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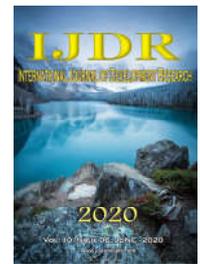
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RESEARCH ARTICLE

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## EVALUATION OF THE PREVALENCE OF TEMPOROMANDIBULAR DYSFUNCTION, AND STRESS OF STUDENTS IN THE DENTISTRY COURSE

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### ABSTRACT

The quality of life is directly associated to possible problems of chronic pain and dysfunction of the human body. The temporomandibular disorders (TMDs) are defined as, disorders that affect the chewing muscles, temporomandibular joints (TMJ) and other structures of the stomatognathic system. Signs and symptoms can hinder the performance of routine activities the academic performance of an individual. The aim of this study was to evaluate the quality of life and TMDs in students from the initial and final phases of the Dentistry course at Unoesc and to compare the two groups. It was a documentary study, approved by the ethics committee under opinion 761,319, developed through the application of two questionnaires, the SF-12 to assess quality of life, and the DC/TMD axis II to assess the presence of temporomandibular disorders. The sample was performed in two groups: the initial comprising phases 1,3,5 and the final with students from phases 7,8,9 and 10. The questionnaires were answered in the first month of class, in personally and online, before the first evaluations happening, so that this fact did not appear as a stressful bias in the research. The study included 52.17% of academics in the early stages and 47.8% of academics in the final stages. The results showed a high number of students with a predisposition to temporomandibular disorders. The final phases showed better control and care with oral health in general health, but an emotional lack of control related to study overload and the end of academic life. Of the academics, 29.8% said they suffered from migraines or headaches, with 99% of those affected being in the group of final stages. As for TMJ pain, 11.7% of the initial phases, 9.1% of the final phases, responded positively, and in both groups related to some emotional dysfunction present in the quality of life, as all of them responded with feelings of anguish, sadness and lack of motivation. As soon, the strong link between quality of life and TMD is understood.

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### INTRODUCTION

Temporomandibular disorders (TMD) are defined by the American Academy of Orofacial Pain (AAOP) as a collective term, which represents the disorders of the masticatory muscles, from right and left temporomandibular joints (TMJ) and other associated structures of the stomatognathic system (PEREIRA Jr, 2019). TMDs are usually associated with unpleasant signs and symptoms such as pain in the muscles of the face and or in the TMJs, limited mouth opening, occlusal

interference, joint noise, headache and neck pain, among other symptoms (OKESON, 2013). According to the authors Silva *et al.* (2016), TMDs have a direct influence on all aspects of patients quality of life and directly interfere in their daily lives, making it difficult to manage and control the disease. How it is known that currently TMD affects about 12% of the population and pain is the main complaint that leads patients to search for treatment. It was found that the symptoms vary over time and are highly related to muscle tension, bruxism and parafunctional habits. And that neuromuscular,

biopsychosocial, biomechanical and neurobiological factors can contribute to the development of TMDs (PAIVA *et al.*, 2012). Epidemiological evidence from recent years indicates substantial gender differences in clinical and experimental pain responses, women have a higher prevalence of painful conditions than men, including both orofacial pain and other TMD symptoms, with proportions ranging from 2 to 6 women for each man, usually aged between 20 and 40 years. The distribution of age and gender in cases of orofacial pain, especially TMD, suggests a possible link between its pathogenesis, the female sex hormone estrogen, or between TMD and pain modulation mechanisms, since women have greater sensitivity for most pain modalities (FERREIRA *et al.*, 2016). Presented data demonstrate that the dysfunctions affect the biopsychosocial activities of individuals and that it has a high incidence, which characterizes a public health problem. (URBANI *et al.*, 2019). The dysfunctions are of multifactorial etiology; however, psychological factors are major triggers of orofacial pain. They can be divided into behavioral ones such as bruxism, emotional ones like stress, depression, anxiety and cognitive where memory factors are related (PAULINO *et al.*, 2018). Modern society is accompanied by anxiety disorders, particularly in academics in the health field, so the importance of studies and monitoring of them, so that they have a better performance, academic quality of life, and in the future in professional life (FERNANDES *et al.*, 2018).

The domains of pain and mental health were strongly correlated with the TMD group. Second, Souza *et al.* (2016), the presence of TMD signs and symptoms is associated with anxiety and depression symptoms, which, consequently, affects patients' mental health. The quality of life is related to a good state of health, it can define several aspects relevant to the human being, according to their perspective of life and individual proportions. Second Costa *et al.* (2019), the term quality of life, carries a huge eminently human notion, which follows the approximation of states of satisfaction, well-being of family live, loving, social and environmental. In the studies by Sousa *et al.*, academics showed high levels of anxiety, one of the factors being studied, as it is believed that, in addition to being a predisposing factor for other diseases, anxiety affects the condition of academic performance, making -the least productive of what it could be. According to Sousa *et al.* (2016), health professionals have high levels of anxiety and depressive crises, which tend to start at graduation. Quality of life and anxiety are closely linked to TMDs in health academics. Fernandes *et al.* (2018), both tend to interconnect, as reported by Pinto *et al.* (2017), depression and high levels of anxiety are critical aspects of patients who report having these dysfunctions. Due to the great part of the students present emotional disturbances, mainly anxiety, according to Catanda *et al.* (2008), and Sousa *et al.* (2016), the interest in knowing the quality of life of higher education students becomes more and more thought-provoking. Through the information contained in the literature, and the observation of the need for these data for the dentistry course, justified the search for a study to compare the quality of life and orofacial pain of academics from the first to the last phase of the course at the University of West Santa Catarina, in Joaçaba.

## MATERIALS AND METHODS

This is a cross-sectional study, with an inductive, qualitative approach, with the descriptive and inferential analysis of data by the participants. Approved by the ethics committee by

opinion 761.319. The survey consists of two questionnaires, the DC/TMD (Diagnostic criteria for temporomandibular disorders) and the SF-12 questionnaire (Short-Form Health Survey with 12 items). The work was developed with the students. The research was developed in the Dentistry course at the University of West Santa Catarina, Joaçaba, SC. The dentistry graduate has 289 students attending 1,3,5,7,8,9 and 10 phases, and the exclusion criterion was the non-agreement to participate in the research, the incomplete answer to the questionnaires and the lack of signature on the IC. The sample group was composed of 161 students who participated in answering the questions in a physical and virtual way. The research took place in the first month of school. The technique for assessing quality of life was the SF-12 questionnaire in the Portuguese version and for temporomandibular disorders, the DC/TMD questionnaire was used, in addition to these the academic identified the age, and the phase of the course he was taking. The SF-12 questionnaire evaluates in a multidimensional way encompassing scales of domains such as mental, physical capacity, general aspects of health, vitality and emotional aspects (levels of anxiety and stress). Together, the DC / TMD questionnaire composed of alternatives of "yes" or "no" and pain level classification from zero (0) to ten (10), with 0 having no pain and 10 having extreme pain, evaluated degrees and TMD symptoms, and orofacial pain. For the interviewee who presented with pain, questions were asked regarding persistence, whether there was a search for professional help, as well as how long the patient feels. Questions were also asked with a view to health in general, and oral health, and the answers were classified as: excellent, very good, good, reasonable and precarious (bad). Also care that each one was taking with their health in general and oral, classified as: excellent, very good, good, satisfactory and unsatisfactory. The questionnaire also included information on the emotional situation of the interviewee, such as distress, as well as some discomfort, when performing tasks, or on a daily basis and other emotional points that could cause greater complications in cases of TMDs.

## RESULTS AND DISCUSSION

The questionnaire was applied to 161 academics, through printed and digital media, regardless of marital status or gender. The group of academics is studying Dentistry at the University of West Santa Catarina (Unoesc), of which 52.17% correspond to academics from the initial stages, and 47.8% are academics from the final stages of the course. As shown in table 1, it is possible to identify that most academics, 59.39% report feeling in good health, and when asked about activity limitations, there were no positive responses. In comparative studies on the quality of life of academics from different areas of health, Pekmezovic *et al.* (2011), concludes that health students have a greater perception of health concepts, and therefore, benefit from care for a pleasant health condition in general. Research by Ferreira *et al.* (2005) and Santos *et al.* (2012), show that graduation in the areas of health tends to raise the statistics regarding the care with general health and oral health. Santos *et al.* (2012) also points out that dental professional who participated in their research report a change in the view of corrective oral health to preventive oral health. When questioning the feelings of academics, 76.4% of respondents reported feeling calm and calm between part of the time and a good part of the time. 69.7% say they have the energy to carry out the activities in the same period (Table 2). The feelings have a correlation of 0.85 as expected.

Table 1. Health Condition

| Health Condition |          |            |        |            |       |
|------------------|----------|------------|--------|------------|-------|
|                  | Excelent | Verry Good | Good   | Reasonable | Bad   |
| Initials Stages  | 10,11%   | 15,73%     | 60,67% | 13,48%     | 0,00% |
| Final Stages     | 5,26%    | 36,84%     | 57,89% | 0,00%      | 0,00% |
| General          | 7,88%    | 25,45%     | 59,39% | 7,27%      | 0,00% |

Table 2. Duration of feelings

| Calm and Peaceful                             |        |                  |               |                  |             |       |
|---|--------|------------------|---------------|------------------|-------------|-------|
|   | Always | Most of the time | A lot of time | Part of the time | Little time | Never |
| Initials Stages                               | 2,3%   | 9,1%             | 35,2%         | 45,5%            | 6,8%        | 1,1%  |
| Final Stages                                  | 3,9%   | 22,1%            | 35,1%         | 36,4%            | 2,6%        | 0,0%  |
| General                                       | 3,0%   | 15,2%            | 35,2%         | 41,2%            | 4,8%        | 0,6%  |
| Plenty of energy to carry out your activities |        |                  |               |                  |             |       |
|   | Always | Most of the time | A lot of time | Part of the time | Little time | Never |
| Initials Stages                               | 1,1%   | 9,1%             | 27,3%         | 50,0%            | 11,4%       | 1,1%  |
| Final Stages                                  | 15,6%  | 3,9%             | 15,6%         | 45,5%            | 19,5%       | 0,0%  |
| General                                       | 7,9%   | 6,7%             | 21,8%         | 47,9%            | 15,2%       | 0,6%  |
| Sad and discouraged                           |        |                  |               |                  |             |       |
|   | Always | Most of the time | A lot of time | Part of the time | Little time | Never |
| Initials Stages                               | 0,0%   | 4,7%             | 10,5%         | 37,2%            | 40,7%       | 7,0%  |
| Final Stages                                  | 0,0%   | 4,7%             | 9,3%          | 23,3%            | 32,6%       | 30,2% |
| General                                       | 0,0%   | 4,8%             | 10,3%         | 31,5%            | 38,2%       | 19,4% |
| Limitations – social activities               |        |                  |               |                  |             |       |
|   | Always | Most of the time | A lot of time | Part of the time | Little time | Never |
| Initials Stages                               | 2,3%   | 3,4%             | 19,3%         | 37,5%            | 11,4%       | 26,1% |
| Final Stages                                  | 0,0%   | 4,7%             | 9,3%          | 23,3%            | 32,6%       | 30,2% |
| General                                       | 1,1%   | 4,0%             | 14,4%         | 30,5%            | 21,8%       | 28,2% |

Table 3. Oral health status

| Oral health status |          |            |        |            |       |
|--------------------|----------|------------|--------|------------|-------|
|                    | Excelent | Verry Good | Good   | Rasoanable | Bad   |
| Initials Stages    | 16,67%   | 46,43%     | 30,95% | 5,95%      | 0,00% |
| Final Stages       | 45,45%   | 51,95%     | 2,60%  | 0,00%      | 0,00% |
| General            | 30,43%   | 49,07%     | 17,39% | 3,11%      | 0,00% |

According to Macedo *et al.* (2003), evaluating the quality of life with the exercise, people who are more willing, and energy, in general report the feeling of calm and tranquility most of the time. When asked about more negative feelings, how sad. and discouraged, 38.2% of the interviewees reported that they have the feeling in a small part of the time, and the feeling affects social activities, and implies limitations in their relationships, or in their day-to-day, feelings that present a correlation of 0.82% (table 2). According to Rossetti *et al.* (2008), in conditions of high levels of stress, or feelings of sadness, are responsible for producing negative effects on individuals in the field of physical and psychological health, as well as in interpersonal relationships. Following the questions, we sought to raise information regarding the oral health of students. In general, 80% of the students report having a very good to excellent oral health, and in the students of the final stages, the evaluation is better than in the initial stages, as shown in table 3. Garbin *et al.*(2006), concluded that the training has no correlation with the quality of oral health, especially in health professionals, a result different from that found in the research fulfilled. According to the data presented, Santos *et al.* (2012), this result can be given by the emphasis on the importance of oral health, and a change in reality, as mentioned in the same article by Garbin *et al.* (2006). When asked about the presence of pain in the face, temple or ear, 11% reported having symptoms in the past few weeks, with no differences between students in the early or late stages. Of the academics who reported an episode of pain, 53% said they had the episode only once, while the rest or 47% had recurrent pain. Still 40% say they sought a dentist or

other professional in the last year. A study by Freitas *et al.* (2015) showed that this temporomandibular disorder is capable of interfering in the quality of life of people affected by the dysfunction, such as: persistent pain, feeling of discomfort when eating and tension due to the oral problem. Kuroiwa *et al.* (2011) cites the same relationship between pain and quality of life. In order to better understand these anomalies, academics who presented episodes of pain in the jaw answered questions about the pain scale, at the time of this research, 82% classify the pain as 2 (mild), on a scale from 0 to 10. Still questioning regarding pain intensity, 35% rated it between 4 and 5 (moderate), on the same scale, at the worst time in the last 6 months, and negative responses to pain on the scale of 6 to 10 (severe). Seeking the correlation of pain episodes with day-to-day academic, there was no report as asked about the removal of activities and difficulties of working or social relationship. When questioning academics about some symptoms which may present morbidities (such as), they were unanimous in stating that they never had any form of mandibular locking, however, 22% stated that their jaw presents occasional cracking. Also, 6% say the jaws crackle. The act of clenching teeth at night affects 43% of academics, with 19% still reporting that they also do it during the day. Finally, 37% of academics report that they have mandibular stiffness upon waking. Only 3% reported discomfort in the act of biting, or ringing in the ear. Bastos *et al* (2017), defines some symptoms, which may be closely related to TMD, such as crackling of the jaw, limited opening, noise and pre-auricular pain, data that corroborate the work carried out by Oliveira *et al* (2017), which brings data that 40 to 75% of the

population has at least one of the symptoms of TMD. Seeking more information about the academics' daily lives, 29.8% said they suffered from migraines or headaches. The discrepancy when carrying out the questioning is that academics in the final stages represent 99% of those affected. Of the activities that were pointed out with some limitation, 21% mentioned that they have difficulty eating hard foods, and 9% have some difficulty when chewing food in general. The other questions do not show positive responses for TMD. These results agree with the studies Pinto *et al* (2017) that in a study of TMD and depression with students, headache was the most reported symptom, still mentioning that health students have a pressure for high performances, which imply in psychological factors, consequently many academics perform the act of pressing the jaw (tightening), and consequently pain, especially headache. Finally, in the survey on quality of life, questions were asked relating the feeling of anguish to other feelings. Result, 53% of academics cited, that they do not feel the least bit, or little anguished for feeling headache when asked about the loss of sexual interest, heart or chest pain, thoughts about death or suicide, discouragement about the future, or presents nausea, gastric disturbance, difficulty in breathing, chills, numbness, tingling and weakness, were indicated as not at all distressed by 98% of academics.

The academics reported a greater feeling of anguish when asked about the feeling of lack of energy, loneliness, sadness, worry and restless sleep and they feel moderately distressed when they are in certain situations. These same results were obtained by de Bezerra *et al.* (2012), Souza *et al.* (2016), where health students are most affected by different levels of anxiety and the presence of TMD. Work carried out by Pinto (2015), with dentistry students, found a predisposition to higher levels of stress, especially in the final years of college, thus constituting a potential group to present TMDs. It is worth mentioning that Oliveira (2017), reported the emotional interference highly related to TMDs, associated with high innervation of the area of the temporomandibular joint, in the action of stressors, a type of reaction develops that is emitted by neurotransmitters that cause specific locations, as it can be the case of TMDs. In the survey, academics who reported experiencing TMJ pain, of which there were only 11.7% of the initial phases and 9.1% of the final phases, both groups, are related to some emotional dysfunction present in the quality of life. As much as the pain is not persistent, all respondents responded with feelings of anguish, sadness, lack of motivation. Thus, the strong link between quality of life and TMD is understood. In statistical data, assessed by the classification of the Search Criteria for Temporomandibular Disorder (RDC/TMD) (Dworkin and LeResche, 1992) based on the most common evidence from the AXIS II Chronic Pain Scoring Protocol Assessment. When the DC / TMD algorithm was applied to the responses to the questionnaires, the survey data showed that 27.32% had a rating of 0, 62.11% had a grade I of low intensity, 10.5% had a grade of II which means high intensity for severe pain and no Grade III classification of moderate limitation and Grade IV severe limitation.

## Conclusion

With the completion of the study, it was possible to verify that a high percentage of dental students has a predisposition for the development of TMD, or has discomfort related to head and face pain. The results of anxiety levels and TMD signs and symptoms had a low correlation when analyzed. However, the

means found between the subjective scales applied reinforce this correlation that has been shown to affect students' quality of life. Finally, there is a need for further studies with larger samples, aiming to statistically correlate anxiety and TMD.

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