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Traditional Medicine and Neurological Diseases: A Hospital-Based Cross-Sectional Study

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Abstract

Introduction: Although, the traditional medicine is frequently used in the treatment of neurological diseases in sub-Saharan Africa particularly in Mali, very few studies have characterized aspects such as the factors influencing the use of traditional medicine, the types of traditional medicine used, the neurological diseases for which traditional medicine is used, and the adverse events linked to traditional medicine. The aim of our work was to enrich the Neurology Department's data on neurological diseases and traditional medicine, focusing on the different types of traditional medicine used, the factors influencing their use, the neurological diseases for which traditional medicine is used and the adverse events related to traditional medicine use. ***Method:*** This was a prospective, cross-sectional study of outpatients and inpatients seen in the neurology department at CHU Gabriel TOURE, conducted over three (3) months. The data collected were entered and analyzed using the following software packages: SPSS version 22.0, Microsoft office Excel 2010 and Epi InfoTM 7. We performed a univariate analysis to obtain the mean and standard deviation for quantitative data, and the numbers and percentages for qualitative data. In the bivariate analysis, Chi-square and Fisher's exact tests were used to determine a significant association between the categorical independent variables and the dependent variable. Values of $p<0.05$ are considered statistically significant. ***Results:*** Of the 106 patients admitted for consultation or hospitalization during the study period, the majority (91.5%) used traditional medicine. Patients with neurological diseases who used traditional medicine accounted for 57.5%. Stroke was the most frequent neurological diseases that motivated our patients to consult or to be hospitalized in the Department of Neurology (36.8%), followed by lumbo-radiculopathy (17.9%). Belief in traditional medicine was the most prevalent factor influencing the use of traditional medicine (57.4%). The majority of patients (83.6%) attributed their illness to divine punishment. Phytotherapy was the most common type of traditional medicine received by our patients (55.7%), followed by massage (27.9%). The majority of our patients had no adverse events (95.3%). Patients with epilepsy and low back pain were more likely to use traditional medicine than those who did not use traditional medicine (RR= 4.80; 95% CI= (1.14 - 20.20) and p= 0.006; RR= 6.27; 95% CI= (1.53 -25.78); p= 0.000). The use of phytotherapy was significantly more frequent in patients seen for stroke (p=0.000) and epilepsy (p=0.002) than others types of traditional medicine. In addition, massage was most frequently used in patients with low back pain (p=0.000) others types of traditional medicine. ***Conclusion:*** Our study showed that the majority of our patients used traditional medicine. More than half of patients with neurological diseases used traditional medicine. Factors influencing the use of traditional medicine were mainly dominated by belief in traditional medicine and cultural attachment to traditional medicine. The most commonly used types of traditional medicine are phytotherapy and massage. Neurological diseases for which traditional medicine is used are dominated by stroke and lomboradiculopathy. Almost all our patients have not experienced any adverse effects from traditional medicine.

Keywords: Neurological diseases, traditional medicine, alternative medicine, complementary medicine, Gabriel TOURE University Hospital Center.

INTRODUCTION

According to the World Health Organization (WHO), traditional medicine is the sum of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health and the prevention, diagnosis, improvement or treatment of physical and mental illness. Dans certains pays, les appellations médecine parallèle, alternative ou douce sont synonymes de médecine traditionnelle [1]. Different terminologies have developed around it in different countries. In countries where the dominant healthcare system is based on modern "Western" medicine, or where traditional medicine has not been integrated into the national healthcare system, traditional medicine is often referred to as "complementary", "alternative" or "non-conventional" medicine [2]. However, the integrative medicine refers to the simultaneous use of conventional and alternative (non-conventional) medicine in the care of a patient [3].

According to the WHO, approximatively 80% of the populations living in the African region depend on traditional medicine for their healthcare needs [4, 5]. Nevertheless, several Western studies show that this practice remains common, ranging from 48 to 70% [6]. Multiple factors influencing the use of traditional medicine have been described, including religious beliefs, economic constraints, socio-cultural difficulties, patient dissatisfaction with conventional medicine, and illegal distribution of health services [7].

In neurology departments, the rate of use of traditional medicine varies according to the type of neurological pathology. In Nigeria, 47.6% of epileptic patients used traditional medicine alone [8], in Mali 75% of cephalalgia patients [9] and 32.3% of patients with low back pain [10].

The types of traditional medicine vary greatly from one geographical region to another. Their indications in neurology are also numerous and diverse. Indeed, in Saudi Arabia, the main types of traditional medicine used against ischemic stroke were Quranic verse, zamzam drink and honey [11]. In addition, Tai chi in fibromyalgia and Parkinson's disease [12,13], acupuncture in stroke [14], herbal drinking, fasting and prayer in the management of epilepsy [15].

Like conventional medicine, traditional medicine is not exempt from adverse effects. The prevalence of these adverse effects varies from 11 to 14% according to studies in Korea and Burkina Faso [16, 17].

Based on these observations, WHO drew up a regional strategy for the promotion of traditional medicine, validated by the African Heads of State in Lusaca (Zambia). This political will has led to the creation of traditional medicine research institutes in 36 African countries, including Mali [15]. Despite this worrying situation in terms of neurological pathologies, erroneous and stigmatizing beliefs persist in sub-Saharan Africa, and scientific knowledge is failing to change them [18].

Although, the traditional medicine is frequently used in the treatment of neurological diseases in sub-Saharan Africa particularly in Mali, very few studies have characterized aspects such as the factors influencing the use of traditional medicine, the types of traditional medicine used, the neurological diseases for which traditional medicine is used, and the adverse events linked to traditional medicine [7, 10].

The aim of our work was to enrich the Neurology Department's data on neurological diseases and traditional medicine, focusing on the different types of traditional medicine used, the factors influencing their use, the neurological diseases for which traditional medicine is used and the adverse events related to traditional medicine use.

METHOD

This was a prospective, cross-sectional study of outpatients and inpatients seen in the neurology department at CHU Gabriel TOURE (figure 1), conducted over three (3) months.

Sampling was exhaustive, covering all outpatients and inpatients seen during the study period. To estimate the rate of patients who will use traditional medicine, we calculated the minimum sample size using the following formula:

$$n = \frac{\varepsilon_\alpha^2 pq}{i^2}$$

i = desired precision, which we set at 10%;
p = Estimated proportion of patients who used traditional medicine. To the best of our knowledge, we found a prevalence of patients using traditional medicine for a non-exhaustive set of neurological diseases, hence the choice of a standard prevalence of 50%.
q = 1-p = 0.5;
The risk of error α = 5% and the corresponding reduced deviation of ε_α = 1.96;
So, n= 3.84 × 0.5 × 0.5/ (0.1)2= 96
Assuming that 10% of our patients will be subject to selection bias, the minimum sample size will be 96 + 9.6, i.e. 106 patients using traditional medicine.

All patients who were seen in consultation or admitted to hospital for a neurological pathology during the study period, and who were willing and available to participate in the study, regardless of age or sex, were included in the study. All patients admitted outside the study period and all non-consenting patients were not included in this study. Neurological diseases were

diagnosed on the basis of clinical and paraclinical data and/or validated diagnostic criteria.

Data were collected by means of an anonymous questionnaire divided into five parts: i) Part 1: patient sociodemographics; ii) Part 2: factors influencing the use of traditional medicine; iii) Part 3: neurological diseases for which traditional medicine was used; iv) Part 4: types of traditional medicine used; v) Part 5: adverse effects associated with traditional medicine.

The data collected were entered and analyzed using the following software packages: SPSS version 22.0, Microsoft office Excel 2010 and Epi InfoTM 7. We performed a univariate analysis to obtain the mean and standard deviation for quantitative data, and the numbers and percentages for qualitative data. In the bivariate analysis, Chi-square and Fisher's exact tests were used to determine a significant association between the categorical independent variables and the dependent variable. Values of $p<0.05$ are considered statistically significant.

Prior to inclusion in the study, we explained and showed the survey form to patients asking for their collaboration in our study, and those who agreed to take part were informed about the study objectives and how the survey would be carried out. In addition, the study was explained in detail to patients in order to obtain their informed consent. Data collection was strictly anonymous. No compensation (financial or material) was provided for participants.

RESULTS

Of the 106 patients admitted for consultation or hospitalization during the study period, the majority (81.1%) were seen on an outpatient consultation. The majority of our patients (91.5%) used traditional medicine (table 1). Patients with neurological pathologies who used traditional medicine accounted for 57.5% (figure 2). Males predominated (50.9%).

The age group 35 to 64 represented 50.0%. The majority of our patients were married (66%). Housewives were in the majority, followed by retired people with 30.2% and 14.2% respectively. Non-educated patients accounted for 38.7%, followed by educated patients with secondary education in 33% of cases. Patients with an income of 1 to 2 times the minimum wage were in the majority (43.4%). The Bambana ethnic group was predominant (22.6%), followed by the Soninké ethnic group (18.9%). Most of our patients (67.9%) lived in urban areas. The majority of our patients were Muslim (99.1%) (table 2).

Stroke was the most frequent neurological diseases that motivated our patients to consult or to be hospitalized in the Department of Neurology (36.8%), followed by lumbo-radiculopathy (17.9%) (Figure 3).

Belief in traditional medicine was the most prevalent factor influencing the use of traditional medicine (57.4%). The majority of patients (83.6%) attributed their illness to divine punishment (table 3).

Phytotherapy was the most common type of traditional medicine received by our patients (55.7%), followed by massage (27.9%) (table 4). Marabouts were the most consulted type of traditional therapist with 47.5% (table 5). The majority of our patients had no adverse events (95.3%) (table 6).

Patients with epilepsy and low back pain were more likely to use traditional medicine than those who did not use traditional medicine (RR= 4.80; 95% CI= (1.14 - 20.20) and p= 0.006; RR= 6.27; 95% CI= (1.53 - 25.78); p= 0.000) (table 7). The use of phytotherapy was significantly more frequent in patients seen for stroke (p=0.000) and epilepsy (p=0.002) than others types of traditional medicine. In addition, massage was most frequently used in patients with low back pain (p=0.000) others types of traditional medicine (table 8).

Table 1: Distribution of patients according to use of traditional medicine

Use of traditional medicine	Number	Percentage
Yes	97	91.5
No	9	8.5
Total	**106**	**100.0**

Table 2: Distribution of patients by socio-demographic characteristics

Sociodemographic characteristics	Number (N=106)	Percentage
Sex		
Male	54	50.9
Female	52	49.1
Age group		
< 34 years	25	23.6
35 – 64 years	53	50.0
> 65 years	28	26.4
Marital status		
Married	70	66.0

Sociodemographic characteristics	Number (N=106)	Percentage
Single	17	16.0
Widowed	19	17.9
Profession		
Pupil/Student	10	9.4
Civil servant	6	5.7
Trader	11	10.4
Farmer	8	7.5
Houseworker	32	30.2
Informal worker	2	1.9
Ouvrier	9	8.5
Not employed	2	1.9
Retired people	15	14.2
Others	11	10.4
Education level		
Literate in local language	1	0.9
Illiterate	41	38.7
Primary level	20	18.9
Secondary level	35	33.0
Higher study	9	8.5
Income level		
Income less than the SMIG	40	37.7
Income 1 to 2 times the SMIG	46	43.4
Income 3 or more times the SMIG	20	18.9

SMIG: The guaranteed minimum salary. In Mali, it is 40,000 XOF.

Table 3: Distribution of patients by socio-demographic characteristics

Socio-demographic characteristics	Number (N=106)	Percentage
Ethnic group		
Bambara	24	22.6
Peulh	15	14.2
Sonrhai	10	9.4
Dogon	5	4.7
Sénoufo	3	2.8
Bwa	1	0.9
Bozo	8	7.5
Malinké	15	14.2
Soninké/ Sarakolé	20	18.9
Others	5	4.7
Residence		
Urban	72	67.9
Semi-urbain	13	12.3
Rural	21	19.8
Religion		
Muslim	105	99.1
Christian	1	0.9

Table 4: Distribution of patients according to factors influencing the use of traditional medicine and the cause of illness according to their understanding

Factors influencing the use of traditional medicine and the cause of illness according to their understanding	Effective	Percentage
Factors influencing the use of traditional medicine		
Believing in traditional medicine	35	57.4
Traditional medicine is part of our culture	15	24.5
Supernatural illness	9	14.8
Others	2	3.3
Total	**61**	**100.0**

Factors influencing the use of traditional medicine and the cause of illness according to their understanding	**Effective**	**Percentage**
Cause of illness according to their understanding		
Divine or ancestral punishment	51	83.6
Witchcraft	5	8.2
Demons	4	6.6
Others	1	1.6
Total	**61**	**100.0**

Table 5: Distribution of patients according to the types of traditional medicine

Types of traditional medicine	**Number**	**Percentage**
Phytotherapy	34	55.7
Scarification	2	3.3
Quran verse	3	4.9
Massage	17	27.9
Others	5	8.2
Total	**61**	**100.0**

Table 6: Distribution of patients according to the types of traditional therapist

Traditional therapist	**Number**	**Percentage**
Marabout	**29**	**47.5**
Healer	17	27.9
Witch Doctor	2	3.3
Traditional self-medication	13	21.3
Total	**61**	**100.0**

Table 7: Distribution of patients according to adverse events related to the use of traditional medicine

Adverse events related to the use of traditional medicine	**Number**	**Percentage**
Yes	5	4.7
No	101	95.3
Total	**106**	**100.0**

Table 8: Distribution of patients according to neurological diseases and patients using traditional medicine

Neurological diseases	**Patients using traditional medicine**		**Total (%)**	**RR 95% CI**	**p- value**
	Yes (%)	**No (%)**			
Movement disorders	0 (0.00)	2 (100.0)	2 (100.0)	-	-
Epilepsy/Convulsions	13 (86.67)	2 (13.33)	15 (100.0)	4.80 (1.14 – 20.20)	0.006
Headache and craniofacial pain	5 (71.43)	2 (28.57)	7 (100.0)	1.84 (0.37 – 9.08)	0.241
Stroke	19 (48.72)	20 (51.28)	39 (100.0)	0.77 (0.48 – 1.24)	0.319
Non-traumatic spinal cord injury	1 (50.0)	1 (50.0)	2 (100.0)	1.47 (0.14 –11.77)	0.399
Peripheral neuropathy	3 (27.27)	8 (72.73)	11 (100.0)	0.28 (0.08 –0.98)	0.020
Encephalitis/encephalopathy	0 (0.0)	4 (100.0)	4 (100.0)	-	-
Meningitis/meningoencephalitis	0 (0.0)	1 (100.0)	1 (100.0)	-	-
Neuropathic pain	1 (33.33)	2 (66.67)	3 (100.0)	0.369 (0.03 –3.94)	0.230
Lumbago/Lomboradiculopathy	17 (89.47)	2 (10.52)	19 (100.0)	6.27 (1.53 –25.78)	0.000
Non-neurological diseases	2 (66.67)	1 (33.33)	3 (100.0)	1.47 (0.14 –15.76)	0.399

Table 9: Distribution of patients according to neurological diseases and type of traditional medicine

Neurological diseases	**Type of traditional medicine**					**p-value**
	Phytotherapy	**Scarification**	**Quran verse**	**Massage**	**Others**	
Stroke	20 (95.24)	0 (0.00)	0 (0.00)	0 (0.00)	1 (4.76)	0.000
Lumbago/Lomboradiculopathy	2 (11.76)	1 (5.88)	0 (0.00)	14 (82.35)	0 (0.00)	0.000
Epilepsy/Convulsions	9 (69.23)	0 (0.00)	3 (23.08)	0 (0.00)	1 (7.69)	0.002

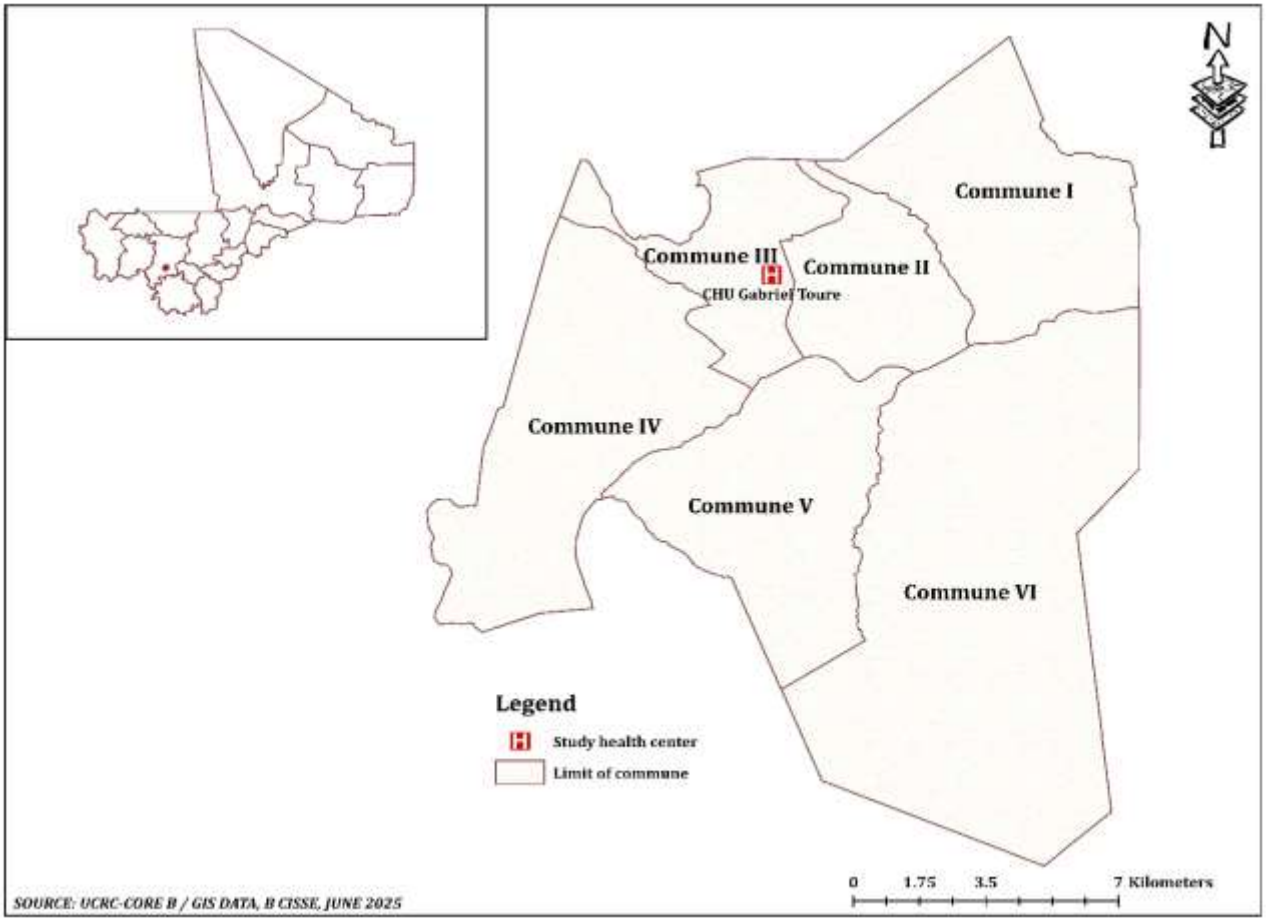

Figure 1: Map of study site

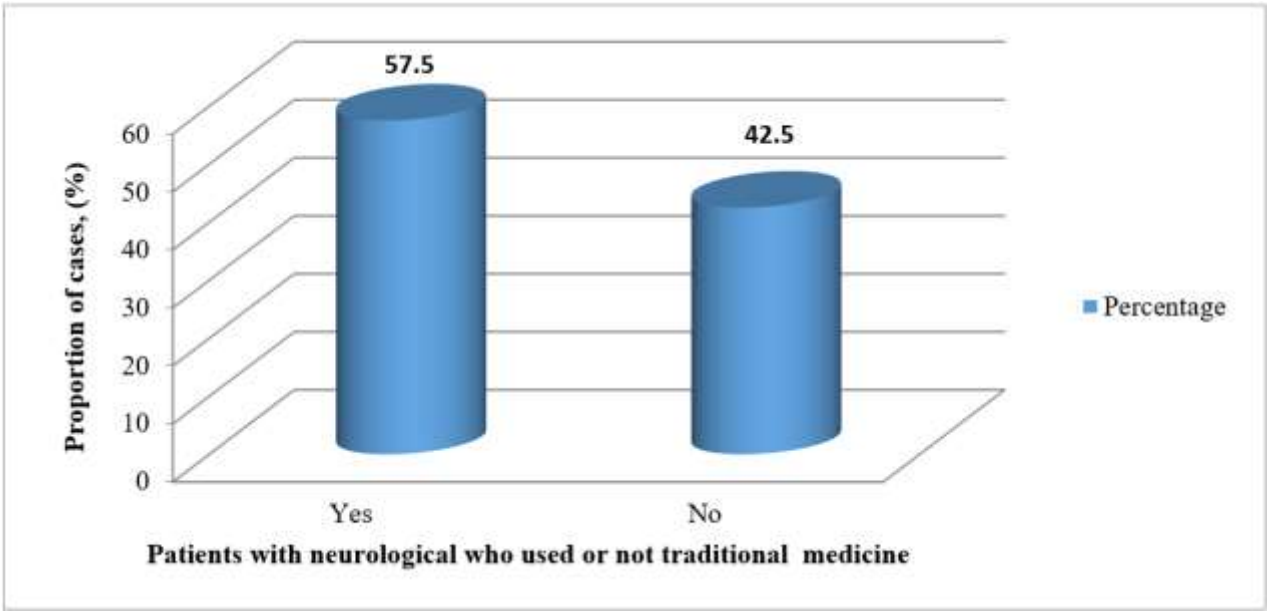

Figure 2: Distribution of patients according to the patients with neurological diseases who used traditional medicine

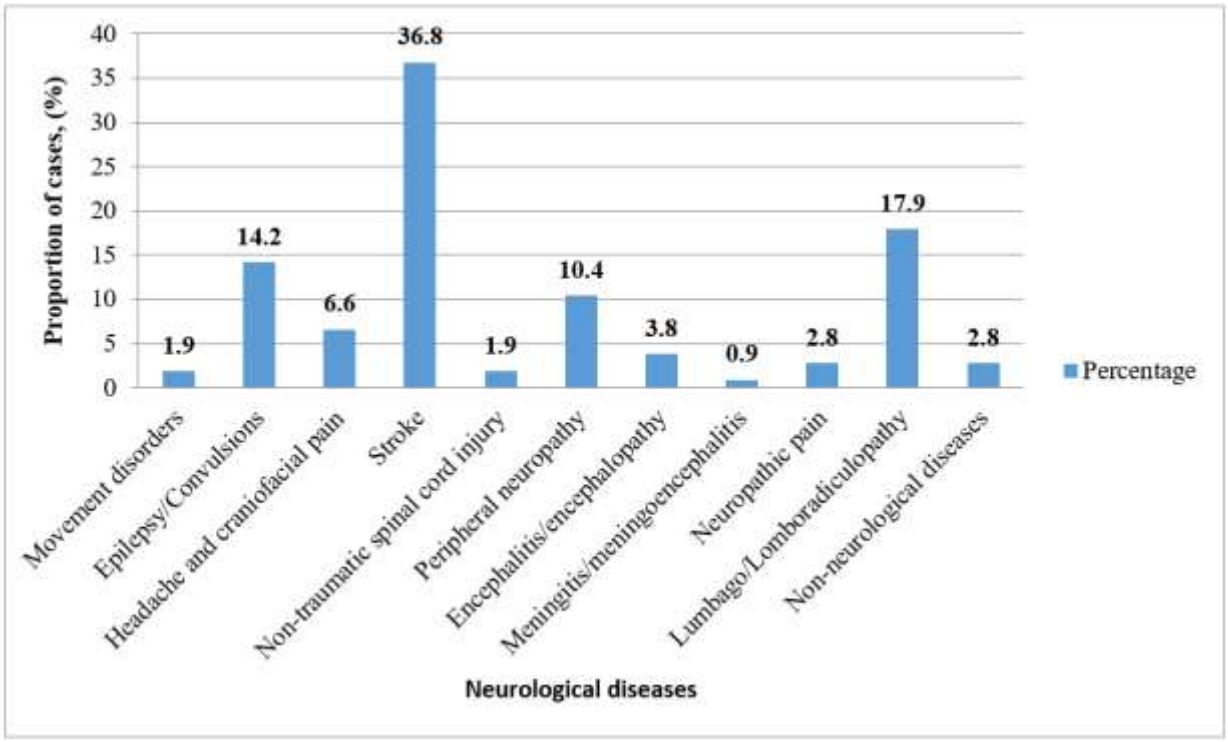

Figure 3: Distribution of patients according to the neurological diseases that motivated our patients to consult or to be hospitalized in the Neurology Department of the Gabriel TOURE University Hospital Center

DISCUSSION

This cross-sectional, prospective study, carried out in the Neurology Department of the Gabriel TOURE University Hospital Center, showed that the use traditional medicine is frequent, particularly among illiterate adults with lower incomes. It enabled us to better characterize the sociodemographic aspects, to explore the factors influencing the use of traditional medicine, to determine the neurological pathologies for which traditional medicine is used, as well as the types of traditional medicine, and finally to determine the frequency of adverse effects related to traditional medicine.

Our study comprised a number of biases: i) the ideal method for determining prevalence is an exhaustive survey. This is difficult to achieve in terms of cost and time, especially in the context of this study. ii) the questionnaires were collected by a single interviewer, in order to limit measurement bias.

Several African series on traditional medicine and neurological pathologies reveal a very high frequency of traditional medicine use [7, 10, 17], and these data are consistent with our study.

Contradictory data exist regarding the number of patients with neurological diseases who have used traditional medicine: a frequency of less than 50% has been reported by Rebecca *et al.,* [19], a frequency of over 70% by Goita [10], and 57.5% in our study. These differences could be explained by the mode of recruitment between our series.

The majority of our patients were seen on an outpatient consultation (81.1%), which could be explained by the fact that the neurology department was undergoing renovation at the time of the study period.

Males predominated, at 50.9% in our study. This predominance is not significant. This could be linked to the fact that neurological pathologies in general can affect both sexes in the same proportion. The majority of our patients were married (66%). This result is similar to that of Goita [10] in 2019, who found a marriage rate of 75.3%. In our study, houseworker was in the majority, followed by retired peoples with 30.2% and 14.2% respectively. This could be explained by the fact that the majority of our patients were elderly. Patients with a socio-economic level of 1 to 2 times the minimum wage were in the majority at 43.4%. This result is significantly lower than that of Goita [10], who found 65.9%. This may be explained by the difference in methodological approach. The Bambanan ethnic group predominated, with 22.6%, followed by the Soninké with 18.9%. This could be explained by the fact that the majority of the Malian population is Bambanan. As the Malian population is predominantly Muslim (94.2%), the majority of our patients were Muslim (99.1%).

Stroke was the most frequent neurological diseases that motivated our patients to consult or to be hospitalized in the Department of Neurology (36.8%),

followed by lumbo-radiculopathy (17.9%). In the neurology department, several series studies have shown that cerebrovascular disease is more prevalent, which may explain this discrepancy.

The majority of patients (83.6%) attributed their illness to divine punishment. Data from the literature confirm our findings [7]. Phytotherapy was the type of traditional medicine most frequently used by our patients (55.7%), followed by massage (27.9%). This could be explained by the fact that in our sample, patients suffering from pain were in the majority.

In our study, patients with epilepsy and low back pain were more likely to use traditional medicine than those who did not use traditional medicine; the use of phytotherapy was significantly more frequent in patients seen for stroke and epilepsy than others types of traditional medicine; and the massage was most frequently used in patients with low back pain others types of traditional medicine, a similar observation was made by Maiga *et al.,* [7].

CONCLUSION

Our study showed that the majority of our patients used traditional medicine. More than half of patients with neurological diseases used traditional medicine. Factors influencing the use of traditional medicine were mainly dominated by belief in traditional medicine and cultural attachment to traditional medicine. The most commonly used types of traditional medicine are phytotherapy and massage. Neurological diseases for which traditional medicine is used are dominated by stroke and lomboradiculopathy. Almost all our patients have not experienced any adverse effects from traditional medicine.

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