (1,34-7,91)	0,009
Intensity				
Low	01 (2,0)	-	-	1,000
Moderate	28 (57,1)	20 (30,3)	0,31 (0,14-0,68)	0,003
Severe	20 (40,8)	20 (30,3)		0,013
Continous evolution	06 (12,2)	08 (12,1)	0,99 (0,32-3,06)	0,984
Duration 4-72H	41 (83,7)	59 (89,4)	1,65 (0,55-4,89)	0,371
Frequency				
Daily	-	04 (6,1)	-	0,999
Weekly	10 (20,4)	20 (30,3)	1,54 (0,62-3,83)	0,350
Monthly	12 (24,5)	07 (10,6)	0,45 (0,16-1,30)	0,139
Irregular	27 (55,1)	35 (53,0)	1,04 (0,35-2,02)	0,255
Associate symptoms				
Nausea	08 (16,3)	21 (31,8)	2,39 (0,96-5,99)	0,063
Vomiting	03 (6,1)	02 (3,0)	0,48 (0,08-2,98)	0,430
Phonophotophobia	35 (71,4)	40 (60,6)	0,62 (0,28-1,36)	0,230
Aggravating factors	24 (49,0)	50 (75,8)	3,26 (1,47-7,20)	0,004
Triggering factors				
Stress	36 (73,5)	45 (68,2)	0,77 (0,34-1,76)	0,539
Hormone	02 (4,1)	08 (12,1)	3,24 (0,66-15,99)	0,149
Food	11 (22,4)	14 (21,2)	0,93 (0,38-2,27)	0,874
Sensory	26 (53,1)	41 (62,1)	1,45 (0,68-3,07)	0,331
Sleep disorders	09 (18,4)	21 (31,)	2,07 (0,85-5,05)	0,108
Sunshine	15 (30,6)	26 (39,4)	1,47 (0,67-3,22)	0,332

HIT-6 = HeadacheImpact Test 6; OR = Odds-Ratio; CI = Confidence Interval.

Table 5: Multivariate analysis of factors related to migraine by MIDAS.

	Grade 1 and 2	Grade 3 and 4	OR (CI à 95%)	p
	n (%)	n (%)		
Pulsatile	56 (70,0)	31 (88,6)	4,19 (1,09-16,05)	0,036
Intensity				
Low	01 (1,3)	-	-	1,000
Moderate	38 (47,5)	10 (28,6)	0,32 (0,12-0,88)	0,027
Severe	41 (51,2)	25 (71,4)	1,82 (0,54-2,77)	0,087

MIDAS = Migraine Disability Assessment; OR = Odds-Ratio ; CI = Confidence Interval.

Table 6: Multivariate analysis of factors related to migraine by HIT-6.

	light to moderate impact	significant to severe impact	OR (CI 95%)	p
	n (%)	n (%)		
Leaseholder	22 (44,9)	39 (59,1)	3,39 (1,16-9,96)	0,026
Pulsatil	31 (63,3)	56 (84,8)	7,24 (1,95-26,84)	0,003
Intensity				
Low	01 (2,0)	-	-	1,000
Moderate	28 (57,1)	20 (30,3)	0,23 (0,08-0,67)	0,006
Severe	20 (40,8)	46 (69,7)	-	
Aggravating factors	24 (49,0)	50 (75,8)	3,51 (1,12-11,03)	0,032

HIT-6 = HeadacheImpact Test 6; OR = Odds-Ratio; CI = Confidence Interval.

CONCLUSION

Migraine is a public health problem because of its high frequency and its significant impact on the different aspects of the life of migraine sufferers. It affects the young adult and more preferably the woman with a sex ratio of 0.57. It is a disabling condition that remains under diagnosed although well described by IHS. In addition to the personal disability of the migraine patient and those around him, the disease is also a burden for the community because of its economic impact, related to medical expenses or productivity losses in an active population. Migraine already poorly known to practitioners is almost unknown to the general public which implies inadequate management.

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