

# A NEUROPSYCHOLOGICAL PROFILE-BASED CLASSIFICATION OUTPERFORMS ICHD-3 IN TERMS OF DISABILITY: EXPLORATORY ANALYSIS WITH ANATOMICAL CORRELATES

Tatiana Castro Zamparella, Mariela Carpinella, Marcelo Filipchuk, Verónica Balaszczuk, Carolina Maldonado, Diego Conci Magris, Marco Lisicki

## Introduction

Migraine patients are not all equally affected by the condition. Recognizing the degree of impairment is fundamental to personalize treatment. The International Classification of Headache disorders recognizes two types: episodic and chronic. Therefore, it remains to be determined whether novel strategies could provide better outcomes. In this study, we compared migraine-related disability between patients classified according to the ICHD-3 or classified using a neuropsychological profile-based classification system and performed a supplementary gray matter (GM) volume analysis to better understand our findings.

## Materials and Methods

Neuropsychological evaluations of 135 migraine patients

For neuropsychological profile-based classification, results from the evaluation protocol. Headache Impact Test (HIT-6) and Migraine Disability Assessment (MIDAS) results were compared between groups.

Voxel-based Morphometry (VBM) supplementary analysis included a subgroup of 48 patients. Differences in GM ( $p < 0.001$  unc) are presented.

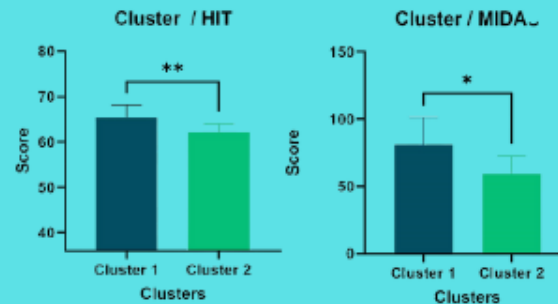
## Results

### ICHD-3 Classification:

75 episodic and 60 chronic

### Clustering Classification:

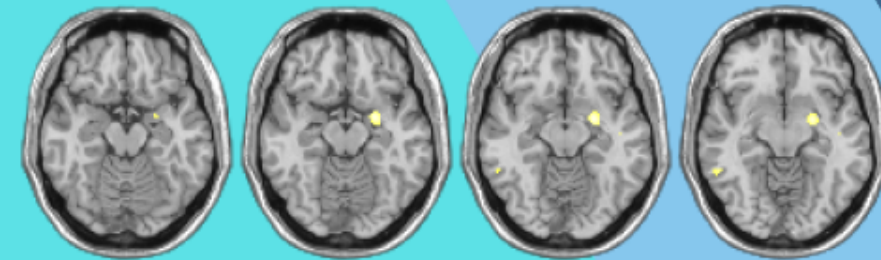
49 cluster I and 86 cluster II



Disability and impact of migraine are greater in Cluster I than in Cluster II

## Conclusions

Our results suggest that a neuropsychological profile-based classification system that could be readily implemented in the clinic would provide a better insight into migraine severity. neuropsychological profile-based clustering segregated patients with different gray matter volume close to a region recently determined to be the hub of a common migraine network. If corroborated in larger cohorts, these findings have implications not only at the single patient level, but also for epidemiological, pharmacological and pathophysiological studies.



VBM analyses showed greater GM volume in the left superior temporal, left parahippocampal, right inferior temporal, and right superior frontal gyri of chronic patients compared to episodic, and increased GM in the right precuneus and left superior parietal lobe of patients in cluster I