

ARTICLE

Prevalence of temporomandibular disorders in a sample of Ecuadorian elderly.

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Abstract: The aim of this study was to determine the prevalence of temporomandibular disorders (TMDs) in a sample of Ecuadorian older adults in 2018. This is a cross-sectional study, which was conducted with a sample of 143 older adults of both sexes of the “Senderito de Amor” Elderly Home. The evaluation instrument was the Helkimo index, with the following parameters: presence of muscle pain, difficulty in opening and closing movement, joint pain, joint noises, limitation of mouth opening, limitation of lateral movement, and propulsion and deviation of the jaw. Overall, 88.8% of the population had TMDs, with 85.7% in the group of 60–70 years, 81.8% in the group of 71–80 years, 96.7% in those over 80 years, and 81.0% men and 92.1% women. Statistically significant differences were found by age ($p = 0.035$), but not by sex ($p = 0.055$). The most frequent signs and symptoms were joint noise (82.5%), followed by deviation of the jaw during opening (60.1%), reduction of the mouth opening (41.3%), difficulty of opening movements and closure (35.0%), reduction in movements of laterality and propulsion (29.4%), joint and muscle pain (24.5%), muscle pain (18.9%), and joint pain (16.8%). In conclusion, there is a high prevalence of temporomandibular disorders in older adults, and the most frequent signs and symptoms were joint sounds and deviation of the jaw during the mouth opening.

Keywords: temporomandibular disorder, prevalence, temporomandibular joint.

INTRODUCTION

Temporomandibular disorders (TMDs) are defined as a set of various clinical problems that can affect the masticatory muscles, the temporomandibular joint, or both (*Okeson, 2013*). According to the World Health Organization, TMDs are pathologies that rank third among the most common oral diseases, and are considered a public health problem, affecting functional, esthetic, psychosocial, and quality of life, especially in older adults (*Guerrero et al., 2017*).

Dental health is an important part of the general health of individuals (*Casas et al., 2010*). The most frequent problems in TMDs are functional disorders of the muscles of chewing. According to the American Dental Association, TMDs can cause the following symptoms: pain, joint noises (clicking or crepitus) during chewing, and restriction of jaw movements (*Manns & Biotti, 2013*).

The number of patients consulting by TMDs is relatively low; this could be because the signs and symptoms do not significantly affect their quality of daily life or because they are unaware of this pathology. This topic has been the subject of international research, but most studies were con-



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Receipt: 09/25/2018

Revised: 10/25/2018

Acceptance: 11/06/2018

Online: 11/23/2018

Conflict of interests: None.

Ethics approval: Universidad Católica de Cuenca.

Funding: None.

Authors' contributions: All authors carried out the entire study

Acknowledgements: None.

doi: [10.32457/ijmss.2018.017](https://doi.org/10.32457/ijmss.2018.017).

ducted in a young population and not in geriatric patients (Aragón *et al.*, 2005).

The aim of this study was to determine the prevalence of TMDs in a sample of older Ecuadorian adults in 2018.

MATERIALS AND METHODS

A cross-sectional study was carried out in older adults of the “Senderito de Amor” Elderly Home of the Chiquintad parish in the city of Cuenca, Ecuador. In total, the study included 143 elderly individuals. We included individuals older than 59 years enrolled in the Home. Participants were given informed consent to read and sign before beginning the exam.

A Dental Health survey (Criado *et al.*, 2013) was applied to collect the data, which allowed the diagnosis of TTM based on two parameters: (a) an anamnestic examination for the collection of general information: personal data (age, sex, date, names, surnames, date of birth), and (b) clinical evaluation through the examination of the muscle-articular complex (Rojas & Lozano, 2014).

For the clinical evaluation, the examiner was placed in front of the patient. Each adult was examined in a chair with head support and good lighting. This examination assessed:

a. Clinical manifestations: symptoms related to the nature of the pain were inspected, by means of muscular palpation in the specific area of the pain,

if it was constant or disappeared. It was identified if the pain was muscular, joint, or a combination.

b. TTM signs: joint noises, reduction of the oral aperture, and deviation of the jaw. For this test the patients were asked to open and close the mouth.

To determine the prevalence of TTM, the presence of at least two or more signs or symptoms included in the survey was taken into account (Badel *et al.*, 2016).

A database was created in Microsoft Excel 2010 (Microsoft Corp., USA). Statistical analysis was performed using SPSS v.20 software (IBM, USA). A descriptive analysis was made. To evaluate statistically significant differences, the Chi square test was used ($p < 0.05$).

RESULTS

In total, 88.8% of the population had TTM, with 85.7% in the group of 60–70 years, 81.8% in the group of 71–80 years, 96.7% in those over 80 years, and 81.0% men and 92.1% women. Statistically significant differences were found by age ($p = 0.035$), but not by sex ($p = 0.055$).

The most frequent signs and symptoms were joint noise (82.5%), followed by deviation of the jaw during opening (60.1%), reduction of the mouth opening (41.3%), difficulty of opening movements and closure (35.0%), reduction in movements of laterality and propulsion (29.4%), joint and muscle pain (24.5%), muscle pain (18.9%), and joint pain (16.8%). Tables 1 and 2 show the distribution of signs and symptoms by sex and age, respectively.

TABLE 1. Distribution of signs and symptoms by sex.

	Male n (%)	Female n (%)	p-value
Muscular pain	7 (16.66)	20 (19.8)	0.663
Movements difficulty	12 (28.57)	38 (37.62)	0.301
Articular pain	8 (19.04)	16 (15.84)	0.64
Mixed	11 (26.19)	24 (23.76)	0.758
Articular noise	30 (71.42)	88 (87.12)	0.024
Opening reduction	13 (30.95)	46 (45.54)	0.106
Laterality and propulsion reduction	12 (50.4)	30 (29.7)	0.892
Mandibular deviation	23 (54.76)	63 (62.37)	0.397

TABLE 2. Distribution of signs and symptoms by age.

	60-70 years n (%)	71-80 years n (%)	>81 years n (%)	p-value
Muscular pain	2 (7,14)	11 (20)	14 (23,33)	0,188
Movements difficulty	8 (28,57)	19 (34,54)	23 (38,33)	0,668
Articular pain	3 (10,7)	12 (21,81)	9 (15)	0,392
Mixed	7 (25)	14 (25,45)	14 (23,33)	0,963
Articular noise	21 (75)	43 (78,18)	54 (90)	0,126
Opening reduction	12 (42,85)	16 (29,09)	31 (51,66)	0,048
Laterality and propulsion reduction	9 (32,14)	13 (23,63)	20 (33,33)	0,489
Mandibular deviation	14 (50)	32 (58,18)	40 (66,66)	0,308

DISCUSSION

Ibarra et al. (2015), *Criado et al. (2013)*, and *Cabo et al. (2000)* have shown that the most prevalent signs and symptoms of TMD are muscle pain and difficulty in opening and closing movements, which is consistent with the results of this study. According to sex, our results also indicated that women are more prone to joint noises, followed by muscle and joint pain. This study is also consistent with that of *Rojas and Lozano (2014)*, who found a higher prevalence of TTM in women.

Sandoval et al. (2015), *Nguyen (2017)*, and *Taboada et al. (2004)* also agree that there is a high prevalence of TMD in older adults, and this prevalence increases with age. However, unlike this study, *Seintefus et al. (2017)* found a lower prevalence of pain in patients aged 80 years and over.

It was thought that TMD affected women of childbearing age, but recent studies in Europe and the United States have shown that the highest prevalence is in women aged 45–65 years (*Yadav et al., 2018*). Therefore, it would be advisable to carry out a longitudinal study with a control group to determine the predictive value of signs and symptoms, using standardized methodology and uniform diagnostic criteria.

From these results, a systematic analysis of the oral examination in the elderly is recommended, regardless of the apparent need or not of treatment, to identify possible signs or symptoms that could be due to the TTM. If during the anamnesis and the clinical examination a

sign is observed, a more detailed examination of the TMJ and its structures should be performed.

CONCLUSION

There is a high prevalence of TMDs in older adults, and the most frequent signs and symptoms were joint sounds and deviation of the jaw during the mouth opening.

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