



## Anxiety and depression associated with migraine features

Ana Clara Oliver Machado , Eloisa Cristine Lohse , Gabriele Rapanha Teodoro , Maria Eduarda Ajita ,  
Aline Vitali da Silva , Valéria Aparecida Bello , Regina Célia Poli Frederico 

Pontifícia Universidade Católica do Paraná. Londrina, Paraná, Brazil.

### Introduction

Migraine is the most common primary headache in medical care, being the cause of migraine in more than 10% of the population, directly impacting the quality of life and working capacity of those affected. Recently, studies have indicated a close association between migraine and anxious and depressive disorders mediated by mechanisms such as alterations in monoamines (serotonin and dopamine) and neurotransmitter peptides such as endorphins and enkephalins, immune dysfunction, and genetic factors, causing symptoms and common characteristics among patients.

### Objective

Investigate the association between anxiety and depression with migraine features and accompanying symptoms.

### Methods

Cross-sectional study based on 466 patients with migraine, which were submitted to a structured interview in which demographic, clinical, anthropometric data and data related to migraine and its characteristics were obtained. Besides that, patients answered validated forms regarding the impact of migraine (HIT-6), allodynia (ASC-12), depression (IDB – inventário de Beck), anxiety (STAI Y-1 and Y-2) and hyperacusis scale. Categorical variables were evaluated using the chi-square test and numerical variables were analyzed using the Mann Whitney test. Statistical difference was considered when  $p \leq 0.05$ .

### Results

466 patients participated in the study, of which 86.1% were women, the median age was 33 years, 55.5% of the individuals had episodic migraine and 61.8% reported absence of aura. Regarding the patients with anxiety, 93.30% reported association of osmophobia with migraine attack ( $p=0.03$ ) and 46.70%, association with diarrhea ( $p=0.001$ ). Patients with anxiety scored higher on the impact of migraine questionnaire ( $p=0.046$ ), allodynia ( $p=0.005$ ) and the hyperacusis scale ( $p=0.029$ ). In relation to depression, a comparison was made between minimal or mild and moderate or severe involvement, and in the last group, 59.40% of patients had chronic migraine ( $p=0.006$ ), 78.10% denied association with diarrhea ( $p=0.049$ ), 79.40% reported prodrome ( $p=0.048$ ) and 56.40% make excessive use of analgesics ( $p=0.01$ ). Like patients with anxiety, those with moderate or severe depression also scored higher on questionnaires related to migraine disability ( $p<0.001$ ), migraine impact ( $p<0.001$ ), allodynia ( $p=0.003$ ) and hyperacusis scale ( $p=0.001$ ).

### Conclusions

Individuals with migraine and anxiety suffered more often from osmophobia and diarrhea during the attack. On the other hand, depressive individuals had a higher frequency of chronic migraine and diarrhea. Both anxiety and depression were associated with disease activity assessed by the impact, allodynia and hyperacusis scales.

**Keywords:** Migraine, Anxiety, Depression, Allodynia, Hyperacusis, Osmophobia.