

## Recognizing Risk of Psychiatric Comorbidity in Headache: Looking for Symptoms of Anxiety and Depression in Headache: A Study from General Hospital in Kashmir (India)

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Rec date: Apr 03, 2014, Acc date: May 20, 2014, Pub date: May 26, 2014

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### Abstract

**Background:** Headache is one of the most common neurological symptom that we come across, but very few well-planned studies have been conducted to know its psychiatric aspects. The aim of the study was to investigate the socio demographic profile, clinical types and psychiatric comorbidity in patients with various types of headache.

**Methods:** We conducted a cross-sectional study for a period of one and a half years in Shri Maharaja Hari Singh hospital of Government medical college. The study was conducted in patients attending the medical outpatient department (OPD) for headache. The diagnosis of various types of headache was established by adopting the International Headache Society criteria (2004). A total of 200 patients were screened. Psychopathology was measured using MINI International Neuropsychiatric Interview Schedule PLUS (MINI PLUS). Descriptive statistics was used to report the socio-demographic characteristics of the patients. Chi-square was used to assess association between categorical variables and a p-value of significance was set at  $p \leq 0.05$ .

**Results:** Among 200 patients, there were 83 (41.5%) males and 117 (58.5%) females. Their ages ranged between 18 years to 78.5 years, with mean ( $\pm$  SD) of 35.85 ( $\pm$  9.45) years. Psychiatric morbidity in headache was 47%. The psychiatric morbidity was more in females (53%) than males (38.6%) ( $P$ -value=0.044). It was also more in urban (58.3%) than rural areas (42.1%) ( $p$ -value= 0.036). Tension-type headache (48%) was the most predominate type of headache.

**Conclusion:** Patients with headache had higher psychiatric morbidity. Screening patients with headache for psychiatric disorders and timely psychiatric intervention can go a long way in improving the quality of life of headache with comorbid psychiatric disorders.

**Keywords:** Headache, Psychiatric morbidity, Quality of life, Tension-type headache

### Introduction

Headache is one of the most common neurological symptoms, which causes substantial level of disability [1]. 80% of our population suffer from headache each year and 20% of patients with headache refer to general physician [1]. The global prevalence among adults of migraine is >10%, of tension type headache around 40% and of chronic daily headache is 3% [2]. Researchers have reported a strong relationship between pain and psychiatric disorders [3]. Numerous studies have shown relationship between headache and psychiatric disorders or vice-versa [4,5]. Anxiety and depressive disorders are common in primary as well as chronic daily headache [6,7]. A strong association exists between migraine, depression, bipolar disorders and anxiety disorders [8]. Existence of psychiatric co-morbidity in headaches complicates the management and leads to poor prognosis [9]. Common mechanism in etiology of affective disorders and

headache may involve limbic activation, and that might explain the relationship between headache and psychiatric co-morbidity [9].

Primary headaches are not associated with any structural, metabolic or other lesion in the body in general and in brain particularly [10]. However secondary headaches are caused by exogenous disorders [10]. Primary headache cause significant disability with reduced efficiency, quality of life and loss of work days [2]. Tension-type headache (TTH) and migraine are the common forms of primary headache in population prevalence and are considered distinct entities by the International Headache Society [10]. In Kashmir (India), large number of patients present to general practitioners with predominant complaint of headache. Published studies assessing the associated psychiatric morbidity in primary headache disorders are sparse in Kashmir. Knowledge of the psychiatric morbidity in headache from this part of world would add to the framework of the global campaign to reduce burden of headache world-wide.

**Aim of study:** The present study is thus a maiden endeavour to access the sociodemographic profile, headache subtypes and psychiatric comorbidity in subjects suffering from headache.

**Hypotheses for the study:** There is a high prevalence of psychiatric disorders in headache and it varies in different types of headache.

## Materials and Methods

### Settings

The present study was conducted in the Shri Maharaja Hari Singh (SMHS) Hospital of Government Medical College (GMC), Srinagar, Kashmir (India). Shri Maharaja Hari Singh (SMHS) Hospital provides medical care to the whole of Kashmir region along with some adjoining areas of Jammu and Ladakh region, a population of about 6 millions.

### Study design

This was a cross sectional and descriptive study.

### Methodology

The study was conducted over a period of one and a half year, from April 2012 to September 2013 in patients attending the medical out patient department (OPD). The study sample was drawn from patients attending the Medical (OPD) for headache. The patients were selected using systematic random sampling attending the medical OPD. After approval by the ethical committee of the institution. A self-designated informed consent form, which explained the nature of study, the contents of which were explained in vernacular language, was read to subjects of study and their signatures or left thumb impression in case of illiterate was obtained. Informed (both verbal and written) consent thus, was taken from the patient. The questionnaires were formulated on the basis of the International Headache Society criteria for the diagnosis of headache disorders which was pretested. The patients were subjected to specialist consultation to classify the types of headache and relevant investigations (Imaging, blood sugar etc.) were done, whenever required. Patients more than 15 years of age of both sexes were taken as cases. Patients who reported less than three episodes of headache in life time, headache of less than one hour of duration, secondary headaches and those who did not consent were excluded. However if patients had history of DSM (Diagnostic and Statistical Manual of Mental Disorders) diagnoses before attending medical OPD, they were not taken for study. General description, demographic data and psychiatric history were recorded using the semi-structured interview, which was pretested. The patients were then assessed for psychiatric diagnosis using MINI International Neuropsychiatric Interview Schedule Plus (MINI PLUS), which has already been used previously in Kashmir (India) [11,12]. The diagnosis of various headache disorders was established by adopting the International Headache Society criteria (2004) [13]. Psychiatric diagnosis was confirmed by consultant psychiatrist of the respective hospitals. Where ever necessary, subsequent interviews were done for full psychiatric assessment.

### Measurement of psychopathology

Psychopathology was measured using MINI International Neuropsychiatric Interview Schedule Plus (MINI PLUS). The MINI Plus is short and efficient diagnostic interview and is used in clinical as well as diagnostic settings. It follows Diagnostic and Statistical Manual of Mental Disorders (DSM -TR IV) and International Classification of Diseases (ICD-10) criteria for psychiatric disorders. It has good validity and reliability. It compares well as a diagnostic instrument

with CIDI (Composite international Diagnostic Interview) and SCID (Structured Clinical interview for DSM Disorders) and has been previously used in Kashmir [11,12].

### Statistical methods

A secure computerized database was established and maintained throughout the study. Patient names were replaced with unique identifying numbers to ensure confidentiality. All statistical analyses were performed using SPSS software version 16.0 (SPSS, Chicago, Illinois, USA) and tests of statistical significance were two-sided and differences were taken as significant when P-value was less than 0.05

### Results

Demographic Characteristics of Study subjects and their psychiatric morbidity: A total of 243 questionnaires were distributed, of which 200 were returned, giving a participation rate of 82%. The remaining (17.6%) did not wish to continue with the study. 200 patients were thus selected by simple random sampling and administered a detailed structured questionnaire. There were 83 (41.5%) males and 117 (58.5%) females. Their ages ranged between 18 to 78.5 years with a mean of  $35.85 \pm 9.45$  years. Maximum number of patients were in the age group of 31-40 i.e. 63 (31.5%), followed by 41-50 i.e. 52 (26%) followed by 50-60 i.e., 33 (16.5%). Psychiatric morbidity was more in female (53%) than males (38.6%) and was found to be statistically significant ( $p$ -value= 0.044). Similarly psychiatric morbidity was also more in urban (58.3%) than rural area (42.1%) and was statistically significant ( $p$ -value= 0.036) (Table 1).

		Present		Absent		p value
		n	%	N	%	
Age (yr)	≤ 30	14	51.85	13	48.14	0.159
	31 to 40	29	46.03	34	53.96	
	41 to 50	25	48.07	27	51.92	
	51 to 60	16	48.48	17	51.55	
	61 to 70	7	38.88	11	61.1	
	>70	3	42.85	4	57.14	
Gender	Male	32	38.6	51	61.4	0.044
	Female	62	53.0	55	47.0	
Dwelling	Rural	59	42.1	81	57.9	0.036
	Urban	35	58.3	25	41.7	
Marital status	Unmarried	8	66.7	4	33.3	0.433
	Married	70	45.8	83	54.2	
	Widowed	16	45.7	19	54.3	
Occupation	Household	57	52.3	52	47.7	0.274
	Unskilled	13	40.6	19	59.4	
	Semiskilled	8	24.2	25	75.8	
	Skilled	14	58.3	10	41.7	

	Professional	2	100.0	0	0.0	
<b>Family type</b>	Nuclear	44	48.4	47	51.6	0.611
	Joint	21	48.8	22	51.2	
	Extended	29	43.9	37	56.1	
<b>Literacy status</b>	literate	68	45.6	81	54.4	0.510
	illiterate	26	51.0	25	49.0	
<b>Family Income(Rs)</b>	< 5000	15	50.0	15	50.0	0.690
	5000 to 10000	66	46.8	75	53.2	
	≥ 10000	13	44.8	16	55.2	
<b>Socioeconomic status</b>	Lower	5	50.0	5	50.0	0.429
	Upper lower	54	44.3	68	55.7	
	Middle	25	51.0	24	49.0	
	Upper middle	9	50.0	9	50.0	
	Upper	1	100.0	0	0.0	

**Table 1:** Socio-demography of the Patients and their Psychiatric Comorbidity

The total psychiatric comorbidity in headache patients was 47.0%. The comorbidity among the headache patients were highest for major depressive disorder (41.5%), followed by mixed anxiety and depressive disorder (39.4%). The individual psychiatric comorbidity in headache patients is further given in Table 2. Most of the headache patients presented with low mood (24.5%), followed by anhedonia, nausea/vomiting and dizziness (10.5%) (Table 3).

Tension-type headache was the most common type of headache (48.0%), followed by migraine (26.5). Psychiatric morbidity in headache patients was maximum in migraine (56%), followed by tension-type headache (48.9%) (Table 4).

Diagnoses	Total	
	N	%
<b>Major Depressive Disorder</b>	39	41.5
<b>Generalised Anxiety Disorder</b>	2	2.1
<b>Dysthymia</b>	4	4.3
<b>Panic Disorder</b>	11	11.7
<b>Suicidality</b>	1	1.1
<b>Alcohol Abuse and Dependence Disorder</b>	7	7.4
<b>Mixed Anxiety depressive disorder</b>	37	39.4
<b>Total Psychiatric Co-morbidity</b>	94	47.0
<b>Number of Disorders</b>	<b>One</b>	87
		92.6

	<b>Two</b>	7	7.4
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**Table 2:** Break up of psychiatric diagnoses

<b>Low mood</b>	49	24.5%
<b>Anhedonia</b>	21	10.5%
<b>Dizziness,</b>	21	10.5%
<b>Nausea and vomiting</b>	21	10.5%
<b>Restlessness</b>	19	9.5%
<b>Disturbed sleep</b>	19	9.5%
<b>Fatigue</b>	17	8.5%
<b>Generalised aches</b>	13	6.5%
<b>Excessive worries</b>	12	6%
<b>Impaired attention</b>	8	4%

**Table 3:** Presenting Complaints in Headache patients

Type of Headache	Percentage	Male	Female	Psychiatric morbidity
<b>Tension-type headache</b>	96 (48.0%)	50	46	47 (48.9%)
<b>Migraine</b>	53 (26.5%)	11	42	30 (56.6%)
<b>Cluster Headache</b>	15 (7.5%)	6	9	4 (26.6%)
<b>Trigeminal autonomic cephalalgias</b>	12 (6.0%)	6	6	5 (41.6%)
<b>Other primary headaches</b>	9 (4.5%)	4	5	3 (33.3%)
<b>Miscellaneous</b>	15 (7.5%)	9	64	5 (33.33%)
<b>Total</b>	200	83	117	94 (47%)

**Table 4:** Type of Headache and their psychiatric morbidity

## Discussion

Headache is a common medical disorder which remains under-recognized and under-treated everywhere [1]. Headache is a very common complaint presented to primary care with one-year prevalence of 90% and life-time prevalence of 99% [2]. In Kashmir (India), somatic complaints like headache are quite common in patients with psychiatric disorders. Large number of patients present to general practitioners with predominant complaint of headache in this region. Presence of headache in Psychiatric disorders and their relationship has been studied earlier [4]. But no study has been conducted in Kashmir (India) to study the psychiatric morbidity in various types of headache. The present study was planned keeping the above facts in view. Ninety four out of 200 subjects (47%) with headache had psychiatric morbidity according to the DSM-IV classification in this study. This finding of the study is similar to other epidemiological studies, where high psychiatric disorders occur in patients with headache [14]. The association of psychiatric disorders in headache in various studies can be explained by different theories. The association may be due to methodological artefact such as Berkson

bias, spurious associations and diagnostics confusion. In our study, berksonian bias is not possible, as we followed a proper sampling and selection method. The spurious association can be rejected in our case, as we diagnosed cases by using MINI PLUS scale, followed by confirmation by taking detailed history, where ever needed. The presence of one condition predisposes to another suggesting unidirectional causal link may also be present [15].

Shared environmental or genetic risk factors may account for the psychiatric comorbidity. The altered brain state may arises due to underlying genetic or environmental factors, that predisposes to comorbid disorders [15]. Among the environmental factors in Kashmir (India), stressful life events can be a triggering factors for various types of headache. High prevalence of psychiatric comorbidity in headache can be explained by the fact that this study was conducted in Kashmir, which is a conflict zone. The period of insurgency during this era of turmoil affected education and employment sector, which have negative consequences on youth. The population living in this region presented with somatic features like headache and pain initially, which were then subsequently diagnosed as psychiatric disorder on follow ups [16,17]. This may account for higher psychiatric disorders in headache patients.

In the study, headache was found to be more (61%) among young age group (31-40 years). This could be because most of the subjects with migraine had onset during teenage or early twenties. However tension headache was more common in middle aged females. However they are prone to suffer more from migraine and other types of headache [18]. A large number of female patients (53%) were suffering from psychiatric morbidity. Longitudinal data indicates that relative to men, females are four-times more likely to develop migraine and two times risk of developing major depression [19]. Further, the prevalence of psychiatric disorders was more in urban areas (58.3%), compared to rural areas (42.3%). The psychiatric comorbidity in urban area can be explained by the fact that urban life is more demanding with respect to cost of living index and also takes a toll, in the form of loss of social support system. Major depressive disorder (41.5%) was the commonest psychiatric diagnoses, followed by mixed anxiety and depressive disorders (39.4%) and panic disorders (11.5%). These findings are in accordance with Alvin et al. [20]. Breslau et al. found the estimated risk for depression associated with prior migraine, adjusted for sex and education to be 3.2 [21]. Other investigators have also observed association of type of headache and psychiatric comorbidity [8].

Tension-type headache (TTH) was the most common type of headache found in the study (48%), with psychiatric comorbidity of 48.9%. This is because most of the patients were suffering from depressive and anxiety disorders. TTH was the most common headache type observed by other researchers as well [18]. Headache presented as somatic symptom in patients of depressive and anxiety disorders. In Indian culture, where low mood is not considered as a disease, people manifest depression in the form of somatic symptoms. Headache may be a form of somatisation, as patients cannot verbalize their low mood. Headache was also called earlier 'depressive equivalent' and in non-industrialized countries was considered a typical way of manifesting symptoms of depression [22,23]. Migraine (26.5%) and Cluster headache (7.5%) are the other types of headache found in the study. This in contrary to the other studies where migraine was the most common type of headache [18]. The review of literature also indicates that patients with migraine are at risk of suffering from anxiety and mood disorders, compared to other types

of headache [4,18,24]. Pompili et al. replicated the similar finding of increased risk of developing depression or anxiety disorder in both migraine and severe non migraine headache. However migraines with aura were associated was mood and anxiety disorder, while as migraines without aura are associated with phobic and panic disorders [24].

However in our study low mood (24.5%), nausea and vomiting (10.5), lack of pleasure (10.5%), body ache (6.5%), disturbed sleep (10.5%), and fatigue (8.5%) were the main presenting complaints in the study group. In a study conducted by Popmpli et al. somatic and Behavioural symptoms were accompanied with different types of headache. Further he observed that different types of headache which were associated with psychiatric comorbidity [24]. The prevalence of suicidality in the study was 1.1%. The only case of suicidality was associated with depression in the study group. Pompili M et al. however found a strong association between a distinct pattern of affective temperaments and increased risk for suicidal behavior in patients with mood disorders [25].

Most of the patients presented with low mood and anhedonia because there was preponderance of anxiety and depressive disorders. Body aches, fatigue were also more common in the study group because of manifestation of low mood as a somatic symptom [25,26]. Researchers have shown stress and anxiety is higher in migraine than control group. Morning fatigues, intrusive thoughts about work were the presenting symptoms in patients with migraine [26,27].

The occurrence of comorbidities may provide clues to mechanisms underlying disease based on environmental or genetic risk factors, common to migraine and its coexisting conditions. Latest description of headache and its psychopathology has shown a common neuropathic mechanisms and its bidirectional influences. The neoplastic processes in corticolimbic structures and its expanding field gets stimulated by Nociceptors and psychological stimuli over a varied period of time, thus subsequently resulting in cohesive associations between headache and psychiatric disorders in susceptible individual. In addition, evidence indicates that co-existing conditions are associated with worse treatment outcomes, increased headache-related disability, and reduced health-related quality of life, further underscoring the need to study and understand comorbidity [12,14].

Psychiatric disorders can be risk factors for both the onset and chronicity of primary headache and can affect both their course as well as outcome. Evidence suggests that patients with psychological symptoms are more likely to seek medical assistance. Investigators are studying the biological basis and relationship of various types of headache, while clinicians are curious about their psychological aspects to improve the prognoses and outcome [25]. Psychiatric comorbidity often complicates management of headache and portends a poor prognosis for treatment of headache. These findings should alert the clinicians to pay more attention to assess the various psychological aspects of headache, but also to comorbid psychiatric disorders, while treating patients with headache. Thus, health professionals need to be sensitised to screen psychiatric symptoms in patients presenting with headache.

### Limitation of study

The comorbidity between headache and psychopathology is real and not simply the reflection that persons with headache and psychiatric disorders are more likely to be seen in their hospital. Ideally a control population represented by subjects seen in the

hospital for other unrelated clinical conditions could have served better to define this purported association. Secondly, we reported only percentages of the data, with no further statistical analysis for analysing gender differences and age bands.

## Conclusion

The frequency of major depression and mixed anxiety disorder in patients with headache was high. Tension-type headache was quite common than migraines. In our culture, headache is usually presented as somatic symptom in patients of depressive and anxiety disorders. These findings should alert the clinicians to pay more attention to access the various psychological aspects of headache, but also to comorbid psychiatric disorders when treating patients with headache.

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