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Research Article

**STUDY TO KNOW THE INCIDENCE AND PATTERN OF  
COMMON PRIMARY HEADACHE AMONG PATIENTS  
WITH DEPRESSIVE DISORDER**<sup>1</sup>Dr Urooj Rehman, <sup>2</sup>Dr Ayesha Hannan, <sup>3</sup>Dr Umair Iftikhar  
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**Abstract:**

**Background:** Primary headache is the type of headache that has no established organic cause. The headaches that have organic origin are classified as secondary headaches. Primary headache disorders include migraine, tension-type headache, cluster headache and other primary headaches.

**Aim:** Aim of this study was to determine the frequency of co-morbid common primary headaches among patients with depressive disorder.

**Patients and Methods:** This study was conducted in the Jinnah Hospital Lahore, for the duration of six months from September 2019 to March 2020, and comprised depressed patients. Diagnosis of depressive disorder was based on diagnostic criteria of International Classification of Diseases (10th version). For the diagnosis of common primary headaches, International Classification of Headache Disorders (2nd edition) criteria were applied. SPSS 17 was used for data analysis.

**Results:** A total of 331 patients included in this study, 129(39%) were males and 202(61%) were females. The overall mean age was 31.40±8.6 years (range: 18-50 years). Besides, 208(62.83%) participants had no headache and 123(37.16%) had common primary headaches. Of the latter, 18(5.4%) had migraine with aura, 49(14.8%) had migraine without aura and 56(16.9%) had tension-type headache. Common primary headaches were more common in females and among those having severe depressive disorder.

**Conclusion:** The primary headache was common among outpatients with depressive disorder, predominantly tension-type headache and migraine without aura.

**Keywords:** Primary headache, Migraine, Tension-type headache, Depressive disorder.

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**INTRODUCTION:**

Primary headache is the type of headache that has no established organic cause. The headaches that have organic origin are classified as secondary headaches. <sup>1</sup> Primary headache disorders include migraine, tension-type headache, cluster headache and other primary headaches. <sup>2</sup> Headache disorders are ranked amongst the 10 most disabling conditions in the world by the World Health Organization (WHO). <sup>3</sup> The global prevalence of primary headache diseases in the adult population is 46%. Tension-type headache and migraine are the two most common headache disorders affecting 42% and 11% of adult population, respectively. Primary headache disorders are a significant, largely un-addressed burden of ill health and disability everywhere. <sup>4</sup> Studies suggest that primary headache disorders have a lifetime prevalence of 90%. <sup>5</sup> Depression/depressive disorder is a mood disorder, characterized by low mood, lack of interest and enjoyment, reduced self-esteem, slowness and reduced energy, disturbed sleep and appetite, leading to decreased social and occupational functioning. Life-time prevalence of depressive disorder is 18% to 22% and one-year prevalence rate is 2-5% having greater ratio in females than males. <sup>6</sup> Epidemiological and clinical studies have shown an association between primary headaches and depressive disorder. <sup>7</sup> Among all primary headaches, the tension-type headache and migraine have been proposed to have close association with depression, and at least one study proposed that both disorders are part of the same spectrum. <sup>8</sup> This association may be bidirectional, which means the presence of one increases the chances of development of another disorder and it was more frequently found in migraine. <sup>9</sup> The relationship extends in the subtype of migraine and migraine with aura was found to be more strongly associated with risk of developing depression than other subtype of migraine. <sup>10</sup> A study conducted in China regarding the patterns of the primary headache (migraine type) revealed that 53.6% participants had migraine without aura, 5.7% had migraine with aura. 40.7% of the patients with probable migraine, and 14.5% patients had migraine coexisting with tension-type headache. The duration of headache was also longer in migraine patients. <sup>11</sup> The epidemiology and experiences of patients with headache disorders in the developing world are uncertain, because the majority of research on headache disorders comes from a limited number of high-income countries. Regional variation in the incidence, prevalence and economic burden of headache disorders has also been found. <sup>12</sup> The current study was planned to estimate the burden of common primary headaches in patients with depressive disorder and help the clinical practitioners to pay attention to this issue and manage the common primary headaches

appropriately in addition to treatment for depressive disorder.

**PATIENTS AND METHODS:**

This study was conducted in the Jinnah Hospital Lahore, for the duration of six months, from September 2019 to March 2020. Patients were enrolled using standard sample size calculation formula. Non-probability consecutive sampling was used. Patients with depressive disorder between the 18-60 age range and having moderate to severe disorder were included. Patients having history of chronic medical condition or history of substance use were excluded. Patients having psychotic features were also excluded. Informed consent was obtained from patients after informing them in simple and understandable language about the purpose of the study, assuring them of confidentiality and recognizing their right to withdraw the consent at any time even without mentioning any reason for that. Diagnosis was based on the comprehensive clinical interview, and relevant clinical examination using the diagnostic criteria of International Classification of Headache Disorders second edition (ICHD-2) for primary type of headache disorders and International Classification of Diseases version 10 (ICD-10) for depressive disorders. A semi structured pro forma was used to denote demographic details of the patients. The data was analyzed on SPSS 17. The frequency and percentage were calculated for qualitative variables like gender, common primary headache (migraine and tension-type headache), marital status, educational status, occupational status and mode of referral. Mean and standard deviation (SD) were calculated for age.

**RESULTS:**

A total of 331 patients included in this study, of the 331 participants, 129(39%) were males and 202(61%) were females. The mean age of the patients was 31.40±8.60 years (range: 18 to 50 years). Moreover, 279(84.3%) participants were married, 51(15.4%) were single and 1(0.3%) was widow. Moreover, 107(32.3%) patients were uneducated, 203(61.3%) were household by occupation, and 226(68.3%) were referred here by family (Table-1). Besides, 75(22.7%) participants were having moderate depressive disorder and 256(77.3%) were having severe depressive disorder. Of all females, 157(77.7%) were severely depressed while 45(22.30%) were moderately depressed, whereas 99(76.7%) males were severely depressed and 30(23.3%) were moderately depressed (Figure). The primary headache was present in 123(37.16%) cases. Moreover, 18(5.4%) patients had migraine with aura, 49(14.8%) had migraine without aura and 56(16.9%) had tension-type headache. Migraine without aura was found

prominent in females 17(8.4%) and tension-type

headache more prominent in males 28(21.7%).

**Table-1: Demographic Characteristics**

Demographic Characteristics	n (%)
<b>Marital status</b>	-
Single	51(15.40)
Married	279(84.30)
Widow	1(00.30)
<b>Education status</b>	-
Uneducated	107(32.30)
Religious education	58(17.50)
Primary	18(05.40)
Middle	34(10.30)
Matric	42(12.70)
Intermediate	65(19.60)
Graduate	7(02.10)
<b>Occupation status</b>	-
Jobless	96(29.00)
Student	15(04.50)
Household	203(61.30)
Professional	8(02.40)
Shopkeeper	9(02.70)

## DISCUSSION:

In this study females were found to suffer more from primary headaches and severe type of depressive disorder. Migraine without aura was associated more with married ladies and tension-type headache was found more among single males. Moreover, common primary headaches were prevalent in depressive disorder cases, predominantly tension-type headache and migraine without aura, followed by migraine with aura. The prevalence of migraine in this study was 14.8% compared to 12.7% found in a study conducted by Gupta *et al.*<sup>13, 14</sup> The common primary headache prevalence in depression was found to be 37.16% in this study while previous studies reported the prevalence of headache in depression ranging from 52% to 70%.<sup>15</sup> The difference could be due to the criteria for diagnosing depressive disorder; in this study ICD-10 criteria were used instead of scales such as Hospital Anxiety and Depression Scale (HAD) or Beck Depression Inventory (BDI). A study conducted by Naila *et al.* found migraine with depressive disorder in 40% of the patients.<sup>16</sup> This significant difference could be due co-morbid migraine with depression. We noticed primary headaches in depressive disorder rather than depression followed by headache. Juang *et al.* found the frequency of depression disorders to be about 57% in their study.<sup>17</sup> In a population-based case-control study, Lipton *et al.* determined that 47% of migraine patients experienced depression, compared to 17% of people without migraine.<sup>18</sup> The frequency of tension headache in a study conducted in Karachi was 33.3% as compared to

16.9% in our study. The difference was due to the patients enrolled as in the previous study all the patients reporting for treatment were examined for headache, whereas we enrolled those reporting for depressive disorder.<sup>19</sup> Another study conducted in Karachi found the prevalence of migraine at 20% and that of tension-type headache at 23.3%; the findings were consistent with our study.<sup>20</sup> But in this study we found migraine and tension-type headache in patients of depressive disorders, and our inclusion criteria were quite strict as compared to the previous survey-type study. A study carried out in Japan showed that primary headache was found in 39.9% patients as compared to 37.1% in our study. The rate of tension-type headache and migraine was 30.8% and 9.1% in that study compared to 16.9% and 14.8%, respectively, in our study. This difference was because they sought out only primary headache among patients reporting for any sort of consultation and we selected patients having depressive disorder.<sup>21</sup> A study conducted in New Zealand in 2014 reported the prevalence of migraine and tension-type headache at 10.5% and 18.6%, respectively, which is also comparable to our study. However, that study comprised of adolescents while our study focused on adult, depressed patients. In our study, the ratio of severe depression among depressed patients was more, and the frequency of migraine without aura was higher among females while the frequency of tension-type headache was almost equal in both genders. Therefore, it could be mentioned that in due course the headache was seen more in severe depression, and in them it was more likely to

progress. These results show that headache itself does not induce depression, but depression, when it reaches a critical level, develops headache. To our knowledge, data is not available in this regard and further studies are required. Another important finding of this study is the association of particular subtype of primary headache with severity of depression. We found association of different common primary headaches such as migraine and tension-type headache among patients of severe depressive disorder more as compared to moderate depression. These disorders may have overlapping pathophysiology according to modular theory and convergent hypothesis of headache.<sup>22</sup> Therefore, it is possible that depression induces a qualitative pathophysiology and resulting headache may take any of the forms depending upon other, yet unknown, factors. The current study was not without its limitations. It was a hospital-based study and may not be truly representative of the overall population. The cross sectional study design lacked biological plausibility and inferences regarding temporal relationships and causative associations, though it certainly provided an account of relationships. The selection of non-probability purposive sampling limits generalizability of the study results and findings. Although, the sample size was scientifically calculated, but the selection of an epidemiological study needs a larger sample size to provide true estimation of frequency and prevalence.

### CONCLUSION:

From this study, it is concluded that patients will develop primary type of headache, such as migraine or tension type, as depressive disorder worsens. So, the worsening of depression and developing of headache should make one vigilant to search reasons other than associated depression. Depression is equally associated with different subtypes of headaches which under-scores the fact that these subtypes may have common or overlapping pathophysiology.

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