

# Effect of Tinnitus on Quality of Life in Patients with Temporomandibular Dysfunction

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**Abstract:** Tinnitus is a phantom auditory sensation in the absence of external auditory stimuli. It was estimated that between 10% and 15% of the adult population suffers from tinnitus. The aim of the present study is to evaluate the effect of tinnitus on quality of life in patients with temporomandibular dysfunction. The object of the study were 150 patients who passed through the clinical halls of the Faculty of Dental Medicine - Varna, University Medical and Dental Center and the Audiovestibular laboratory at the Faculty of Dental Medicine - Varna. More than ¾ of the patients surveyed indicated that they felt tinnitus from waking to falling asleep. 40.7% of the examined patients consider tinnitus to be a symptom of a serious health problem. About half of the patients surveyed (48.7%) indicated that they felt exhausted due to tinnitus. Tinnitus has a negative impact on the quality of life of patients, and the combination with temporomandibular dysfunction further worsens their psycho-emotional and physical condition.

**Keywords:** quality of life, tinnitus, dysfunction, TMJ

## 1. Introduction

The word "tinnitus" comes from the Latin "tinnire", which means "ringing" and is perceived as ringing, buzzing or hissing in or around the ear (ears). Tinnitus is a phantom auditory sensation in the absence of external auditory stimuli [1]. It is estimated that between 10% and 15% of the adult population suffers from tinnitus. Patients with tinnitus have a significantly higher incidence of temporomandibular disorders (85%) than people without tinnitus (55%)[2]. Studies show that the incidence of tinnitus is higher among patients diagnosed with pain in temporomandibular joints [3,4].

## 2. Problem Definition

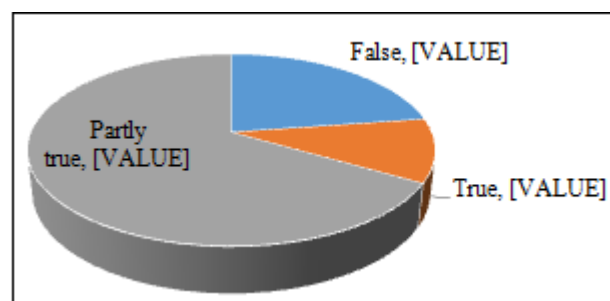
The aim of the present study is to evaluate the effect of tinnitus on quality of life in patients with temporomandibular dysfunction.

## 3. Methodology

The object of the study were 150 patients who passed through the clinical halls of the Faculty of Dental Medicine - Varna, University Medical and Dental Center and the Audiovestibular laboratory at the Faculty of Dental Medicine - Varna. The diagnosis of temporomandibular joint dysfunction and tinnitus in patients undergoing prosthetic treatment was made during the clinical examination after describing specific symptoms by the patient.

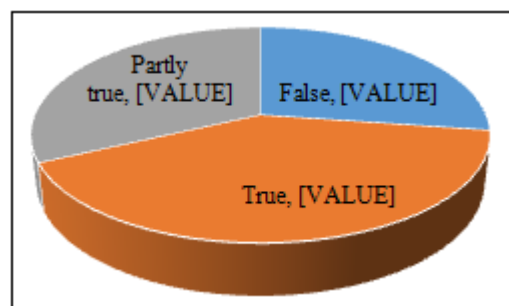
## 4. Results & Discussion

More than ¾ of the surveyed patients indicated that they felt tinnitus from waking to falling asleep (Fig. 1), and there was no difference in the opinion of patients according to sex.



**Figure 1:** I feel the tinnitus from waking to falling asleep

A significant part of patients indicated that they feared for their health due to tinnitus (Fig. 2). 40.7% of the studied patients consider tinnitus to be a symptom of a serious health problem (Fig. 2).



**Figure 2:** Because of the tinnitus, I'm afraid I have a serious health problem

About 2/3 (65.3%) of the patients state that they are more irritable in their relations with family and friends due to tinnitus. There was a significant difference in tinnitus irritability between men and women ( $p < 0.001$ ), with this indicator moderately correlated with female gender ( $r = 0.380$ ;  $p < 0.001$ ) (Fig. 3).

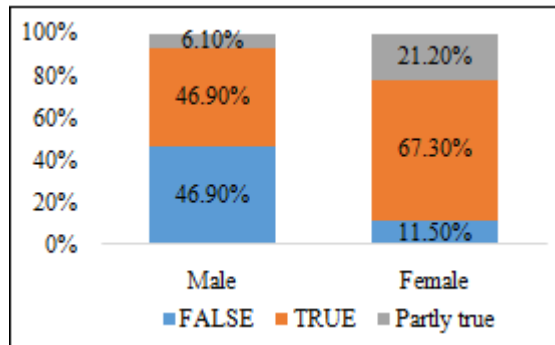


Figure 3: Comparative analysis of patients' opinions by gender and irritability associated with tinnitus

62% indicated that they had difficulty resting due to tinnitus (Fig. 4), with a significant difference and moderate sex dependence ( $r = 0.358$ ;  $p < 0.001$ ) (Fig. 5).

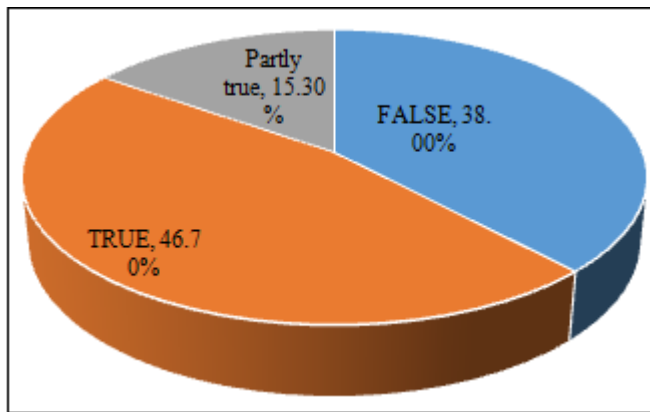


Figure 4: I have difficulty resting

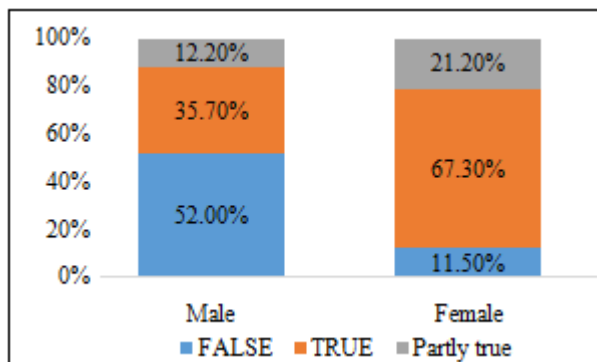


Figure 5: Comparative analysis of patients' opinions by gender and difficult rest due to tinnitus

About half of the patients surveyed (48.7%) reported feeling exhausted due to the tinnitus (Fig. 6).

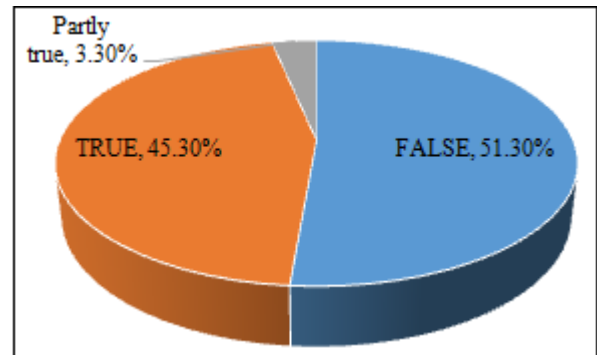


Figure 6: I feel exhausted because of the noise

Interestingly, men feel more exhausted than women due to tinnitus (52.0% for men and 42.3% for women, respectively;  $p = 0.002$ ) (Fig. 7).

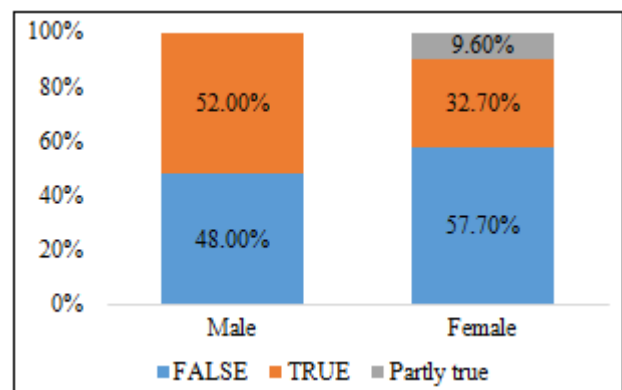


Figure 7: Comparative analysis of patients' opinions by gender and feelings of fatigue due to tinnitus

Otolaryngological symptoms in combination with TMJ (temporomandibular joint) dysfunction were first observed in 1920 by Monson, who reported a case of sudden hearing loss due to TMJ abnormalities [5]. The perception of the severity of tinnitus is related to psychological and general health factors [2]. The main goal of the treatment of tinnitus is to reduce its effect and improve the quality of life of the individual. Therefore, valid and reliable methods for assessing the effects of tinnitus are needed [6]. There are many questionnaires for assessing distress caused by tinnitus [7].

Impaired quality of life in patients with tinnitus is discussed by most authors working on the issue [8, 9]. Each of them gives a different predominance over the different nuances of this quality. According to our study, mostly commented on irritability and lack of concentration. While other authors point to sleep disturbances and feelings of exhaustion are the main complaints of patients with tinnitus [3, 4].

In terms of gender, the data on tinnitus are contradictory. According to a number of studies, females suffer more often [1, 10]. These results differ from other studies that report a higher prevalence of tinnitus in men. This is associated with male occupations that are practiced in noisy environments [1,

11, 12]. However, a number of studies have found no link between gender and tinnitus [13, 14, 15].

## 5. Conclusion

Undoubtedly, tinnitus has a negative impact on the quality of life of patients, and the combination with temporomandibular dysfunction further worsens their psycho-emotional and physical condition. It has been confirmed that tinnitus has a direct impact on the mood, habits and deteriorates the quality of life of patients, which makes timely diagnosis of this condition extremely important.

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