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## Introduction

Temporomandibular dysfunction (TMD) is a group of conditions that affect bone structures and soft tissues of the orofacial region and are characterized mainly by pain (1). Patients with TMD often have chronic pain, which in turn results from the mechanisms of sensitization which is thus responsible for the hypersensitivity of pain (2). Central sensitization can be examined experimentally using a conditioned pain modulation paradigm, it can function as a form of inhibition of pain in humans (3). This study aimed to evaluate the conditioned modulation of pain in patients with temporomandibular dysfunction and chronic pain and also to relate the influence that it has on anxiety and quality of life.

## Materials and Methods

A analytic observational study was carried out, involving a group of 19 individuals with chronic pain ( $34.1 \pm 14.9$  yrs), and sample selection was performed using Research Diagnostic Criteria for Temporomandibular Disorder. (RDC / TMD). The subjects were submitted to the application of a mechanical and thermal stimulus alone and to two mechanical and thermal stimuli simultaneously and independently. The interval application between stimulus, isolated and simultaneously was 5 minutes. All participants signed informed consent. The study was approved by the Ethics Committee of the Egas Moniz.

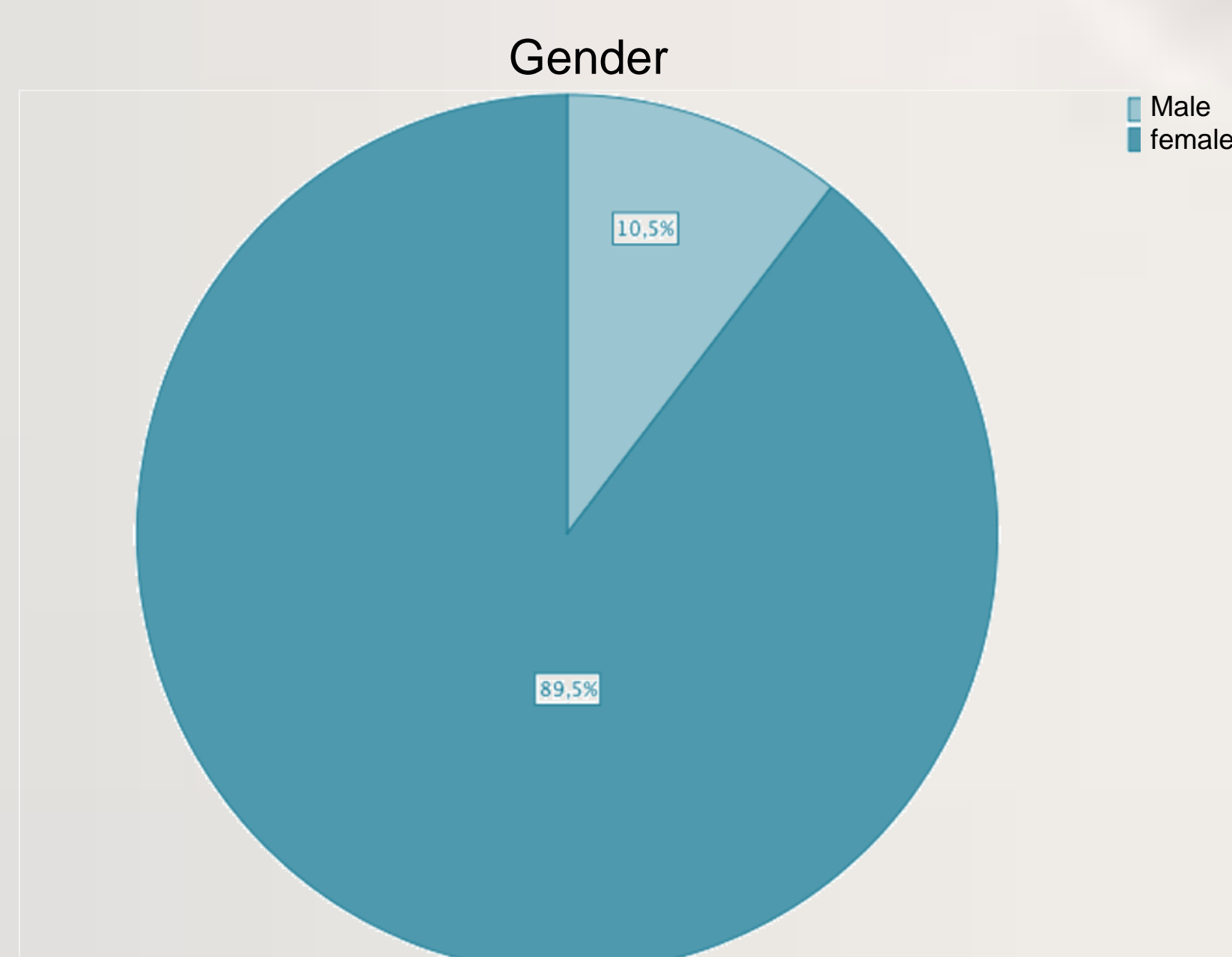


Fig.1- Gender frequency analysis

## Results

It was verified that the intensity of the pain precepted by the patients in the orofacial region during the simultaneous application of the two mechanical stimuli was in 100% of the cases lower than that precepted during the application of a stimulus. Regarding the thermal stimuli, it was verified that the intensity of the pain precepted in the orofacial region during the simultaneous application of the two thermal stimuli was 47% of the times inferior to that precepted during the application of a stimulus.

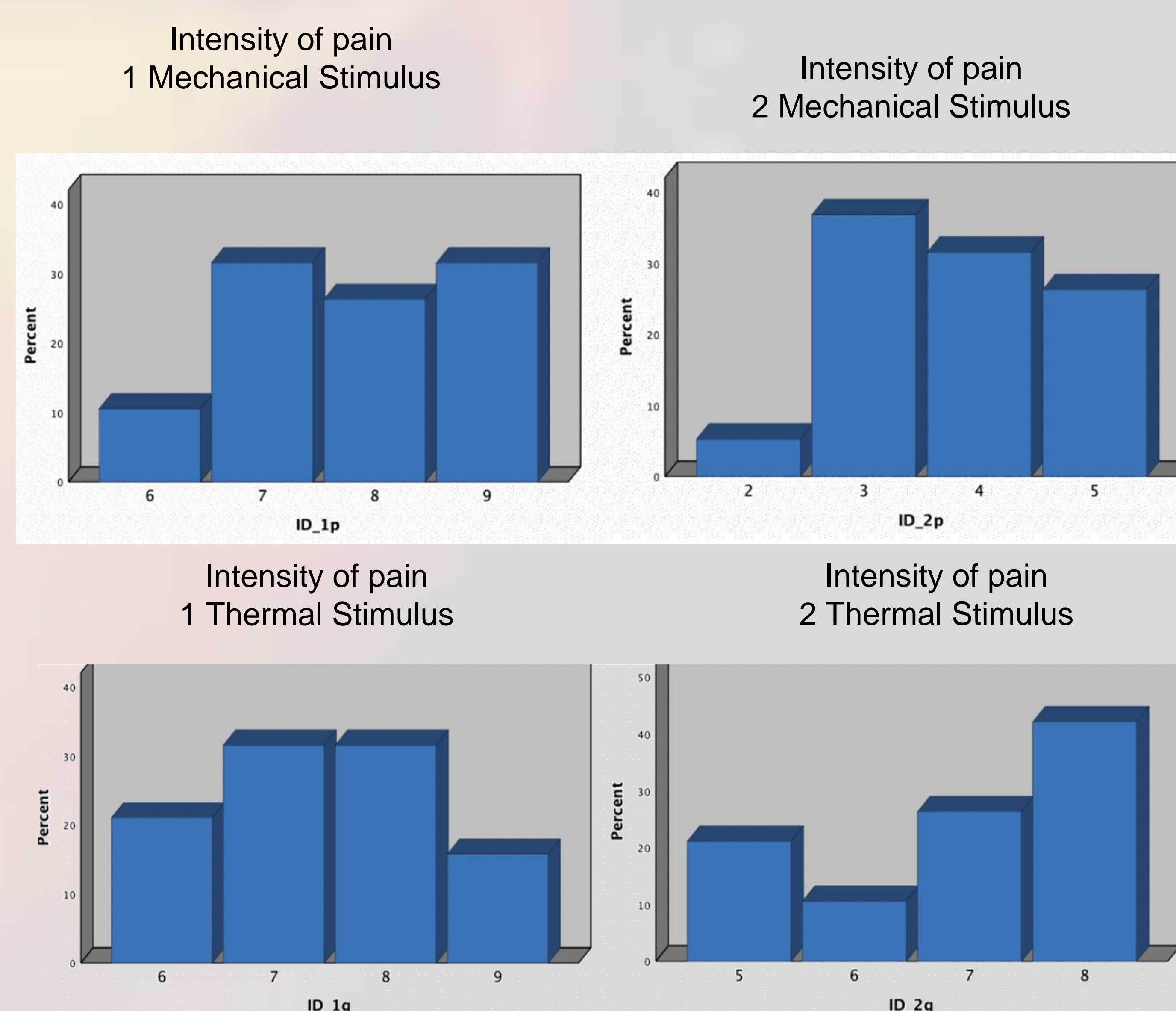


Fig. 3- Analysis of Pain Modulation

## Discussion and Conclusion

The decrease in pain prediction in the orofacial region when two simultaneous stimuli were applied is in agreement with the principles of conditioned pain modulation, which seems to indicate that individuals with TMD have central sensitization (3). Given the small size of the sample and the small number of studies carried out on the present theme, it is suggested to carry out new studies with larger samples in the future.

## References

- (1) Svensson P, Kumar A. Assessment of risk factors for oro-facial pain and recent developments in classification: implications for management. Journal of oral rehabilitation. 2016; 43(12), 977-989
- (2) La Touche R, Paris-Alemany A, Hidalgo-Pérez A, López-de-Uralde-Villanueva I, Angulo-Díaz-Parreño, S, Muñoz-García D. Evidence for Central Sensitization in Patients with Temporomandibular Disorders: A Systematic Review and Meta-analysis of Observational Studies. Pain Practice. 2017;18(3): 388-409
- (3) Kennedy D, Kemp H, Ridout D, Yarnitsky D, Rice A. Reliability of conditioned pain modulation. Pain, 2016;157(11): 2410-2419