

# Study to Determine the Psychiatric Co-Morbidities Amid Patients Suffering from Primary Headache

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## ABSTRACT

The most common complaint received at the outpatient departments (OPD) of Medicine and psychiatry is about having mild to severe headache, and the association of different psychological disorders with it.

**Aim:** The present study was destined to evaluate the comorbid effects of psychiatric disorders among the adult patients with headache to assess the fact that these two illnesses have a relationship between them or not.

**Place and Duration:** In the Psychiatry and Medicine department of Mardan Medical Complex for six months duration from July, 2020 to December, 2020.

**Methods:** From the Medicine and psychiatry OPD, 59 patients were selected for this study. For the determination of the types of headache, International Classification of Headache Disorders (ICHD-3) was used, and to analyze the psychological disabilities Mini International Neuropsychiatric Interview (MINI) was taken as reference. Subjective sampling was performed and data collection was done after conducting face to face interviews during the duration of 6 months. The age range of the subjects was 15-65 years, and the sample included patients of both genders.

**Results:** The major finding was the tension type headache was the most common among all, and around 62.7% patients having headache were suffering from some kind of mental health disorder, which included 39.2% patients suffering from depressive disorder, and 17.6 patients of anxiety disorders. After logistic regression analysis, it was concluded that if the duration and frequency of having a headache is high, the chances of suffering from any psychological disorder is also higher. (OR= 1.7)

**Conclusion:** This smaller scale study signifies the importance of conducting the similar research on a large scale so that the psychological interventions can be performed in the patients of headache.

**Key Words:** psychological disorders, headache, association.

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## INTRODUCTION

Among the neurological maladies, headache is the most prevalent neurological complaint throughout the world<sup>1-2</sup>. There is almost none to very rare chance of finding someone who never have suffered from headache. Having a mild to severe headache effects the productivity and efficiency of a person badly. It also leads to a poor life quality<sup>3</sup>. The term headache is used to refer to all kinds of pains and discomfort in the head and neck area<sup>4</sup>. The types of headache have been defined by the International Classification of Headache Disorders (ICHD) which has been presented by the International Headache Society. Medical doctors across the globe have accepted this classification system<sup>5-6</sup>. The beta version of ICHD-3 divides the headache into primary and secondary headaches. Primary headaches include migraine, trigeminal autonomic cephalalgias, and tension type headache (TTH). Each type is subdivided into many subtypes and has its own diagnostic criteria<sup>7</sup>. Headache significantly imparts ill effects on the quality of life, and results in an increased mental health vulnerability. Considering intensity as a measure of disability, the global average disabilities of 0.6 for TTH (30%), and 1.4 for migraine (70%). Migraine bears 42% while TTH bears 58% of the total headache burden, which was then proved that the TTH is capable of causing almost the similar type of disability as migraine<sup>8</sup>. This study was supported by the demographic studies done on absence from work due to headache. The mental health

disorders including the anxiety and depression have an established connection with the patients suffering from headache<sup>9</sup>. Upon assessing the general population and different surveys of clinics, it has been found that chronic headache, migraine, and TTH has a very clear association with the patients having psychological disorders. In one study carried out in the rural part of India, it was reported that 48.05% patients positive for headache were also positive for depressive disorders while around 17.9% other patients had anxiety<sup>10</sup>. Similarly, as reported in one more study, around 53.3% patients suffering from chronic headache daily also had the co-morbid mental health disorders. Although, the psychological co-morbidity with headache is very common, no study has been conducted till date in Pakistan which gives an estimated prevalence of mental health disorders in the patients suffering from headache<sup>11</sup>. This study was designed to evaluate the incidence rate and type of neurological disorder present in the patients complaining about headache at the outpatient department (OPD) of medicine and psychiatry. The aim of this study was to provide the neurologists and psychiatrist a common platform so that better therapy plans can be designed for the co-morbid patients.

## MATERIALS AND METHODS

This study was observational in nature, and was conducted at the Psychiatry and Medicine department of Mardan Medical Complex for six months duration from July, 2020 to

December, 2020. In this study subjective sampling was performed and a sample of total 59 patients, having headache as their major issue, was finalized. The ages of the patients were from 15 years to 65 years, and no gender restriction was followed during sampling. Their interviews were conducted after having their informed consent. Exclusion criteria included the patients of headache which had their headache due to some kind of head injury, trauma or tumor. The study was carried during the period of 6 months. Different types of headache were diagnosed according to the International Classification of Headache Disorders, 3rd edition beta version (ICHD-3 beta), and was treated accordingly. The diagnosis of psychiatric disorders was performed according to the Mini International Neuropsychiatric interview (MINI) English version which is a very valid, brief and fast instrument for the analysis of Axis I DSM IV disorders. Data was analyzed by the computer software SPSS version 21.0.

## RESULTS

Out of all 59 subjects suffering from headache, around 64.41% were also positive for at least one psychological disability. Anxiety disorders were present in 18.6% population while depression was positive in around 37.3% patients. Other psychiatric disorders were also present in 8.5% population.

It was also found that among the total population 7.8% people were suffering from multiple psychiatric

disorders. TTH was found to be the most common type among the patients, 49.2% were suffering from it, 23.7% patients had migraine, and remaining 27.1% patients complained about other types of headache. Depression was present in 4 patients of migraine (6.8%), 11 respondents suffering from TTH (18.6%), and among 7 patients have mixed type headache (11.9%). Anxiety was positive in 6.8%, 3.4%, and 8.5% patients suffering from mixed type of headache, migraine, and TTH respectively (Table 1). Patients who had TTH along with the co-morbidity of psychiatric disorders were comparatively more in number but the difference was not that much significant ( $p < 0.05$ ), similarly the patients who had suffered from longer duration of headache were also positive for the co-morbid effects, but again the data was not statistically significant ( $p < 0.57$ ) (Table 2).

The duration of headache varies from less than 2 years to more than 4 years among 31 patients and 10 patients respectively. Around 28 patients suffered from headache for 4 to 7 days a week and 9 patients suffered from 0 to 3 days. The patient with higher frequency of headache had psychological disorders more often, and the obtained difference was quite significant ( $p = 0.004$ ) (Table 3).

It was then observed by logistic regression analysis that the high frequency of having a headache (days per week) accounts for presence of psychiatric co-morbidity ( $OR = 1.7$ ) (table 4).

Table 1: Types of headache and psychiatric co-morbidities among respondents (n=59)

Types of headache	Depressive disorder	Anxiety disorder	Other disorders	No diagnosis	Total	p value
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
Migraine	4 (6.8%)	2 (3.4%)	1 (1.7%)	7 (11.9%)	10 (23.7%)	0.26
Tension type headache	11 (18.6%)	5 (8.5%)	4 (6.8%)	9 (15.3%)	29 (49.2%)	
Mixed	7 (11.9%)	4 (6.8%)	0 (0%)	5 (8.5%)	16 (27.1%)	
Total	22 (37.3%)	11 (18.6%)	5 (8.5%)	21 (35.6%)	59 (100%)	

Table 2: Association of psychiatric co-morbidity with total duration of headache (n=61)

Duration of headache	Psychiatric Diagnosis		Total	P value
	Absent	Present		
0-2 years	14	17	31	0.578
2-4 years	4	6	10	
>4 years	6	12	18	
Total	24	35	59	

Table 3: Association of psychiatric co-morbidity with frequency of headache (n=59)

Duration of headache	Psychiatric Diagnosis		Total	P value
	Absent	Present		
0-3 days/ week	14	9	23	0.004
4-7 days /week	8	28	36	
Total	22	37	59	

Table 4: Logistic regression with frequency of headache (hours/day), duration of headache, and frequency of headache (days/week) as variables (n=59)

Variables	B	SE	Wald	df	Sig	Exp (B) [OR]
Duration of headache	0.02	0.021	0.926	1	0.349	1.02
Frequency of headache (hours/day)	-0.065	0.089	0.58	1	0.498	0.957
Frequency of headache (days/week)	0.515	0.193	7.646	1	0.016	1.667
Constant	-1.706	0.893	3.703	1	0.065	0.193

## DISCUSSION

The global prevalence of current headache is 47%, of having TTH is 38%, having migraine is 10%, and chronic headache is 3% as reported by the review of 107 research

article on headache<sup>12</sup>. The epidemiological studies of headache conducted in Pakistan suggests that 71.13% patients had TTH, and 16.05% were suffering from migraine. The sample size for that study was 3440 patients.

We found that patients in our chosen sample who had mixed type headache and migraine were 27.1% and 49.2% patients had TTH<sup>13</sup>. A nationwide research conducted in Pakistan during the year of 2013-2015, adults who had the psychiatric disorders were around 16.01%, in which 8.4% patients had anxiety while 4.6% had depression<sup>14</sup>. In our study it was observed the 37.3% patients were positive for anxiety and 18.6 patients had depression, while the prevalence rate of having a psychological disorder was 64.4%. Psychological co-morbidities are very common among the patients having headache, and all the different types are associated with different psychological disorders. An Indian study which used the same MINI instrument reported 46% patients had migraine, 47% had TTH and 62.5% patients were positive for both of the diseases. In this study, we observed 30% patients had migraine, 40% patients were suffering from TTH, and 50% patients had both which is somewhat similar to the above-mentioned study. The patients with headache suffer more with anxiety<sup>15-16</sup>. A German study reported the presence of anxiety in 37% patients with headache, 27% with panic disorder, and 4% suffered from agoraphobia. 10 In another study conducted in India on the same topic, it was found that 22% patients of migraine, 13% patients of TTH, and 17.6% patients with chronic headache had anxiety<sup>17</sup>. We found that around 18.6% patients had anxiety and most of the patients with anxiety had TTH, which was different from all the other studies in which Generalized anxiety disorders (GAD) were present in 10% migraine patients, 20% TTH patients, and 20% patients with mixed type of headache. Studies conducted in clinics and demographic studies of migraine displays a linear relationship between migraine and depression. In the population-based studies conducted on a large scale, persons with depression had around 2.2 to 4.0 times more likelihood of developing migraine<sup>18-19</sup>. There is a bidirectional relationship between migraine and depression as one disorder increases the chance of acquiring the other as observed by performing longitudinal studies. 11 GAD, panic disorders, and bipolar disorder have the co-morbidity of migraine with OR = 3.5 to 5.3, 3.7, and 2.9 to 7.3 respectively. A Korean study suggests the presence of anxiety in 19% patients, depression in 6.1% patients and both anxiety and depression in 11.6% patients suffering from migraine. While in our study, out of the 10 patients who had migraine, only 4 patients had depression and 2 had anxiety. We were not able to compare our findings with other studies as the sample size in our study was very small. On the basis of our study, we found that the high frequency of having the headache (days per week) predicts the psychiatric co-morbidity (OR= 1.7)<sup>20-21</sup>. The results were similar to that of the Korean study which showed that the headache frequency per month is very high in respondents who had the co-morbidity of migraine with anxiety or depression. It was suggested by some studies that the psychiatric co-morbidities could be a risk factor the chronification of migraine which is a term used for the progression of episodic migraine toward the chronic migraine<sup>22</sup>. Treatments designed for one condition can be helpful for the other as well. This will prevent the progression of both the disease. Neurological co-morbidities increase the risk of developing the condition of long-lasting migraine, decrease their life quality, and make

it difficult to manage the therapy of migraine. So, it is highly recommended that one must screen the patient with migraine for psychiatric co-morbidities<sup>23</sup>. The psychological disorders have a bidirectional relationship with the headache. Another case referent study conducted in Brazil, determined the prevalence of primary headache among GAD patients in comparison with the healthy individuals (86.7% to 46.7%)<sup>24</sup>. So, it is recommended to acquire a multidisciplinary approach while treating the patient suffering from headache.

## CONCLUSION

In order to improve the quality of life, have a better life standard, and health care system, have a better prognosis, and for the reduction of the chronic and recurrent condition of headache along with the co-morbidity of psychiatric disorders timely recognition and treatment is necessary. The present study is designed to highlight the need of the research on a very large scale on this issue and also to emphasize the importance of psychiatric interventions during the therapy of patients suffering from headache. It is also going to be helpful to bring about the awareness regarding the importance of the psychological evaluation of the patient having headache in order to develop better regimen. Also, after this study it has been proved that a timely referral to psychiatric evaluating facility is very important for the neurological patients.

## REFERENCES

1. Gautam SC, Bhattarai Y, Singh PM. Psychiatric morbidities in patients with primary headache. *Journal of Gandaki Medical College-Nepal*. 2020 Dec 25;13(2):122-7.
2. Ali G, Ali A, Hussain A, Gul E, Muhammad M, Muneeb PM. Frequency of Depression among Patients with Backache presenting to Mardan Medical Complex, Mardan. *Journal of Saidu Medical College*. 2020 Dec 13;10(2).
3. Romano C, Cho SY, Marino S, Raucci U, Fiumara A, Falsaperla R, Massimino CR, Taibi R, Greco F, Venti V, Sullo F. Primary headache in childhood associated with psychiatric disturbances: an update. *European Review for Medical and Pharmacological Sciences*. 2020 Jun 1;24(12):6893-8.
4. Ghogare A, Saboo A. A cross-sectional study of comorbid depression in patients with chronic tension-type headache in psychiatry outpatient. *Journal of Datta Meghe Institute of Medical Sciences University*. 2019 Oct 1;14(4):283.
5. SELVAPANDIANV JS. A STUDY ON DEPRESSION AND ANXIETY COMORBIDITY IN NON-ORGANIC CHRONIC HEADACHE PATIENTS. *University Journal of Medicine and Medical Specialities*. 2019 Aug 20;5(5).
6. Ghogare AS, Patil PS. A cross-sectional study of co-morbid generalized anxiety disorder and major depressive disorder in patients with tension-type headache attending tertiary health care centre in central rural India. *Nigerian Postgraduate Medical Journal*. 2020 Jul 1;27(3):224.
7. Jhalani A, Kaur D, Mishra R, Dere S, Ghildiyal R, Jadhav K. Prevalence and subtype of Depression and Anxiety Disorders in referred outpatients from Neurology with headache: Neuro-Psychiatry Interface in Headache. *Indian Journal of Mental Health*. 2019;6(1).
8. Puustinen T, Tervonen J, Avellan C, Jyrkkänen HK, Paterno JJ, Hartikainen P, Vanhanen U, Leinonen V, Lehto SM, Elomaa AP, Huttunen TJ. Psychiatric disorders are a common prognostic marker for worse outcome in patients with idiopathic intracranial hypertension. *Clinical neurology and neurosurgery*. 2019 Nov 1;186:105527.

9. Alciati A, Atzeni F, Caldirola D, Perna G, Sarzi-Puttini P. The Co-Morbidity between Bipolar and Panic Disorder in Fibromyalgia Syndrome. *Journal of clinical medicine*. 2020 Nov;9(11):3619.
10. Alexander-Bloch AF, Raznahan A, Shinohara RT, Mathias SR, Bathulapalli H, Bhalla IP, Goulet JL, Satterthwaite TD, Bassett DS, Glahn DC, Brandt CA. The architecture of comorbidity networks of physical and mental health conditions in military veterans. *Proceedings of the Royal Society A*. 2020 Jul 29;476(2239):20190790.
11. Bansal D, Pranay P, Ahmed F. Medication Overuse Headache. In *Migraine* 2020 Oct 23. IntechOpen.
12. Meresh ES, Artin H, Joyce C, Birch S, Daniels D, Owens JH, La Rosa AJ, Rao MS, Halaris A. Obstructive sleep apnea comorbidity in patients with fibromyalgia: a single-center retrospective analysis and literature review. *Open access rheumatology: research and reviews*. 2019;11:103.
13. Russell MB. Epidemiology and management of medication-overuse headache in the general population. *Neurological Sciences*. 2019 May;40(1):23-6.
14. Demetgul O, Duman T, Guntel M. Investigation of the association between headache type, frequency, and clinical and radiological findings in patients with multiple sclerosis. *Neurology India*. 2020 Nov 1;68(6):1333.
15. Himanshu N, Prakash C. Prevalence of Psychiatric Comorbidities in Patients Presenting With Headache. *International Journal of Contemporary Medicine*. 2019 Feb 4;7(1):4-9.
16. Kremic MF. Factors associated with depression, anxiety and stress among patients with diabetes mellitus in primary health care: Many questions, few answers. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia*. 2020;15(3):54.
17. Noghani MT, Namdar H. Migraine associated with gastrointestinal disorders: A pathophysiological explanation. *Medical hypotheses*. 2019 Apr 1;125:90-3.
18. Wojewodka G, McKinlay A, Ridsdale L. Best care for older people with epilepsy: A scoping review. *Seizure*. 2021 Feb 1;85:70-89.
19. Kori P, Ramdurg S. Prevalence of mental health problems in migraine patients: A hospital based study.
20. ÇELİK RG, BİLGİÇ O, YAVUZ BG, GÖKSAN B, KARAHAN MG, ALTIN O. The Prevalence of Eating Disorders in Migraine and Tension Type Headache Patients. *MuğlaSıtkıKoçmanÜniversitesiTıp Dergisi*.;7(2):86-91.
21. Mendes-Gomes J, Paschoalin-Maurin T, Donaldson LF, Lumb BM, Blanchard DC, Coimbra NC. Repeated exposure of naïve and peripheral nerve-injured mice to a snake as an experimental model of post-traumatic stress disorder and its co-morbidity with neuropathic pain. *Brain Research*. 2020 Oct 1;1744:146907.
22. Malik FN, Zubair UB, Nawaz KH, Arif S, Hashmat A, Alamgir W. FREQUENCY OF HEADACHE AND IMPROVEMENT WITH THE TREATMENT AMONG THE PATIENTS OF EPILEPSY. *Pakistan Armed Forces Medical Journal*. 2020 Aug 19;70(4):880-4.
23. Karimi L, Wijeratne T, Crewther SG, Evans AE, Ebaid D, Khalil H. The migraine-anxiety comorbidity among migraineurs: A systematic review. *Frontiers in Neurology*. 2020;11.
24. Singh R, Joshi A, Gupta A, Mitra A, Rai NK. Exploratory study to understand association of emotional comorbidities and sleep with migraine. *International Journal of Neuroscience*. 2020 Dec 4:1-2.