

# Correlation between Temporomandibular Pain and Gender

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## Editorial

The international literature, in restricted contexts but of considerable significance, has begun to highlight this issue, pointing out that in clinical trials of many diseases, there is often a tendency not to take adequate account of the numerical prevalence of the female sex in the general population, in addition to the biological differences between men and women [1]. This trend can bring negative reflections on diagnosis, prognosis, and treatment, and thus on the effectiveness of care and quality of life [2,3]. When we began to assess how women and men differed in a pain study, we realized that in many types of chronic pain women reported more severe, more frequent, and longer lasting levels of pain than men (migraine, tension headache, facial pain, musculoskeletal and osteoarticular pain, fibromyalgia) [4,5].

Temporomandibular disorders (TMD) are a heterogeneous group of psycho-socio-physiological disorders, characterized by orofacial pain, concerning the masticatory muscles, temporomandibular joint, and associated structures [6].

Since the 70s, the difference between “males” and “females” has been analyzed, not only from the biological (sex) point of view, but also from viewpoints that culture and society attribute to such biological differences (gender) as the totality of personality traits, attitudes, feelings, values, behaviors and activities [7,8]. This diversity is a social construct, varying over the years and from society to society [9]. In 1975, anthropologist Gayle Rubin, in her “The Traffic in Women”, began to speak of a sex–gender system in which the biological datum is transformed into an asymmetrical binary system, where the masculine occupies a privileged position over the feminine, to which it is linked by close connections from which both derive mutual definition [10,11]. Therefore, in agreement with Rubin and other contemporary authors, belonging to one category rather than another is not an innate characteristic, but is a social invention that is influenced by different cultures and historical periods. It was in 1991 when Bernardine Healy, then head of the U.S. National Institute of Public Health, in a famous editorial in the NEJM, spoke of Yentl syndrome, in reference to cardiologists’ discriminatory behavior against women [12]. It was only the first step. Reflection began in the scientific world on what it means to be a woman in the treatment of various diseases, but not only that. In most clinical trials (especially on new drugs), women of childbearing age are not enrolled. What does this imply? Next: why are some pathologies mostly female, and others mostly of men?

Medical research is increasingly focusing on so-called “Gender Medicine,” understood primarily as the set of gender-specific health needs and problems [13,14]. In addition to the already well-known biological differences between men and women, the two genders are also exposed to different psychosocial factors that can undermine their health [15,16]. In the management of temporomandibular disorders and orofacial pain, what is the role of gender? How do gender differences affect the perception of pain? Laboratory experiments have been performed that have highlighted the differences with how pain is

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experienced by the two genders, and women have shown a lower pain threshold and less tolerance to it than men [17].

Pain is perceived differently in the two genders due to biological and psychosocial motivations [18,19]: in many types of chronic pain, women report more severe, more frequent, and longer lasting pain intensities than men (migraine, tension-type headache, facial pain [20], musculoskeletal and osteoarticular pain, fibromyalgia); in fact, women use pain medication prescriptions more than men [18]. Furthermore, consider that women report experiencing pain more frequently than men and that they experience pain in more areas of the body, more often and for longer as compared to men [20].

Women experience pain mainly from an emotional point of view, while men focus on the strictly physical aspects. This approach does work to the advantage of men who are better able, in this way, to accept even more severe pain; in contrast, women only increase their sufferance, since the emotions associated with pain are all negative. In so doing, women also have a more apprehensive attitude toward pain and its symptoms than men, and a stronger awareness and willingness to freely admit to health problems [21,22]. This behavior, in association with pain, interferes with their routine activities, such as work, and their tendency to take part in social activities. Finally, it should be considered that women have additional stress loads compared to men, such as domestic duties and childcare, in addition to work, and this predisposes them to be more sensitive to pain. Apparently, hormones play an important role in nociceptive processes as they influence both the central and peripheral nervous systems (involved in pain transmission), although it is still necessary to determine the degree of their influence in the pathophysiological process of pain. However, it is important to consider that extreme hormonal conditions, such as those that accompany pregnancy or the menstrual cycle, can give important changes on nociceptive responses [4]. As stated earlier, it is constantly clinically found that patients with temporomandibular disorders requiring treatment are 80% female [23]. Although pain is the main reason that drives patients to the specialists' observation, it should be considered that many of these patients report a marked stress degree due to pain and its interference in activities of daily living, and all this often leads to a certain degree of depression [24,25]. In addition, TMDs share many traits of chronic conditions, so they are treated with the same biopsychosocial models as chronic conditions. The role of psychosocial factors (anxiety, depression, stress) in the onset of temporomandibular disorders is well-known, in accordance with the multifactorial theory. Psychodynamic (e.g., inability to express emotional conflicts, fear, guilt), cognitive (e.g., feeling helpless, lack of control), behavioral (reduced job performance due to stress and low earnings) and biological (pain control and stress mechanisms) models are included in the explanation of the relationship between the physical and psychological dimensions of pain [26,27]. The importance of investigating the psychology of TMD patients was well-understood. Regarding gender, depression is more prevalent in women in a ratio of 2:1, but only after pubertal age. The prevalence of depressive disorder in adulthood is 10–25% in women and 5–12% in men.

In conclusion, "gender" can be considered a risk factor for TMDs because of the different psychosocial characteristics that exist between men and women. A real difference exists in dealing with TMD pain between men and women due to biological reasons (role of hormones), psychological reasons (women experience pain from an emotional point of view instead men focus on the strictly physical aspects), and social motives (women's greater concern about pain interferes with their activities such as work). However, future investigations will continue to analyze risk factors for the onset of TMDs, contributing to a better understanding of the role of gender in the onset of the latter.

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