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Psychiatric Comorbidities in Patients with Migraine in a Tertiary Hospital

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ABSTRACT

Background: Psychiatric disorders are common in the migraine patients and affect the quality of the life of the individual. The objective of the study was to study the different psychiatric comorbidities and its relationship in migraine patients.

Methods: This was hospital based cross-sectional study. Seventy patients attending psychiatric outpatient department of Manipal Teaching Hospital, Pokhara with a diagnosis of migraine headache were included. The proforma was used to record socio-demographic variables. The patients were administered Mini International Neuropsychiatric Interview to find out the comorbid psychiatric disorder.

Results: The migraine was found more in the age group between 26 to 35 years, female gender and in the Brahmin caste. The migraine was also noticed to be higher in the homemakers, higher secondary educated and middle class patients and the patients living in the urban area. The comorbid psychiatric illness was found in 38 cases (54.3%) among which mild depressive disorder was the most common diagnosis (14.3%). The patients of migraine with aura had high risk of developing the psychiatric comorbidities as compared to the patients without aura (Odds Ratio = 1.22), although this relationship was insignificant (p value = 0.7688).

Conclusions: Mild depressive episode was the most common comorbid psychiatric condition. Migraine with aura have high risk of developing psychiatric comorbidities.

Keywords: Anxiety; comorbidities; depression; migraine headache; psychiatric disorders; psychiatric symptoms

INTRODUCTION

Migraine is a common disorder and neuropsychiatric psychopathology may occur prominently in the course of the attacks.[1] Migraine is the third most prevalent medical condition worldwide.[2,3] The psychiatric disorders occur with greater frequency among recurrent headache patients, and the prevalence of psychopathology increases and is over represented in clinical populations.[4]

There are limited studies done in Nepal regarding comorbidities in migraine. One study found mood disorder, while another study found anxiety disorder as the most common comorbid diagnosis in Nepal.[5,6] Moreover, the studies testing the association between type of migraine and psychiatric comorbidities is lacking in Nepal. Higher psychiatric comorbidity complicates the headache management and also carries a poorer prognosis. The objective of this study was to study the socio-demographic and clinical profile of migraine patients and also was to find out the prevalence of different psychiatric co-morbidities in migraine patients. The second objective was to test the relationship between type of migraine (with aura and without aura) and psychiatric comorbidities.

METHODS

This was hospital based cross-sectional study done in the Psychiatry OPD of Manipal Teaching Hospital located in Pokhara, Nepal. The ethical clearance for this study was taken from Institutional Review Committee of Manipal College of Medical Sciences, Pokhara. The consent was taken from all the participants. The study was conducted from February 2019 to July 2019. The sample size was calculated by using the formula $4pq/d^2$ (where; p=prevalence, 80%[5]; q= 100-p, 20%; d= Margin of error, 10%). The sample size according to this

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formula was 64. By adding six more sample (10% as non response rate), the final sample size was found to be 70. Seventy consecutive cases between the age group 16 to 65 years fulfilling the diagnostic criteria of migraine headache according to "International Headache Society Classification 2004"[7] were included as sample population by convenience sampling methods. Data collection and diagnosis of migraine was made by the consultant psychiatrist. The patient suffering from co-morbid physical disorders were excluded from the sample population. Data was collected using pre structured proforma to gather information about socio-demographic variables. The psychiatric comorbidity was assessed by using Mini International Neuropsychiatric Interview (MINI) version 6.0.[8] The Nepali-version of MINI was used in this study. Standard translation procedure was followed to develop the Nepali-version. This includes forward-backward translation independently carried by two native-speakers of Nepali language. Any discrepancies and incongruence's were resolved by third consultant by consensus process. MINI is a brief structured diagnostic interview for Axis I psychiatric disorders as per the Diagnosis and Statistical Manual IV (DSM IV) and the ICD-10 Classification of Mental and Behavioural Disorders (ICD-10) and it has high validation and reliability scores. The data was considered significant if p value was equal to or less than 0.05. The statistical test used was percentage, chi-square test and odds ratio.

RESULTS

Table 1 showed that in the age distribution, a high preponderance of age group between 26 and 35 year was noted in the current study. 78.6% of migraine was seen in people between 16 to 35 years of age. The minimum age of the sample being 16 years and maximum age being 65 years with mean age value of 31.81 years (SD ±10.42). More females (54; 77.1%) than males (16; 22.9%) were found to be suffering from migraine. In caste distribution, maximum were Brahmin (21; 30.0%) followed by Dalit (13; 18.6%) and Kshatriya (12; 17.1%). The married populations (57; 81.4%) were more in the study group.

Table 1. Age group, gender, caste and marital status of the patients (n=70).

Socio-demographic profile		Number	Percentage
Age Group (in years)	16-25	16	22.9
	26-35	39	55.7
	36-45	8	11.4
	46-55	4	5.7
	55-65	3	4.3
Gender	Male	16	22.9
	Female	54	77.1
Caste	Brahmin	21	30.0
	Kshatriya	12	17.1
	Newar	8	11.4
	Gurung	4	5.7
	Magar	3	4.3
	Tamang	1	1.4
	Dalit	13	18.6
	Others	8	11.4
Marital Status	Married	57	81.4
	Unmarried	12	17.1
	Widowed	1	1.4

Table 2 showed that the maximum number of respondent were higher secondary level educated (19; 27.1%) and were homemaker (26; 37.1%). The higher numbers of patients were from middle class family (48; 68.6%) and were living in the urban area (44; 62.9%).

Table 2. Educational, occupational, Socio-economical and residential status of the patients. (n=70).

Socio-demographic profile		Number	Percentage
Educational Status	Illiterate	14	20.0
	Primary	5	7.1
	Lower Secondary	8	11.4
	Higher Secondary	19	27.1
	Intermediate	8	11.4
	Graduate	11	15.7
	Post Graduate	5	7.1
Occupation Status	Business	12	17.1
	Farmer	2	2.9
	Laborer	8	11.4
	Service	13	18.6
	Student	7	10.0
	Homemaker	26	37.1
	Skilled worker	1	1.4
	Others	1	1.4
Socio-economical Status	Lower	5	7.1
	Middle	48	68.6
	Upper	17	24.3
Residential Status	Rural	26	37.1
	Urban	44	62.9

Table 3 shows that in the current sample, the patients with migraine with aura (60; 85.7%) are more than without aura (10; 14.3%). The prevalence of psychiatric comorbidity is 55% in the patients with aura and 50%

in the patient without aura. The odds of psychiatric comorbidities is higher in patients of migraine with aura compared to migraine without aura (Odds Ratio = 1.22). The relationship is not found to be statistical significant (p = 0.7688).

Table 3. Relationship between type of migraine and psychiatric comorbidity (n=70).

Type of Migraine	Psychiatric comorbidity		TOTAL	Odds ratio	p value
	Present (%)	Absent (%)			
Migraine with aura	33(55)	27(45)	60(100)	1.2222	0.7688
Migraine without aura	5(50)	5(50)	10(100)		
TOTAL	38(54.3)	32(45.7)	70(100)		

95% Confidence Interval= 0.3201 to 4.6673; z statistics= 0.294

Table 4 shows comorbidities associated with migraine according to MINI. The psychiatric comorbidity was found in 38 cases (54.3%) and no comorbidity was found in 32 cases (45.7%). The maximum numbers of the patients were found to be suffering from mild depressive episode (10; 14.3%) followed by mixed anxiety depression (9; 12.9%).

Table 4. Comorbid diagnosis of the migraine patients according to MINI (n=70).

MINI Diagnosis		Frequency	Percent
Comorbidity	Anxiety disorder Not Otherwise Specified	3	4.3
	Social phobia	5	7.1
	Mixed anxiety depression	9	12.9
	Panic disorder with agoraphobia	5	7.1
	Panic disorder without agoraphobia	1	1.4
	Mild depressive episode	10	14.3
	Moderate depressive episode	3	4.3
	Suicidal ideation	1	1.4
	Paranoid ideation	1	1.4
	Total Comorbidity	38	54.3
No Comorbidity		32	45.7
TOTAL		70	100

DISCUSSION

This was a cross-sectional study done to find out the psychiatric comorbidities in the migraine patients attending Psychiatry OPD of Manipal Teaching Hospital, Pokhara. The comorbidities complicate the management and also affect the prognosis of the migraine.

The age distribution of the present study is almost similar to the other studies conducted inside Nepal.[5,6] The study in India also found that the maximum proportions of migraine patients were below fifth decade.[9,10] Migraine is a disorder that is most prevalent between the ages of 25 and 45 and decreasing thereafter[11] which was similar to our study findings. However in other studies, prevalence within specific age were 19.4% in those aged 18-24, 19.0% in those aged 25-44, 19.4% in those aged 45-54, 14.0% in those aged 55-64, 9.5% in those aged 65-74, and 6.1% in those 75 and older.[12]

In gender distribution, the studies conducted inside Nepal and India also found the similar tendency as found in this current study.[5,6,9,10] A study from Turkey shows that the female to male sex prevalence for migraine has consistently varied across the lifespan ranging from 3 or 4 to 1 in midlife and lowering to 2 to 1 or less at both ends of the age spectrum.[13] Although rates varies from different studies, the female preponderance in migraine is consistent throughout the world[14] which was similar to our results. In caste distribution of this study sample, Brahmin and Kshatriya together (47.1%) are the caste most commonly found to be suffering from migraine. The percentages of people of this caste are 42.4% in the Kaski District.[15] The study both inside Nepal and in India also found more married patients in their sample as found in the present study.[5,6,9,10] There has been conflicting results whether marital status is associated to migraine or not.[16] Recent knowledge about the relationship between migraine and stress suggests that stress is a key precipitating and aggravating factor that causes or worsens migraine.[17]

In educational status of the study sample, the highest level of migraineurs were educated as compared to illiterate in the current study which was same as in other studies done inside Nepal and in India.[5,6,9] According to one study done in the western country, the migraine was more prevalent among people who have higher educational levels.[18] The previous findings regarding association between migraine and education are conflicting. Some studies found an inverse association with educational level suggesting a social causation or downward drift due

to migraine. In one study, higher education was related to an increased risk of chronic headache.[19] The another reason might be as this is hospital based study, the people with education attainment are better aware and likely to present to hospital. But, according to another study, higher education was associated with a 14–24% reduction in risk of migraine.[18] The study both in Nepal and India also found higher rate of migraine in homemaker[6,9] which is in accordance to our study. Table 2 revealed that migraine is highest in middle socioeconomic group (68.6%) followed by upper socioeconomic group (24.3%). One study found that education and socioeconomic status were associated with migraine.[16] In a Women's Health Study, women with low SES showed increased risk of all forms of headache including migraine.[20] The reasons for this relationship have been the subject of much debate. According to the social causation hypothesis, factors associated with low socioeconomic status, such as stress, poor diet, or limited access to medical care, act to increase disease prevalence.[21] The study in Uttar Pradesh, India found more respondents from rural area[9] which is contradictory with our study findings.

The above variations in the findings of the socio-demographic variables might just be the reflection of the populations in the hospital catchment area.

Table 3 shows the migraine with aura is common and accounts for 85.7% cases and migraine without aura accounts for 14.3% cases. The study conducted in the eastern part of Nepal found more participants with migraine without aura.[5] In the two studies done inside India, the migraine without aura was more common than migraine with aura.[9,10] In the United States, among patients with migraine, 63.9% had migraine without aura, 25-30% has migraine with aura and up to 81 % of those with migraine with aura also have attacks of migraine without aura[22] which is not similar to our results.

The patients with aura was associated with high odds of psychiatric comorbidities (Odds Ratio = 1.22) in the current study, although the relationship was not statistically significant (p-value =0.7688). According to one study, migraine patients with aura were more likely to suffer depression than patients with migraine without aura, the rates of major depression being 49% (OR = 4.9) and 37% (OR = 3.0) respectively.[23]

Table 4 indicates the comorbidities associated with headache according to MINI diagnosis and their frequency and most common comorbidity is mild and moderate depressive episode (18.6%). A different study finds that between 4.3-47% of migraineurs experience depression or depressive symptoms.[24-26] In the another study done in 1265 strict migraineurs and 1252 probable migraineurs, the prevalence of major depression was 23.9%[26] which was also similar to our results.

Mixed anxiety depression (12.9%) was the next common comorbidity found in this study. In another study done in India, mixed anxiety and depression has been found to have a prevalence of 18% in migraineurs which was also similar to this study.[10] Panic disorder was found in 8.5% of the sample in the current study. According to one study, the life time prevalence of panic disorder was between 5-17% which is almost similar to our study.[27] Suicidal ideation was also found in one case (1.4%) in the current sample. There was a threefold increase in suicide attempts associated with migraine independent of other psychiatric comorbid disorders or gender.[28] In one study, the people with migraine had significantly higher rates of suicidal ideation and attempts than people without migraine. Migraine is also associated by paranoid ideation (1; 1.4%) in the current study as also identified by one study.[29]

Comorbidity of psychiatric illness was present in 54.3% of our migraine headache patients in the current study. The study in Nepal and India found prevalence of 56.7% and 51.4% respectively.[6,9] The study in eastern Nepal found prevalence of almost 80%.[5] In our study, anxiety disorder was found to be common comorbid illness in migraine, followed by depressive disorder. The study done in the Rupendehi district of Nepal also found prevalence of 29.8% of anxiety disorder and 26.29% of depressive disorder among all headache patients.[6] The study conducted in Dharan, Nepal found high prevalence of mood disorders (34%) followed by anxiety disorders (15%).[5] The study in India found prevalence of 31.4% of depressive disorder.[9]

The study has few limitations. The cross-sectional nature of the study does not check the direction of the effect. A case-control study would have been a statistically a more robust study design, for accepting and generalizing the findings of a study of this nature. The second limitation is that the study was hospital based. Further large scale, more case-control and analytical designs studies are needed before generalizing these results.

CONCLUSIONS

The prevalence of psychiatric disorders in migraine is higher. The prevalence of psychiatric comorbidity is

more in patients with aura as compared to the patient without aura. The common psychiatric comorbidity was mild depressive episode. Assessment for psychiatric comorbidities in migraine patients can be helpful for overall management of the patient.

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