



# Psychopathology and Psychiatric Disorders in Psychiatric Out-patients with Migraine Headache

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## Summary

**Background:** Migraine headache affects about 12% of adult population. Psychiatric problems are reported higher among migraineurs and they increase the morbidity burden. We conducted this study to sort-out psychiatric symptoms and mental disorders among psychiatry out-patients with migraine headache.

**Method:** In this hospital-based descriptive study, we analyzed 100 consecutive migraine patients consulting in a psychiatric out-patient clinic. Migraine diagnosis was made according to the 'International Headache Society Classification- IHS-C, 2004'; psychopathologies were assessed with help of the 'Brief Psychiatric Rating Scale' (BPRS) and psychiatric diagnoses were made as per the 'International Classification of Diseases: ICD-10'.

**Results:** Eighty (80%) subjects were female and 72% married in this study. Nearly half (48%) had family history of similar headaches and 20% of psychiatric illness. At least some significant psychopathology was found in all of these subjects and the ICD-10 diagnosis of 'mental and behavioural disorders' was present in 80%. Mood (mainly depression) and anxiety disorders were the most common psychiatric co-morbidities. Besides headache; other somatic symptoms, anxiety, tension and irritability were the most common BPRS symptom items.

**Conclusion:** Migraine headache is associated with various psychiatric symptoms, mainly: somatic symptoms, anxiety, tension and irritability. A number of psychiatric disorders, mainly depression may co-occur in migraine headache. Hence, the vigilance for psychiatric problem should be increased in Migraine cases.

**Key Words:** Migraine headache; Psychiatric disorders; Psychiatric symptoms; Co-morbidities; BPRS; ICD-10.

## Introduction

Migraine headache is common; 9-13% of general population suffers from this disabling disease [1-3]. Its burden is huge; its Global Burden of Disease by Disability Adjusted Life Year (DALY) has been reported comparable with or even higher than that of epilepsy and hypertension [4-6]. It may be associated with a range of mental symptoms and disorders [1, 3, 6-8]. Some mental changes are almost universal during attacks [3]. Common mental symptoms include irritability,

elation, increased energy and buoyancy [9, 10]; anxiety; sadness; hallucination; changes in body image; poor concentration, decreased thinking ability and memory impairment [3]. They also suffer from a variety of mental illnesses more than general population. Common psychiatric disorders among migraine patients are: mood (affective) - unipolar depressive [11] or bipolar affective [12], and anxiety disorders [13] - panic, phobic, generalized anxiety (GAD) or obsessive compulsive disorder (OCD) [3, 7, 8]. Profile of the associated disorders and psychopathology

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offers insight into common etiological factors and manifest features, leading to better understanding and management.

We have, however few data from Nepal about migraine headache, even fewer about its co-morbid psychiatric disorders and associated mental symptoms. Hence, we conducted this study in Department of Psychiatry of this tertiary care hospital in eastern Nepal to sort-out psychiatric symptomatology and mental disorders among migraine patients.

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### Materials and Method

It was a hospital-based cross sectional descriptive study with purposive sampling. It was conducted in Department of psychiatry of a tertiary care hospital/health science institute in eastern Nepal in 1 year study period (from August 2006). The subjects were 100 consecutive migraine headache patients clinically diagnosed according to the criteria of the 'International Headache Society Classification-IHS-C, 2004' [2] of migraine headache who consulted the psychiatrist/investigator because of some psychiatric problem.

The number of subjects required, i.e., sample size was calculated by using the formula:  $N = \frac{(1.96)^2 \times P \times (100 - P)}{[P \times \beta]^2}$  Where, N=Number of sample, P=Estimated Prevalence and  $\beta$ =Beta error, maximum permissible is 20%; smaller the figure, better is the power. Our patients were those who consulted psychiatrist in out-patient service for some psychiatric problem along with migraine headache. Hence, it was anticipated that the prevalence of co-morbid mental disorders would be much higher than among general population. Moreover, our objective was to study the associated or manifest mental symptoms, i.e., psychopathology profile too, besides the psychiatric disorder. So, we adopted 50% as the estimated prevalence of psychiatric co-morbidities also keeping the literature from other parts in mind. Hence, keeping the average for estimated prevalence, P as 50% and  $\beta$  error at 0.2, calculated sample size was 96 and additional 4% were taken for better representation and sample size was taken to be 100. We could enroll the estimated sample size within the study period.

With a brief explanation about the study to the subjects, consent was taken. Those patients who did not give the consent were excluded. The socio-demographic profile and information

about the illness (reason for referral, co-morbid conditions and psychiatric diagnosis) were recorded on a Proforma particularly designed for this study. The detailed psychiatric work-up and necessary investigations were done as per the indication and their affordability, and referrals were made to respective departments. The physical diagnoses were recorded as per the department from or to where the referrals were made.

The final psychiatric diagnosis was made according to the 'International Classification of Diseases-10' (ICD-10) [14]. Psychiatric symptomatology were studied and rated with the help of 'Brief Psychiatric Rating Scales' [15]. This scale, developed by Overall Gorham, is physician rated and is one of the most researched instruments in psychiatry. Its application process takes about 15-30 minutes. Reliability coefficients of 0.56 to 0.87 have been reported [16]. The rating scale was utilized in this study as a symptom check-list since it consists of a wide range of psychopathologies. The psychopathologies were rated on 1-7 point likert scale, 1 being absent and 7 extremely severe, by asking with patient or family member about the symptoms during the period of at least 1 week prior and following the recent migraine attacks and by direct observation during the assessment by the investigator. In this study, the score of 4, i.e., moderate or more was operationally defined as clinically significant to record the particular BPRS item as present.

The study was done after obtaining the informed written consent from the subject or significant others after an explanation about the study. Strict confidentiality of information was maintained and the results would be utilized for the appropriate management of the concerned cases and similar cases in general. Data were entered into computer and analyzed using 'Statistical Package for Social Studies' (SPSS 10) - software. The result of the study has been presented in the 'Scientific Forum' of the institute.

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### Results

Among 100 subjects, 80% were female (with M: F ratio of 1:4) and 72% were married. Average age was 27.73 (range: 10, 47) years and age group of (21-30) constituted the largest proportion 37%, followed by (30-39) 33% and (10-19) 22%. Relatively more of these subjects (81%) were educated to various levels (**Table 1**).

Most participants were Hindu (79%), followed by Buddhist (8%), Muslim (7%) and Kirat (6%). Nearly half of the subjects were from semi-urban settings (49%), followed by 21% urban, 19% rural, and 11% from India. We had subjects of various professions; most common occupations being home makers (47%), followed by students (29%), business (7%) and farmers (8%).

Almost all (95%) had sudden onset and 90% had episodic course of headache. At the time of consultation, majority had headache illness of more than 1 year. Nearly 60% of the subjects had migraine without aura. Among those with aura, visual and somato-sensory auras were the most common migraine aura (**Table 2**).

About one third of the subjects (37%) had a clinically significant illness in their past history and 59% had a significant family history, 48% having migraine headaches in blood relatives. Nearly half of the total subjects (45%) reported some stressors/triggers preceding the headache spells. Relational and health related stressors were among the common ones (**Table 3**).

Most of the cases were brought or accompanied by family member during the psychiatric consultation. Headache was the complaints reported by all subjects. Other symptoms were other somatic complaints (97%), anxiety (47%) and mood symptoms (43%) (**Table 4**).

One fifth of the subjects (20%) reported to be ab/using psychoactive substances, mainly alcohol and nicotine (**Figure 1**).

About one fourth of them had some personality traits, assessed to be significant to affect the clinical course of the illness (**Figure 2**).

The most common symptom items of BPRS which scored 4 or more out of 7 were somatic concern, anxiety, tension, depression and hostility (**Table 5**).

The most common psychiatric diagnoses were mood (affective) disorders (34%), followed by dissociative and anxiety disorder. Deliberate self harm was seen in 3%. Rest 20% did not fulfill the criteria for an ICD-10 diagnosis though they had some clinically significant psychopathology (**Table 6**).

Some of the subjects (4) had seizures, which were at times difficult to differentiate from migraine spells. Three each had diabetes mellitus, other metabolic/ endocrine and gastro-intestinal/ acid peptic disorders. Two cases had cardiovascular and one had vertigo as physical diagnosis.

**Table 1.** Socio-demographic profiles: Gender, age, marital status and education.

Variable	No./%
<b>Gender</b>	
Female	80
Male	20
<b>Age</b>	
≤ 10 years	2
11-20	22
21-30	37
31-40	33
≥ 41	6
<b>Marital status</b>	
Single	27
Married	72
Separated	1
<b>Education</b>	
Illiterate	19
Literate-3	7
4-7	21
8-SLC	31
PCL	15
Graduate	6
Above	1

**Table 2.** Duration of headache illness, Types of migraine headache and auras.

Variables	No./%
<b>Duration of headache illness (year)</b>	
<1	13
3	25
4-5	19
6-10	23
>10	20
<b>Migraine headache type</b>	
Migraine headache without aura	59
Migraine headache with aura	41
<b>Type of migraine aura#</b>	
Visual	22
Somato-sensory	22
Consciousness related	7
Mood related, e.g., dysphoria	5
Motor	1
Autonomic	1

The most common treatments advised here were: Antidepressants (in 80%) (Tri-cyclic-50%, SSRI- 30%), Benzodiazepines (41%) and symptomatic interventions (35%); followed by- Anti-epileptics (19%) (Sodium-valproate 16%, Carbamazepine 3%), Propranolol (17%), Flunarazine (12%), Supplemental/ others (7%), and Anti-psychotics (5%). Some sort of psycho-education, counseling or other psychological intervention was offered in 82%.

# Multiple response category - One respondent may have ≥ 1 responses.

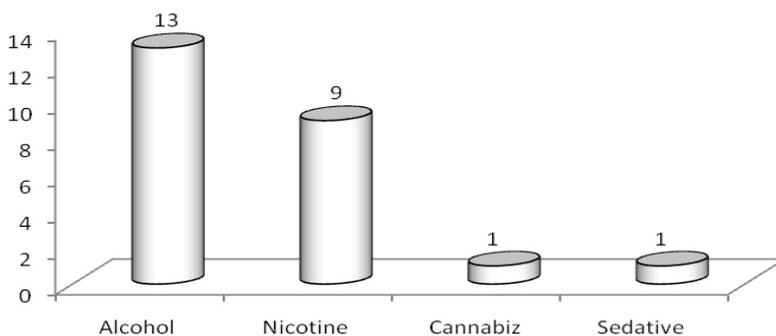
**Table 3.** Past and family history of illness, and stressor/triggers of headache#.

Variables	No./%	Variables	No./%
Illness in past		Illness in family	
Absent	63	Absent	41
Migraine	4	Migraine	48
Neurological	4	Neurological	3
Other medical diseases	13	Suicide phenomena	3
Psychiatric	21	Psychiatric	20
Substance use disorder	1	Substance use disorder	3
Stressor/Trigger type			
Relational	15	Environmental	4
Health related	9	Political conflict	2
Study related	7	Social issues	2
Relative's death	7	Eustress/ happy event	2
Relative away	4	Food related	2
Relative's illness	4	Sleep problems	1

**Table 4.** Sources of referral and presenting complaints #.

Variables	No./%	Variables	No./%
Referred from			
Medicine	7	Family members	69
Eye	2	Self	19
Family physician	6	Friends/Relatives	2
Presenting Complaints			
Headache	100	Behavioral	5
Other Somatic/physical	97	Perceptual	4
Anxiety	47	Self-harm	3
Mood symptom	43	Substance use	1
Clouded consciousness	34	Others	21
Thought/speech	9	Difficult movement	2

**Psychoactive Substance ab/use (No./ %)**



**Figure 1.** Current psychoactive substance Ab/use#.

**Discussion**

The great magnitude of and disability due to migraine headache are reported more or less similar worldwide [1, 3-5]. However, we have few data about migraine headache, even less about its psychiatric association in Nepalese context. The current study was conducted

with the expectation that it would open avenues for further large studies in Nepal. This hospital based cross sectional descriptive study incorporated 100 consecutive migraine headache subjects with some psychiatric complaints or symptoms; hence, coming into the contact of the psychiatrist/ investigator during the study period. It utilized the ICD-10 as diagnostic and the BPRS as a symptom check-list tools, both being administered by clinician and widely validated across the world [14, 15]. In pre-morbid personality assessment, the cluster concept of the DSM-IV [17] was adopted in this study. Since both the systems of classification of mental disorders have more or less similar or equivalent diagnostic categories; this cluster concept would not make a remarkable difference though, all other diagnoses were recorded in this study according to the ICD-10.

In this hospital based study, 41% had migraine headache with an aura which is more than in other community studies and a similar hospital based Indian Study [13], as per the criteria of IHS-C [1-3, 6]. Visual and somato-sensory auras were the most common types of aura as in other parts. Some had purely psychological symptoms like euphoria [10], dysphoria, increased energy, etc. These later features were found also during prodrome or premonition of the headache, besides as aura.

When they presented to this health service, they expressed a great concern for headache and or other physical or somatic symptoms. Other most common complaints among these Nepalese migraine patients were anxiety and depression. Both of these are the common mental problems also in general population [18] and they were found accentuated, exacerbated or increased among these subjects. This fact was replicated in the diagnostic profile showing mood and anxiety being the most common psychiatric co-morbidity, and in the BPRS scoring of the associated or manifested psychopathology also showing anxiety, tension, depression and hostility as the most common symptom items (with scores 4 or more). Substance use disorder was less in these patients compared to the findings of other general psychiatry patients' profiles [19-21].

In migraine patients coming to psychiatric service, eighty percent had psychiatric co-morbidities which are similar finding to a recent similar hospital based Indian study [13]. Mood and other neurotic/ anxiety disorders were the

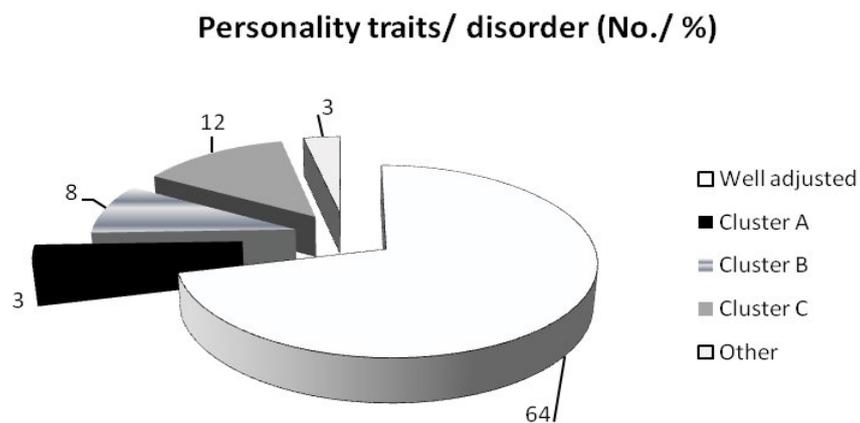
most common psychiatric co-morbidities in this study as in western studies [6-8]. Bhatia et al. reported generalized anxiety disorder as the most common psychiatric diagnosis, followed by mixed anxiety and depressive disorder [13]. Twenty subjects (20%) did not fulfill the criteria for an ICD-10 diagnosis which is close to 22% of the Indian study. Though they did not fulfill the ICD-10 criteria for any psychiatric disorder, rest 20% had some significant mental symptoms; with the BPRS score 4 (moderate) or more. This finding was obvious since our subjects were those migraine headache patients who consulted the psychiatrist because of some mental symptoms. In a way, our study was biased in this sense. However, for our objective of sorting out the associated psychiatric symptomatologies and psychiatric disorders of migraine headache, it does not make much difference. Depression and anxiety clearly stand out also in our study as in other studies [3, 8, 13].

Suicide phenomena were relatively more in these migraine patients, compared to general population, as per available report from Nepal [22]. The high rate may be explained in terms of the high co-morbidity and severe grading of psychopathology at the time of presentation. The suicide problem in this region needs further intensive studies.

As in other parts of the world, the Nepalese clinicians rely more on Tricyclics, SSRIs, Sodium valproate, Flunarizine or Propranolol for prophylaxis. Symptomatic treatments were initial strategy in almost all cases. High psychiatric co-morbidities were additional consideration during management of migraine headache, both in acute and prophylaxis stage. The high prescription rate of antidepressants in this study reflects the same fact as in other parts [23]. Some forms of psychological interventions are complimentary to drug therapy, for example: psycho-education, headache diary [24].

Like in other parts [1, 3], productive ages were the most affected and female preponderance was obvious in this study as in a similar Indian study [13]. Illiterate subjects of only 19% in this study, clearly less than in general Nepalese population, reflects a strong possibility that more illiterate people might not have come for treatment, even if they have migraine and comorbidity. As pointed out in other parts, literate and aware people obviously sought treatment here too [3].

Most of the cases were brought or accompanied by family members or they came on their own



**Figure 2.** Pre-morbid temperament/traits/personality.

**Table 5.** Significant psychiatric symptoms of BPRS (with scores ≥ 4).

BPRS Item	No./%	BPRS Item	No./%
Somatic Concern	100	Hostility	51
Anxiety	67	Suspiciousness	17
Emotional withdrawal	9	Hallucinatory behavior	18
Concept disorganization	4	Motor retardation	32
Guilt	19	Uncooperativeness	11
Tension	66	Unusual thought content	11
Mannerism/posturing	9	Blunted affect	2
Grandiosity	6	Excitement	37
Depressed mood	64	Disorientation/derealization	36

**Table 6.** Psychiatric diagnosis#.

Diagnosis	No./%	Diagnosis	No./%
ICD-10 diagnosis present	80	Intentional self-harm (X60-84)	3
Organic (symptomatic) (F00-09)	12	Anxiety disorders (F40-F43)	15
Substance use (F10-F19)	3	Dissociative (F44)	18
Schizophrenia (F20-29)	2	Somatiform (F45)	7
Mood (affective) (F30-39)	34	Physiological (F50-59) and other	4

when the symptoms were severe or they had developed additional problems like psychiatric illness. They presented late to medical services; only less than one fifth of the subjects had come to this service within 1 year of headache onset. Majority had sudden onset and episodic course. Nearly half of the total subjects recalled some precipitating stressors for headache onset, relational and health related problem being the most common one. This finding is similar to western context [1, 3].

About one third had some significant illness, mainly mental illness in their past. A significant proportion of subjects had family histories of significant illnesses. Nearly half of the subjects had some family members with headache with the features suggestive of migraine which is more

than reported in a similar Indian study [13]. This great number of family history of migraine is consistent with other reports [1, 3]. One fifth had blood relatives with some mental illness.

About one fourth had some personality traits significant enough to affect the clinical course of illness. People of all clusters were affected by migraine though Cluster C traits were the most common. Though recent findings are less consistent, previous studies were in favor of high neuroticism and anxiety among migraineurs [3]. Twenty percent used psycho-active substances, mainly alcohol and nicotine which is less than in other general psychiatry patients' profiles of this region [19-21].

It is evident from these findings that psychiatric affliction, association, manifestation or comorbidity is common in migraine headache and this fact should be viewed from different perspectives: etiological, clinical manifestations, co-morbidities, impact and management. Hence, the collaboration among various specialties/departments is crucial for increasing the success rate of its management as has been frequently emphasized time and again [25]. These migraine patients and their family should also be aware about this fact and should not falter on seeking psychiatric help in need.

## Conclusion

- Among the psychiatry out-patients with migraine headache, female subjects and productive age groups were majority. Most of these patients were either brought by family members when symptoms were severe (high BPRS scores) and late (>1 yr) or they came on their own. The patients presented to the psychiatry clinic with symptoms, mainly other somatic complaints, anxiety, mood symptoms besides headache.
- Almost half of the migraineurs had blood relatives with migraine headache.
- Some of these subjects use substances, including alcohol and nicotine. Some of them also had some significant personality traits, mainly cluster 'C'.
- Some had psychiatric symptoms as aura. Majority of migraine patients presenting with some psychiatric symptoms fulfill criteria for psychiatric disorders. Others with the symptoms also had clinically significant level of severity when they consulted the service. The most common psychiatric diagnosis was mood (affective), followed by dissociation conversion and anxiety disorders. Deliberate self harm was seen relatively more than among general population.

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