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ORIGINAL STUDY

Physiotherapy role in diseases of the temporomandibular joint

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ABSTRACT

BACKGROUND. Temporomandibular joint (TMJ) disorders represent a group of musculoskeletal and neuromuscular disorders, which can involve both the temporomandibular joint complex and the muscle and bone components in the immediate vicinity. The etiology is multifactorial and includes biological, environmental, social, emotional and cognitive triggers. Thus, there is no treatment of choice for this pathology. Physiotherapy is beginning to occupy an important place within the adjuvant therapies used in TMJ dysfunctions.

OBJECTIVE. The current study aimed to evaluate the degree of awareness of TMJ dysfunction and, implicitly, the need for treatment, the level of knowledge of the role of physiotherapy in this regard, as well as the interdisciplinary collaboration between dentist and physical medicine rehabilitation doctor in terms of TMJ pathology.

MATERIAL AND METHODS. We carried out a prospective study, based on a questionnaire made in the Google Forms platform. The questionnaire consisted of 26 questions in which socio-economic elements were addressed, as well as medical elements of symptomatology, diagnosis and dental and physiotherapy medical history.

RESULTS. Analysing the results, we identified that among the people presenting at least one symptom associated with TMJ disorders, only 32.6% went to the dentist, while 47.9%, did not present themselves because they did not consider the symptoms to be taken into account. Only one respondent (1.6%) was recommended physiotherapy as a treatment option for TMJ disorder by the dentist. The other 61 people (98.4%) denied receiving this recommendation.

CONSLUSION. The study confirms the minimum degree of awareness of TMJ dysfunction and implicitly of the need for treatment among the general population. Also, the level of knowledge about the diagnosis and treatment of temporomandibular joint dysfunctions among dentists is insufficient.

KEYWORDS: temporomandibular joint, disorders, pathology, physiotherapy.

INTRODUCTION

Temporomandibular joint (TMJ) disorders represent a group of musculoskeletal and neuromuscular disorders, which can involve both the temporomandibular joint complex and the muscle and bone components in the immediate vicinity. Considering the structures that can be affected, TMJ disorders can be divided into intra-articular or extra-articular disorders. In the general population, this pathology is found in approximately 15% of adults, with a maximum incidence between 20 and 40 years[1]. The most common symptoms are jaw pain or dysfunction, ear pain, headache and facial pain.

Starting from the multitude of signs and symptoms, associated with the existence of relatively similar clinical manifestations in the case of patients with the same degree of impairment, as well as the different response of patients to treatment, several theories have been developed regarding the etiology of TMJ disorders[2]. Theories have evolved from the mechanical one related to the absence of a

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molar support and occlusal changes[3], traumatic[4], biomedical - in which the trauma is later associated with occupational risk factors or bruxism[5], osteoarthritis[6], muscular - with the primary direct involvement of the masticatory muscles[7], the psychophysiological theory[2,7] which supports the link between the local physiological predisposition and psycho-social stress in the occurrence of TMJ disorders, up to the new biopsychosocial theory[8,9] that associates the physical ailments (biological factors) and psychological and social factors in the pathology of chronic pain at the TMJ level. It is becoming increasingly evident that the etiology is multifactorial and includes biological, environmental, social, emotional and cognitive triggers[1].

Temporomandibular joint disorders do not represent an isolated disease, but an association of structural and/or functional disorders that clinically result in comparable and analogous signs and symptoms[2]. Thus, there is no treatment of choice for this pathology, the ultimate goal of the treatment being to relieve or even stop the pain, regain TMJ function, limit the impact of TMJ dysfunction on daily activities and increase the quality of life[10]. The therapeutic management of temporomandibular joint dysfunctions consists of a combination of home self-care, counselling, dentistry, physiotherapy, pharmacotherapy, infiltrations, therapy with maxillary appliances, cognitive behavioural therapy or different surgical techniques. However, in recent times it has been found that conservative treatments are the most successful, which is why they are much more frequently recommended, as it has been proven that 85-90% of TMJ disorders, both articular and muscular, can be treated with non-invasive methods, non-surgical and reversible interventions[11].

Physiotherapy is beginning to occupy an important place within the adjuvant therapies used in craniomandibular pain in general and in TMJ dysfunctions in particular. Associated with other traditional methods of treatment, it can provide a faster relief of symptoms, simplify and reduce the duration of treatment, improve its objectives compared to traditional methods of treatment alone[12]. Massage, ultrasound, iontophoresis have proven effective in retraining the masticatory muscles and the other cranio-cervical muscles that are usually involved in joint disorders, while passive movement seems to be effective in improving some of the biochemical and biomechanical changes that occur in damaged synovial joints, periarticular muscles and tissues[11].

Starting from this information, the current study aimed to evaluate the degree of awareness of TMJ dysfunction and, implicitly, the need for treatment, the level of knowledge of the role of physiotherapy in this regard, as well as the interdisciplinary collaboration between dentist and physical medicine rehabilitation doctor in terms of TMJ pathology.

MATERIAL AND METHOD

We carried out a prospective study, based on a questionnaire made in the Google Forms platform that was distributed online between January 30, 2022 and February 14, 2022. The study was carried out as part of the Bachelor's Thesis in order to graduate from the Faculty of Dental Medicine, within the "Carol Davila" University of Medicine and Pharmacy, Bucharest.

The questionnaire consisted of 26 questions in which socio-economic elements were addressed, as well as medical elements of symptomatology, diagnosis and dental and physiotherapy medical history (Figure 1). It followed the assessment of the level of awareness of TMJ dysfunction and, implicitly, of the need for its treatment; determination of the reasons for refusing or postponing any treatment; identification of the most common symptoms specific to TMJ disorders and their degree of acceptance; evaluation of the level of knowledge of the dentist's role, as well as of the medical recovery doctor and especially of physiotherapy in TMJ disorders; assessment of the need for education in this regard.

The respondents were 62 people from the general population, anonymous, adults (> 18 years old), and the results were recorded and processed through the statistical system provided by the Google Forms platform.

RESULTS

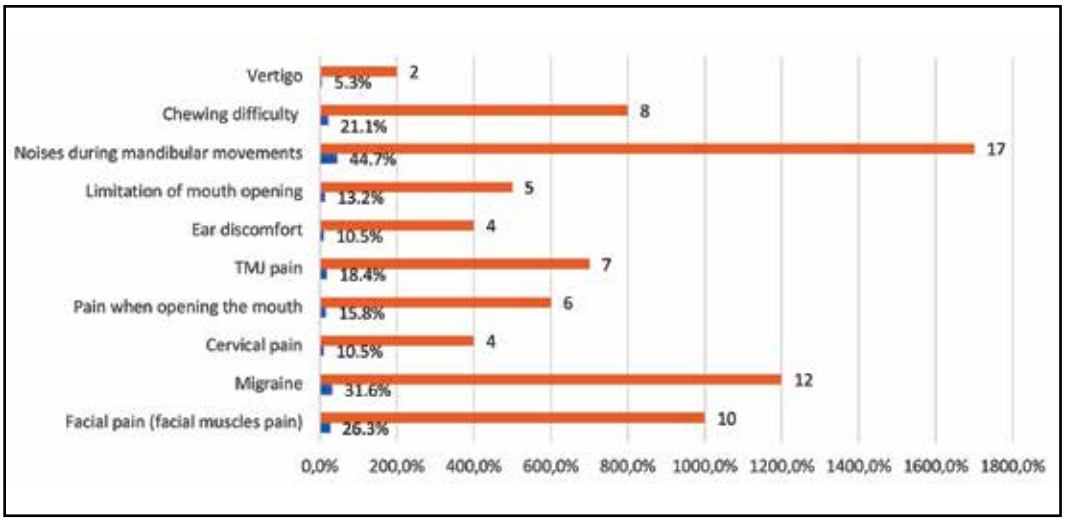
As socio-economic elements, among the 62 respondents, a proportion of more than 60% was represented by women, and the rest of almost 40% by men. More than half of them were young, the age being between 21 and 30 years old. Approximately 70% of the respondents came from the urban environment and also in the same proportion were those with higher education. Almost half of the respondents were employed in different fields of activity, followed from a statistical point of view, in a smaller proportion, by students; the average monthly income was between 1,000-5,000 RON.

Evaluating the survey results from the point of view of certain symptoms felt constantly or quite often and associated with TMJ dysfunctions, only 38 of the respondents (representing 61.29%) indicated their presence. The most common reported symptoms were: noises during mandibular movements (17 people, 44.7%), migraine (12 people,

1. Sex
   - F
   - M
2. Mediu de proveniență
   - Rural
   - Urban
3. Vârstă
   - <20
   - 21-30
   - 31-40
   - 41-50
   - 50-60
   - >60
4. Studii absolvite
   - Preliceal
   - Liceal
   - Postliceal
   - Universitar
   - Postuniversitar
5. Ocupație
   - Elev/Student
   - Angajat
   - Liber profesionist
   - Șomer
   - Altele…
6. Venit lunar
   - <1000 RON
   - 1001-3000 RON
   - 3001-5000 RON
   - 5001-7000 RON
   - 7001-9000 RON
   - >9000 RON
7. Cât de des vă prezentați la medicul stomatolog?
   - Doar în cazuri de urgență
   - Aproximativ o dată la 3-4 ani
   - Aproximativ o dată la 1-2 ani
   - Cel puțin o dată pe an
8. Pentru ce v-ați prezentat ultima dată la stomatolog?
   - Urgență
   - Obturație (plombă)
   - Igienizare
   - Control de rutină
   - Plan de tratament complet de reabilitare orală
   - Altele…
9. Simțiți în mod constant sau destul de des cel puțin una dintre următoarele simptome?
   - Durere facială (la nivelul mușchilor masticatori)
   - Migrenă (durere de cap)
   - Cervicalgie (durere de ceafă)
   - Durere la deschiderea gurii
   - Durere la nivelul articulației temporo-mandibulare (de la nivelul urechii)
   - Disconfortul urechii
   - Limitarea deschiderii gurii
   - Zgomote în timpul mișcărilor mandibulare
   - Dificultăți în timpul masticației
   - Vertij (amețeală)
10. Dacă da, când are loc intensificarea acestora?
    - Dimineața
    - În timpul căscatului
    - În timpul masticației
    - Altele…
11. V-ați prezentat vreodată la stomatolog pentru simptomele prezentate anterior? (în cazul în care acestea sunt prezente)
    - Nu, nu le-am considerat de luat în seamă
    - Nu, am tot amânat
    - Nu, nu m-am gândit că aș putea întreba medicul stomatolog
    - Nu, m-am obișnuit cu ele
    - Da
12. V-a recomandat vreodată medicul stomatolog fizioterapia ca variantă de tratament?
    - Da
    - Nu
13. Ați urmat vreodată vreun program de recuperare pentru alte afecțiuni, musculare sau articulare, ori din zone de vecinătate ale ATM?
    - Da
    - Nu
14. Dacă da, ce fel de tratament?
    - Ultrasunete
    - Kinetoterapie
    - Unde scurte
    - Curenți de joasă frecvență
    - Curenți de medie frecvență
    - Curenți de înaltă frecvență
    - Curent galvanic
    - TENS (Stimularea nervoasă electrică transcutanată)
    - Altele…
15. Dacă da, pentru ce afecțiune?
    - De la nivelul membrelor
    - De la nivelul colanei vertebrale
    - Altele…
16. Sunteți diagnosticat cu bruxism? (Obișnuiți să strângeți și/sau să scrâșniți/frecați din dinți?)
    - Nu
    - Obișnuiesc să strâng din dinți
    - Obișnuiesc să scrâșnesc/frec dinții unii de alții
    - Ambele
17. În ce parte a zilei vi se întâmplă să strângeți și/sau să scrâșniți/frecați din dinți?
    - Ziua
    - Noaptea, în timpul somnului
    - Atât ziua, cât și noaptea
18. În ce situații obișnuiți să strângeți sau frecați dinții?
    - Când mă concentrez
    - Când mă aflu într-o situație sub presiune (ex: la un examen, interviu, etc.)
    - În perioade de timp stresante
    - Altele…
19. Cât de des folosiți gumă de mestecat?
    - Zilnic, mai puțin de 4 ore/zi
    - Zilnic, mai mult de 4 ore/zi
    - De 2-3 ori/săptămână
    - Cel mult o dată/săptămână
    - Ocazional, destul de rar
    - Nu folosesc
20. Ați fost pus vreodată în cel puțin una dintre următoarele situații?
    - Căzătură/lovitură în bărbie
    - Traumatism în zona feței
    - Intubare în timpul unei anestezii generale
    - Extracția ultimului molar
    - Necesitatea de a sta un timp îndelungat cu gura larg deschisă din cauza unei ședințe de lungă durata la medicul stomatolog
21. Sunteți sau ați fost purtător de aparat ortodontic?
    - Nu
    - Sunt
    - Am fost
22. Sunteți sau ați fost purtător de implanturi sau proteze dentare?
    - Nu
    - Implanturi dentare
    - Proteză fixă (punte dentară)
    - Proteză mobilă
23. Dacă da, de cât timp sunteți purtător de implanturi sau de proteze dentare?
    - De mai puțin de 5 ani
    - Între 5 și 10 ani
    - De peste 10 ani
24. Prezentați edentații (dinți lipsa)?
    - Nu
    - Îmi lipsesc 1-2 dinți
    - Îmi lipsesc 3-4 dinți
    - Îmi lipsesc peste 5 dinți
25. Care sunt cele mai frecvente motive pentru care sunteți tentat să NU frecventați cabinetul stomatologic?
    - Prețul
    - Teama
    - Comoditatea
    - Amânarea
    - M-am obișnuit cu afecțiunea/simptomele
    - Nu consider o prioritate
    - Nu consider că aș avea nevoie
    - Nu mi se pare atât de deranjantă problema stomatologică pe care o am
    - Altele…
26. Care sunt cele mai frecvente motive pentru care sunteți tentat să NU urmați un tratament adecvat necesar articulației temporo-mandibulare?
    - Urmez un tratament adecvat
    - Nu consider că aș avea nevoie
    - Prețul
    - Teama
    - Comoditatea
    - Amânarea
    - M-am obișnuit cu afecțiunea/simptomele
    - Nu consider o prioritate
    - Nu mi se pare atât de deranjante simptomele
    - Altele…

1. Gender
   - F
   - M
2. Environment of origin
   - Rural
   - Urban
3. Age
   - <20
   - 21-30
   - 31-40
   - 41-50
   - 50-60
   - >60
4. Graduated studies
   - Pre-high school
   - High school
   - Post-high school
   - University
   - Postgraduate
5. Occupation
   - Pupil/Student
   - Employee
   - Freelancer
   - Unemployed
   - Other…
6. Monthly income
   - <1000 RON
   - 1001-3000 RON
   - 3001-5000 RON
   - 5001-7000 RON
   - 7001-9000 RON
   - >9000 RON
7. How often do you see the dentist?
   - Only in emergency cases
   - About once every 3-4 years
   - About once every 1-2 years
   - At least once a year
8. For what reason did you last visit the dentist?
   - Emergency
   - Obturation (seal)
   - Teeth cleaning
   - Routine control
   - Complete oral rehabilitation treatment plan
   - Other…
9. Do you constantly or quite often experience at least one of the following symptoms?
   - Facial pain (at the level of the masticatory muscles)
   - Migraine (headache)
   - Cervicalgia (neck pain)
   - Pain when opening the mouth
   - Pain in the temporomandibular joint (at the level of the ear)
   - Ear discomfort
   - Limitation of mouth opening
   - Noises during mandibular movements
   - Difficulty during chewing
   - Vertigo (dizziness)
10. If so, when does their intensification take place?
    - In the morning
    - During yawning
    - During mastication
    - Other…
11. Have you ever been to the dentist for the previously presented symptoms? (if they are present)
    - No, I did not consider them to be taken into account
    - No, I kept postponing it
    - No, I didn't think I could ask the dentist
    - No, I got used to them
    - Yes
12. Has your dentist ever recommended physiotherapy as a treatment option?
    - Yes
    - No
13. Have you ever followed any rehabilitation program for other muscular or joint disorders, or from areas adjacent to the TMJ?
    - Yes
    - No
14. If so, what kind of treatment?
    - Ultrasound
    - Kinesiotherapy
    - Short waves
    - Low-frequency currents
    - Medium-frequency currents
    - High-frequency currents
    - Galvanic current
    - TENS (Transcutaneous electrical nerve stimulation)
    - Other…
15. If so, for what disorder?
    - From the limbs
    - From the spine
    - Other…
16. Have you been diagnosed with bruxism? (Do you tend to clench and/or grind/rub your teeth?)
    - No
    - I tend to clench my teeth
    - I tend to grind/rub my teeth against each other
    - Both
17. What part of the day do you tend to clench and/or grind/rub your teeth?
    - During the day
    - At night, during sleep
    - Both during the day and at night
18. In what situations do you tend to clench or grind your teeth?
    - When I concentrate
    - When I am in a stressful situation (ex: at an exam, interview, etc.)
    - During stressful periods of time
    - Other…
19. How often do you use chewing gum?
    - Daily, less than 4 hours/day
    - Daily, more than 4 hours/day
    - 2-3 times/week
    - At most once/week
    - Occasionally, quite rarely
    - I don't use
20. Have you ever been put in at least one of the following situations?
    - A fall on/hit in the chin
    - Trauma in the face area
    - Intubation during general anaesthesia
    - Extraction of the last molar
    - The need to sit for a long time with the mouth wide open due to a long dental appointment
21. Are you or have you ever been a wearer of orthodontic appliances?
    - No
    - Yes, I am.
    - Yes, I was.
22. Are you or have you been a wearer of implants or dental prostheses?
    - No
    - Dental implants
    - Fixed prosthesis (dental bridge)
    - Mobile prosthesis
23. If yes, how long have you been wearing implants or dental prostheses?
    - For less than 5 years
    - Between 5 and 10 years
    - For over 10 years
24. Are you edentulous (missing teeth)?
    - No
    - I have 1-2 teeth missing
    - I have 3-4 teeth missing
    - I have more than 5 teeth missing
25. What are the most common reasons why you are tempted NOT to visit the dental office?
    - Price
    - Fear
    - Comfortableness
    - Adjournment
    - I got used to the disease/symptoms
    - I do not consider it a priority
    - I do not think I need it
    - I don't find my dental problem that disturbing
    - Other…
26. What are the most common reasons why you are tempted NOT to follow the appropriate treatment needed for the temporomandibular joint?
    - I follow an appropriate treatment
    - I don't think I need it
    - Price
    - Fear
    - Comfortableness
    - Adjournment
    - I got used to the disease/symptoms
    - I do not consider it a priority
    - I don't find the symptoms that disturbing
    - Other…

Figure 1. The questionnaire used in carrying out the study – the version in Romanian (left) and English (right).

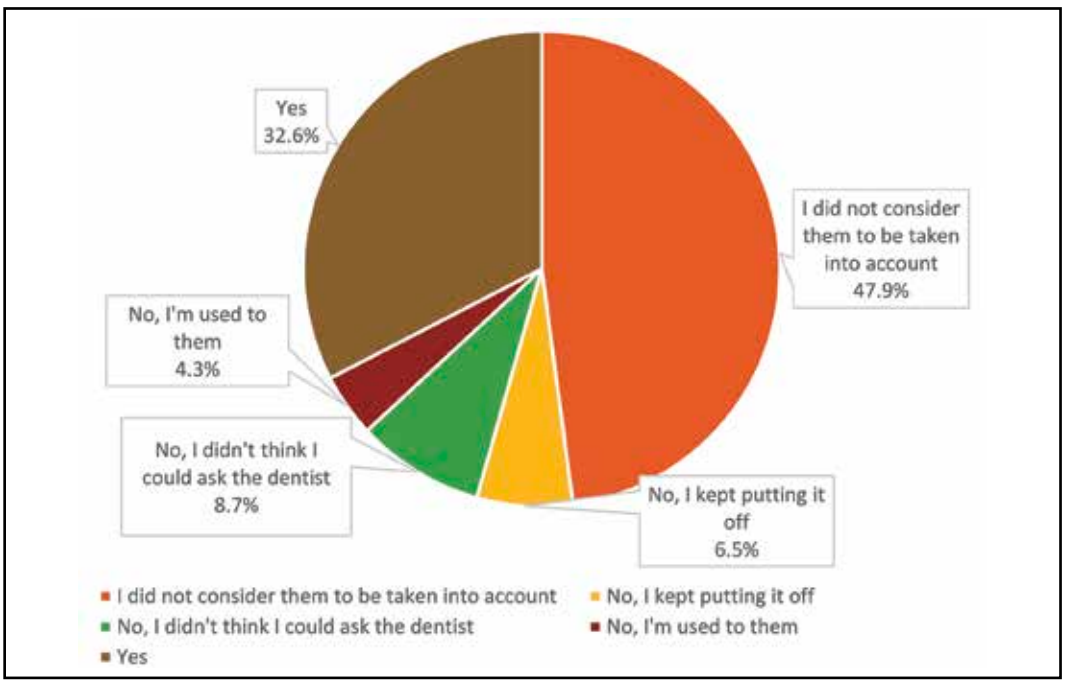


Graph 1. The prevalence of the specific symptoms of TMJ disorders.

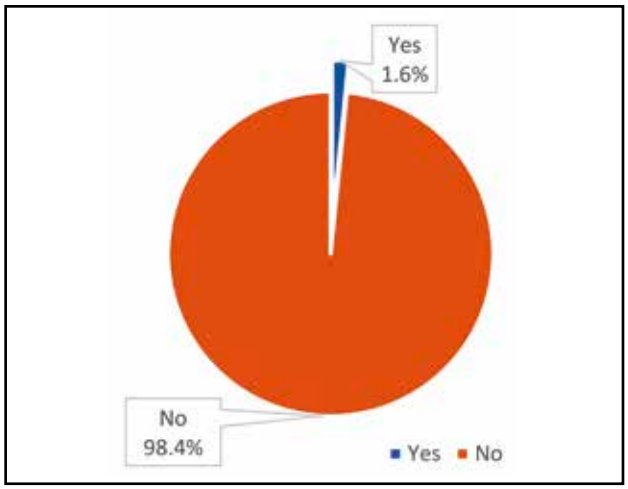
31.6%), facial and/or masticatory muscle pain (10 people, 26.3%), followed by difficulties during mastication (21.1%), TMJ pain (18.4%), pain when opening the mouth (15.8%), limitation of mouth opening (13.2%) (Graph 1). Cervical pain and otalgia were present in the same proportion of 4 people (10.5%), and 2 people (5.3%) complained of vertigo (Graph 1).

Only 32.6% of the respondents presented to the dentist in the context of the present symptomatology. Among those who did not have an evaluation at the dentist, almost half (47.9%) did not consider the symptoms to be taken into account, 4.3% got used to them, 6.5% kept postponing, and 8.7% did not think they could ask the dentist (Graph 2).

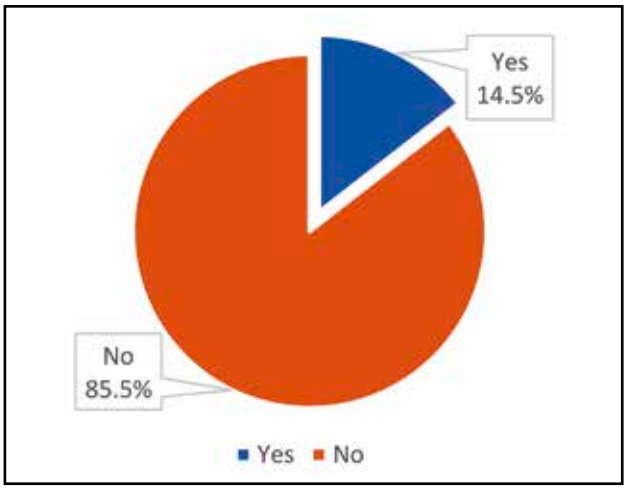
Analysing the answers received to the question "Did your dentist ever recommend physiotherapy as a treatment option?" in the context of the existence of a TMJ disorder, only one person participating in the survey ticked "YES" (representing 1.6%). The other 61 people (98.4%) denied receiving this recommendation (Graph 3).



Graph 2. The prevalence of dental visits for the previously reported symptoms.



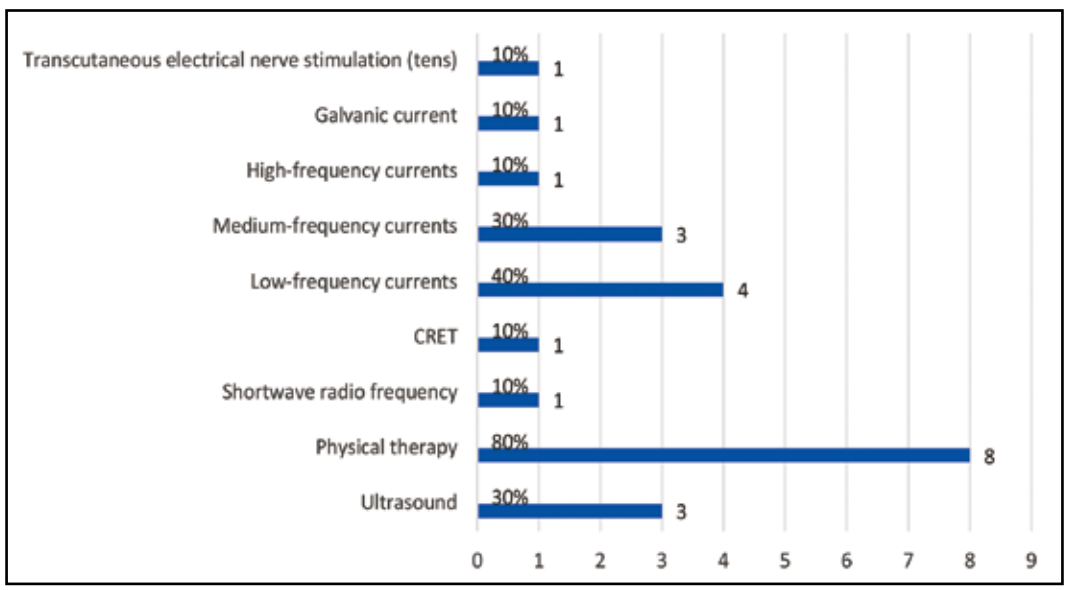
Graph 3. The prevalence of physiotherapy recommendations by the dentist.



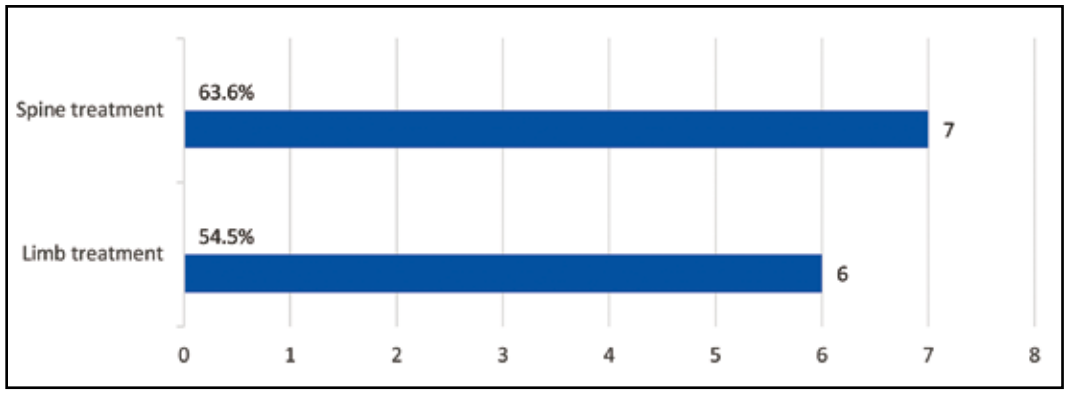
Graph 4. Prevalence of following a rehabilitation program for others muscular or joint diseases.

Analysing further the frequency of the indication of physiotherapy for different muscular and/or osteoarticular pathologies by asking "Have you ever followed any recovery program for other disorders, muscular or articular, or from areas adjacent to the TMJ?", it can be seen that in the vast majority of those involved in the survey (85.5%), physiotherapy was never an indication of treatment (Graph 4). Only 9 respondents (14.5%) answered "YES" to this question. The physiokinetotherapy treatments followed by them, in order of frequency, were the following: 80% kinesiotherapy, 40% low-frequency currents, 30% ultrasound and medium-frequency currents, 10% short waves, high-frequency currents, galvanic current, TENS (Transcutaneous electrical nerve stimulation) and CRET (Capacitive and Resistive Electric Transfer) (Graph 5). Regarding the disorder treated by physiokinetotherapy by the respondents, it was represented by limb disorders in a proportion of 54.5% (6 respondents) or spine disorders in 63.6% (7 respondents) (Graph 6).

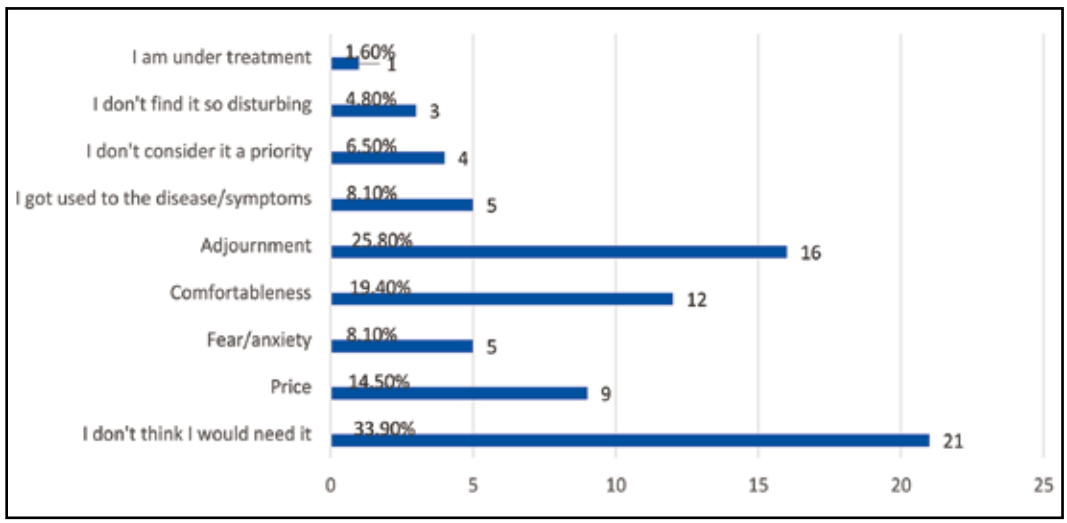
Regarding the addressability to the dentist and following an appropriate treatment for the TMJ dysfunction, the most frequent reasons for not taking a step in these directions were the following (Graph 7): 33.9% (21 respondents) did not think they would need it; the price was an inconvenience for 14.5% of people (9 respondents); for 8.1% (5 re-



Graph 5. The types of rehabilitation programs for others muscular or joint diseases.



Graph 6. Rehabilitation programs.



Graph 7. Prevalence of following a recovery program for TMJ disorders and reasons for not treating TMJ disorders.

spondents) fear/phobia/anxiety was the main factor, comfortableness for 19.4% (12 respondents), and for 25.8% (16 respondents) the adjournment was a reason. 8.1% (5 respondents) got used to the disease or symptoms, 6.5% (4 respondents) did not consider it a priority, and 4.8% (3 respondents) did not perceive their condition as disturbing. Only one person (1.6%) ticked that they were already receiving adequate treatment.

In the same survey, the presence or absence of certain risk factors for the occurrence of temporomandibular joint disorders was evaluated. Analysing the answers received, we identified: the involvement of bruxism in 38.7% of cases (24 respondents), most frequently occurring during the night (53.8%), associated with tense moments or concentration; 61.29% of the respondents (38 of them) stated that they use chewing gum: 3.2% (2 respondents) daily more than 4 hours/day, 6.45% (4 respondents) daily but less than 4 hours/day, 14.51% (9 respondents) 2-3 times/week, 12.9% (8 respondents) at most once/week, 24.19% (15 respondents) occasionally; current (11.29%, representing 7 respondents)) or former wearer (8.06%, representing 5 respondents) of dental appliance; current or former wearer of implants (4.83%, 3 people) or dental prostheses (6.45%, 4 people); edentulousness (32.2%) – 24.2% one or 2 teeth missing, 3.22% (2 respondents) 3 or 4 teeth missing, 4.83% more than 5 teeth missing. An important risk factor for TMJ disorders is represented by trauma. To this question, 46 (74.19%) answered they got into the following situations: 14 respondents (30.43%) reported a mentum injury and 6 respondents (13.04%) suffered trauma in the facial area, 2 people (4.34%) were intubated during a general anaesthesia, 17 people (36.95%) had a wisdom tooth removal, and 28 people (60.87%) had to stay for a long time with their mouth wide open because of a long session at the dentist.

DISCUSSIONS

The current study aimed to quantify the degree of awareness of TMJ dysfunction and implicitly the need to implement a treatment, at the same time tracking the level of knowledge of the role of dentistry and physiotherapy in this regard as well as the possibility of interdisciplinary collaboration between dentist and medical recovery physician in the treatment of this disorder.

The following symptoms were reported by the people surveyed, in order of frequency: noises during mandibular movements, migraine, facial pain, difficulties during mastication, TMJ pain, pain when opening the mouth, limitation of mouth opening, cervical pain and ear discomfort, vertigo. However, it was found that among the people presenting at least one of these symptoms, only about a third (32.6%) went to the dentist. Almost half, 47.9%, did not present themselves because they did not consider the symptoms to be taken into account; 4.3% got used to them; 6.5% kept postponing; and 8.7% did not think they could ask the dentist.

The results of the present study can be compared with those obtained in Sweden in 2018, a study that confirms the minimum degree of awareness of TMJ dysfunction among the general population. Adern et al.[13] assessed the prevalence of self-reported temporomandibular disorders and acceptance or non-acceptance of such disorders among the adult population with addressability to all public dental health services in the region of Sörmland, Sweden, for a period of 3 years. As a study method, two questions were asked about TMJ pathology and the ability to voluntarily open the mouth was measured, the results being recorded through a score between 0-3. The results showed that of over 73,000 records a dysfunction score of 1-3 had a constant prevalence of 5% in the three years and that approximately one fifth of these patients did not accept their condition and resorted to specialized treatment. It was found that the frequency of not accepting the condition increased with the severity of the symptom score: 15%, 27% and 49% for scores 1, 2 and 3, respectively. It can be observed that the addressability to the doctor and treatment is higher among patients with more severe TJM pain symptoms.

Like the present research, another study carried out by Alhussini et al.[14] in 2017 had comparable results regarding the specific symptomatology of TMJ pathologies reported in the population and their level of awareness. That study aimed to assess the prevalence of signs and symptoms specific to TMJ disorders in relation to patients' awareness of their occurrence. It was based on 80 patients attending the King Abdulaziz University Dental Hospital (KAUDH). Patients answered a comprehensive questionnaire, followed by clinical and radiographic evaluations. The average age of the patients was found to be 39 years, with a male/female ratio of 1:5. The subjects diagnosed with TMJ pathologies with at least two signs and/or symptoms were in a proportion of 72.5%. Neither age nor gender had a significant effect on these pathologies. Headache was a major symptom (58.6%), followed by joint noises (42%) and pain (39.6%), while muscle tenderness was 92.8%, frequencies similar to those observed in our study. Parafunctional habits were present in 33.7% of patients; however, only 81.4% were associated with TMJ pathologies.

The impairment of mandibular movements was observed only in patients suffering from symptoms specific to TMJ pathologies. Occlusal discrepancies in proportion of 68.7% showed a statistically significant association between the loss of posterior teeth and TMJ disorders. In our study, this association (missing teeth – TMJ pathology) was found in 32.2% of the respondents. The radiographs performed by Alhussini et al.[14] showed that among patients with such pathologies, 72% presented anterior or posterior condyle position. 32.7% of patients recognized a TMJ-related problem that affected their quality of life, while 67.3% who suffered from such pathologies were not aware of them. It was found that two or more symptoms which negatively affect the patients' quality of life were reported in the population. However, patients' awareness of their disease requires a better orientation of the community regarding the meaning of the disease and its prognosis.

Both the current research and the study carried out by Alhussini et al.[14] report facial muscle pain, headache and joint noises as the predominant symptoms among patients.

One can notice that the degree of awareness of TMJ dysfunction and implicitly of the need for treatment is low, despite the urban environment of origin or the higher graduated studies. We identified that the prevalence of the symptoms specific to TMJ disorders is increased among young people/adolescents. Although the specific symptoms of TMJ pathology are frequent (61.2%), the presentation to the dentist is low (32.6%).

Regarding the level of knowledge about the treatment of TMJ disorders among dentists, it is still insufficient, according to a study conducted in Poland in 2020. In Poland, the basic examination of the temporomandibular joint and the treatment of this pathology are included in the dental education curriculum. However, the way dentists deal with the diagnosis and the possible treatment in daily medical practice is not very well known. Starting from this

knowledge, Osiewicz et al.[15] assessed the level of knowledge about TMJ disorders among dentists in Poland. 400 dental offices were randomly selected and they were sent an anonymous questionnaire that evaluated the level of knowledge of TMJ pathologies, their etiology, symptoms and treatment, as well as the addressability of patients with this pathology. Of the 201 respondents, only 6.5% identified their knowledge in this regard as very good, 32.3% rated it as good, 39.3% sufficient, 20.4% insufficient and 1.5% considered it weak. Regarding the diagnosis and treatment of patients with TMJ dysfunction, 45.8% of the dentists who responded to the questionnaire rarely did this and only 9.4% did it very often, and the main recommended treatment was prosthetic treatment (56.7%), followed by physiotherapy (32.8%). In our study, only one respondent received a recommendation from the dentist to undergo physiotherapy. These results support the idea that the level of knowledge about the diagnosis and treatment of temporomandibular joint dysfunctions among dentists is insufficient.

The addressability of patients for TMJ dysfunctions to the dentist proved to be low, only 9% of Polish people choosing the dental consultation as their first intention[15], results that correlate with those obtained in our study.

The same level of knowledge among dentists was evaluated in Sweden in 2016. The study carried out by Lindfors et al.[16] consisted in the analysis of the responses received by general dentists to two questionnaires sent in 2010 (n=128) and 2014 (n=113); between these questionnaires, the doctors conducted studies related to the TMJ pathology. The results of the study showed an increase in the level of awareness and safety in the diagnosis and treatment of TMJ dysfunctions in 2014 compared to 2010 and the need reported by dentists to maintain continuing medical education courses in this pathology.

Another problem is the poor interdisciplinary collaboration between the dentist and the medical recovery doctor. As a result of the present study, it was found that of the 62 people questioned, only one person (1.6%) was recommended physiotherapy as a treatment option by the dentist. The other 61 people (98.4%) denied receiving this recommendation.

A study carried out in Florida in 2017 demonstrated that although physiotherapy proved to be one of the most effective conservative treatments for disorders of the temporomandibular joint, not all dentists are aware of the importance of collaboration with rehabilitation physicians in the treatment of pain originating in the TMJ[17]. A questionnaire was sent to 256 dentists, the results showing that 41% of them had no knowledge about the involvement of the physiotherapist in the treatment of the TMJ dysfunction. The level was higher among oral-maxillofacial surgeons and orthodontists[17]. Following this study, 80% of the participating doctors were interested in finding out more information regarding their collaboration with physiotherapists in treating patients with temporomandibular joint disorders.

The effectiveness of the interdisciplinary collaboration between the dentist and the rehabilitation physician was evaluated by de Toledo Jr et al.[18] in a study published in 2012. The study was carried out on 300 patient files registered in the records of the Faculty of Dental Medicine, the Federal University of Juiz de Fora, Brazil, and they analysed the methods of kinesitherapy and physiotherapy used, the recommendations and procedures for home exercises performed without the presence of professionals, as well as the level of pain when palpating the TMJ through VAS. The results demonstrated that an interdisciplinary dentist-physiotherapist treatment plan is effective in the treatment of temporomandibular joint disorders; physiotherapy and kinesiotherapy help to reduce pain, while the dentist intervenes in the treatment of disorders related to the stomatognathic system.

The limits of the present research consist, on the one hand, in the fact that the answers to the questionnaire were given anonymously, so that the researcher did not have direct contact with the patients. On the other hand, the researcher is unable to guarantee the sincerity of completing the questionnaire or the correct understanding of the questions by the respondents.

CONCLUSIONS

Rehabilitation doctors can play an important role in the management of chronic disorders of the temporomandibular joint, given the fact that they can use specific interventions in a functional manner, this aspect representing an essential element within a multidisciplinary team.

Although dentists are the main actors involved in the management of this segment of pathology, they are not fully aware of the benefits of collaboration with medical rehabilitation doctors.

For this reason, dental and medical practice often require an interdisciplinary approach in which the knowledge of all disciplines, both in dentistry and in general medicine, as well as in the related fields, are connected in order to provide the highest possible therapeutic benefit.

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