

# Prevalence of Signs and Symptoms of Temporomandibular Disorders in Patients Wearing Complete Dentures

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**Abstract:** *The aim of this study was to evaluate the prevalence of signs and symptoms of temporomandibular disorders (TMD) in a population of complete denture wearers. The study involved 104 patients wearers of complete dentures for 5 years at least, aging 54-76 years with mean age of 66,3. Each patient's general and denture history was taken, followed by an anamnestic and clinical examination for the presence or absence of signs and symptoms of TMD. Signs and symptoms of TMD were tabulated according to the percentage distribution among the male and female groups. The number of subjects who showed signs was 31.73%, subjects – 21.57% males and 41.51% females. The most commonly seen symptoms were the joint sounds 11.54%, muscle tenderness 7.69%, joint tenderness 5.77%, deviation of mandible 3.85%, limitation on mouth opening 2.88%. In present study was observed a high prevalence of TMD signs and symptoms among patients wearing complete dentures.*

**Keywords:** complete denture, signs and symptoms, temporomandibular disorders

## 1. Introduction

Temporomandibular disorders (TMD) are “a collective term embracing a number of clinical problems that involve the masticatory musculature, the temporomandibular joints and associated structures, or both” [12]. The aetiology of TMD has been considered to be one of the most controversial issues in clinical dentistry. It is multifactorial [11, 2, 19] and may involve changes in occlusion, incorrect prosthesis, traumatic or degenerative injury of TMJ, psychological factors and parafunctional oral habits [15, 18, 3]. The main symptoms include facial pain, pain or muscle tenderness on palpation, pain during jaw movement, reduction of mandibular movements, headache and joint sounds [13, 20]. These symptoms may appear in various combinations and degrees. TMD signs and symptoms may be present in patients with natural teeth but may also occur in complete denture wearers [7]. Ribeiro et al. [14] found that patients with complete dentures had TMD symptoms with a frequency similar to natural dentate. Al-Shumailan and Manaseer [1] found twice as many TMD signs and symptoms in dentate patients than in patients using complete dentures. The aim of this study was to investigate the incidence of TMD symptoms in elderly people wearing complete denture.

## 2. Materials and Methods

The incidence of TMD signs and symptoms was evaluated using a questionnaire and clinical examination. The individuals that agreed to participate in the study signed an informed consent to be included. In present study we included patients who used complete dentures for at least 5 years. All patients were required to complete a questionnaire and undergo a clinical examination. Initially, each patient was directly questioned as to whether he/she was aware of any of the specific signs associated with a

TMD - TMJ tenderness, limitation or deviation of mandibular movement, joint sounds (e.g., clicking or crepitus), and masticatory muscle tenderness. A clinical stomatognathic examination, including registration of the ranges of movements of the mandible, masticatory muscle pain during palpation and movements of the mandible according to the RDC/TMD criteria, was performed [5]. The masseter and temporalis muscles were palpated for any signs and tenderness. The lateral and medial pterygoid muscles were examined by recording their response to resisted movements, as these muscles is not accessible to manual palpation [8, 9]. TMJ tenderness was determined by palpation laterally over the condyle in the immediate periauricular region.

Each patient was requested to indicate his/her level of pain according to a scale ranging from 0 to 3 (0 = absence of pain; 1 = light; 2 = moderate; and 3 = severe) immediately after manual palpation on the lateral pole of the condyle, masseter and the temporal muscles or functional manipulation of medial or lateral pterygoid muscles. The maximum jaw opening was measured after asking the patient to open as wide as possible while remaining comfortable. Clicking and crepitus of the TMJ, either unilateral or bilateral, was recorded.

The pathway of mandibular opening for each patient according to RDC/TMD was recorded as follows - straight opening with no deviation, deviation to the right side, or deviation to the left side. Any mandibular deviation on opening and closing was recorded. The results were tabulated and analyzed statistically using SPSS version 19.0 for Windows (SPSS Inc., Chicago, IL, USA). We performed a descriptive analysis (*i.e.*, the mean, standard deviation, and maximum and minimum values) for each variable. The values were compared using an Fisher's exact test.

### 3. Results and Discussion

After the completion of history and clinical examination was found that 31.73% of the edentulous subjects showed one or more signs or symptoms of dysfunction (Table 1). Only 68.27% of the subjects did not show any signs of dysfunction.

**Table 1:** Frequency and distribution of TMD signs in complete denture wearers

	Men	Women	Total
Muscle tenderness	3 (5.88%)	5 (9.43%)	8 (7.69%)
Joint tenderness	2 (3.92%)	4 (7.54%)	6 (5.77%)
Clicking or Crepitus	3 (5.80%)	9 (16.98%)	12 (11.54%)
Deviation of mandible	1 (1.96%)	3 (5.66%)	4 (3.85%)
Limitation on mouth opening	2 (3.92%)	1 (1.89%)	3 (2.88%)

Females showed significantly higher percentage of signs and symptoms of dysfunction when compared to males (Table 2).

The most commonly seen symptoms were the joint sounds 11.54%, muscle tenderness 7.69%, joint tenderness 5.77%, deviation of mandible 3.85%, limitation on mouth opening 2.88%.

**Table 2:** Distribution of sample by sex

	Men	Women
Without signs	11 (21.57%)	22 (41.51)*
With signs	40 (78.43%)	31 (58.49%)
Total	n=51	n=53

\*Significant ( $p < 0.05$ )

Serman et al. [17] and Divaris et al. [4] report that patients with complete dentures had more TMD signs and symptoms than patients with natural teeth, which is consistent with our findings. The majority of complete denture wearers (patients who have been wearing their dentures for a long time) may exhibit a sensibly reduced occlusal vertical dimension as a result of denture tooth wear and alveolar bone loss. It was thought that the most common causes of signs and symptoms of TMD in complete denture wearers were incorrect vertical dimension [10].

The lack of complete dentures for years promotes a shift in the vertical and horizontal mandibular positions, as a result the position of the condyles in the mandibular fossae may also become altered. On the other hand the some complete denture wearers who have been wearing their dentures for a long time, loss of vertical dimension and incorrect centric relation may also induce signs and of symptoms TMD. All these findings agree with the results of our study. Our results are in accordance with previous studies carried out in a population of complete denture wearers [6, 16].

### 4. Conclusion

TMD signs and symptoms which present in patients with natural teeth may also occur in edentulous patients wearing complete dentures. In our study was observed a high

prevalence of TMD signs and symptoms among patients with complete dentures.

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