TMDs APPROACH BY STUDENTS AND YOUNG DOCTORS

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ABSTRACT: TMJ disc displacement, which is a relatively frequent pathology, proves to be frustrating experience not only for patients, but also for dentists, who often lack sufficient expertise in this area. Consequently, they tend to refer patients to maxillofacial surgeons. Furthermore, there are instances where dentists are completely unaware of this pathology. Therefore, the aim of this study is to assess the level of knowledge among freshly graduated dental students regarding temporomandibular disorders (TMDs). To achieve this, a questionnaire consisting of multiple-choice questions was administrated to dental students who graduated from the Faculty of Dental Medicine at "Grigore T. Popa" University of Medicine and Pharmacy Iasi within the last two years. The responses yielded unexpected results, both positive and negative, leading to various conclusions. It became evident that general dentists possess limited knowledge about temporomandibular disorders. To address this issue, universities should prioritize incorporating comprehensive TMD pathology education, not only during programs addressed to prosthodontic specialists.

Key words: temporomandibular disorders (TMDs), orofacial pain, TMJ disc displacement, dental students survey

INTRODUCTION

The masticatory system plays a crucial role in maintaining human health and overall well-being. It is responsible for important functions such as chewing, drinking, speech, as well as facial and emotional expressions.

Temporomandibular disorder (TMD) is a broad term that encompasses a range of clinical conditions, with diverse causes, that affect the temporomandibular joint (TMJ) or the structures surrounding it. These conditions are outlined in the expanded taxonomy for TMDs, which was established by the American Academy of Orofacial Pain (AAOP) in 2014 and reaffirmed by a Consensus Study Report of the National Academies of Science, Engineering, and Medicine. [1,2].

Temporomandibular disorders are musculoskeletal disorders characterized by primary symptoms of pain localized to the face and temple, along with limitation of jaw function [3]. They represent a common cause of chronic musculoskeletal pain worldwide and rank as the second most prevalent chronic musculoskeletal ailment after chronic low back pain [4]. Surprisingly, TMDs often seem to be undetected within general dental care [5].

The prevalence of TMDs in adults is estimated to range from 5 to 50% [6,7]. It can occur at any age, but they commonly peak between 20 and 40 years of age [7]. Additionally, women are affected by TMDs at a rate twice as high as men [2,8].

The prevalence of TMDs pain is estimated to be around 10% in the general population [5,7]. Additionally, among individuals experiencing TMDs symptoms, one in five individuals reports experiencing widespread bodily pain [9,10].

Throughout the years, there have been changes in the classification of disorders affecting the masticatory system. These

changes have highlighted the complex nature of these disorders, leading to ambiguity in terms of their definition, treatment approaches, and the professionals responsible for their management. These challenges continue persist to this day.

Although imaging may not always be necessary to diagnose disorders that involve structures outside the temporomandibular joint (TMJ) [11], it is typically required for a conclusive diagnosis of intra-articular TMJ disorders, following the guidelines of the Diagnostic Criteria for TMD (DC-TMD) [12,13]. In terms of diagnostic, The Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMDs), which was later upgraded to become the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD), is the most reliable standard [14].

Regarding the intra-articular TMJ disorders, up to 70% of TMDs patients suffer from pathology or malpositioning of the TMJ disc, termed "internal derangement" (ID), with altered joint mechanics [15].

Internal derangement (ID) of the TMJ is characterized by abnormal positioning and functional relationship between the TMJ disc and the articulating surfaces. Common clinical symptoms include pain and joint sounds, such as clicking or crepitus [16,17]. Early identification of imaging markers of internal derangement is crucial, as it can help prevent the progression of this condition into degenerative joint disease [11,17-19].

Internal TMJ derangement is a relatively common issue. According to Farrar, TMJ intrinsic derangement affects up to 25% of the population [20] for which 3.6 to 7% of the general population desire treatment [21], especially females in their childbearing [22], and self-management is one of the initial therapies the general dentists commonly provide [23].

Epidemiologic research suggests that crepitations, which are more common in women, can be audibly heard in up to 40% of the population, while TMJ clicking can be heard in up to 31% of people [16]. In asymptomatic patients and volunteers, disc displacement has been observed in 32–38% of MRI studies. Approximately 90% of individuals with TMJ issues are between the ages of 15 and 45, with a mean age of 34 [15].

The current priorities in the field include establishing a diagnosis and treatment plan that for disc dislocations, understanding their causes, and the patient's management. In terms of joint structures, treatment has shifted towards less invasive and more conservative approaches, with a greater emphasis on bio-psycho-social medical concepts rather than earlier mechanistic methods.

AIM

This study aims to assess the general and specific knowledge of recently graduated dentists regarding temporomandibular disorders, orofacial pain and disc dislocation pathology, including diagnosis, treatment, and referral of patients to relevant practitioner for disease resolution. Establishing an accurate diagnosis, conducting a proper patient assessment, and delivering appropriate treatment should improve the patient's quality of life and facilitate their ability to perform functional movements comfortably. The objective of this study is to evaluate the level of knowledge among newly graduated students regarding this pathology and their ability to recognize, diagnose, and propose different treatment options for TMJ disc dislocation in a dental office setting.

MATERIALS AND METHOD

The pilot observational cross-sectional study was conducted on freshly graduated students from the Faculty of Dental Medicine at the "Grigore T. Popa" University of

Medicine and Pharmacy of Iasi. A questionnaire consisting of 12 questions was distributed among the students. The questionnaire was created using the online service offered by Google, „Google docs". Google Docs is a web-based program accessible through a web browser and includes a free online word processor. Most of the questions were single choice, allowing the respondents to choose only one options. However, one question required an open-ended response, and another question included checkboxes, allowing for the selection of multiple answers. After completing the questionnaire, data were collected and revised and descriptive statistic has been performed.

The questionnaire included the following questions:

1. What year of study did you complete/graduate?
2. In which year did you study TMJ anatomy and pathology?
3. Do you have knowledges related to temporo mandibular disorders (TMDs)? In which year did you study temporomandibular disorders (TMDs)?
4. Have you encountered such cases during your summer practice?
5. How would you react if a patient presented to your office with limited mouth opening and intense pain when moving their mandible?
6. What do you believe would alleviate the patients' suffering?
7. What medication would you recommend?
8. In your opinion, how can your knowledge related to disc dislocation (DD) be improved?
9. Would you consider specializing in the diagnosis and treatment of TMDs?
10. Do you think the courses on TMDs provided during your university studies were adequate?
11. Are you familiar with the condition known as TMJ disc displacement? Please provide a brief explanation.
12. Do you believe that dentists should be responsible for treating these patients?

RESULTS AND DISCUSSIONS

A total of 41 recipients completed the survey. All respondents graduated in either 2021 or 2022. 11 participants graduated in the year of 2021, while the majority of participants (30) graduated in 2022 (Fig. 1).

Most recipients indicated that the main focus on TMJ anatomy and pathology was in the 4th year, particularly in the lesson of gnathology. Additionally, some information regarding this subject was provided in general anatomy and maxillofacial surgery courses (Fig. 2).

Out of the participants, 23 stated that temporomandibular disorders (TMDs) were taught in the 4th year. 7 participants mentioned it was taught in the 3rd year, while 7 participants indicated it was taught in the 6th year. 3 participants said it was taught in the second year, and 3 participants mentioned the 5th year. Additionally, 2 students stated that it was covered in the first year. Lastly, 2 participants reported having no knowledge about the pathology (Fig. 3).

In terms of encountering such cases during summer practice, 32 participants had not come across them, while 9 participants had experienced such cases (Fig. 4).

When asked how they would respond if a patient presented with limited mouth opening and intense pain when mobilizing the mandible, 18 recipients chose the option "Refer to the OMF surgeon", 16 chose "Try to resolve the problem on my own", 4 chose "Refer to an orthopedic specialist", 3 chose "Call a more experienced colleague", and none chose "Family doctor" (Fig. 5).

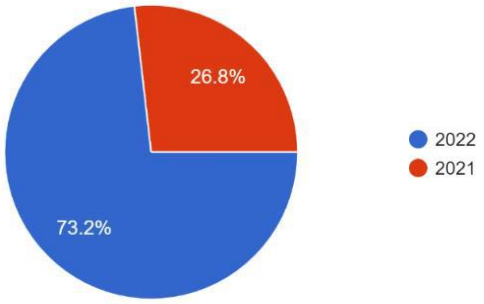

Fig. 1. What year of study did you complete/graduate?

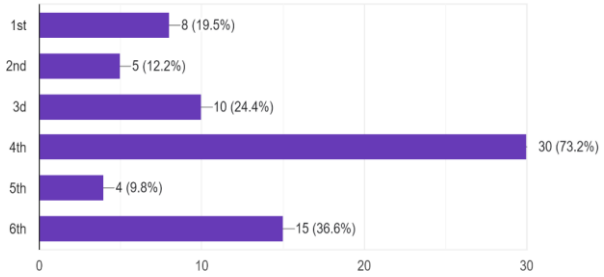

Fig. 2. In which year did you study TMJ anatomy and pathology?

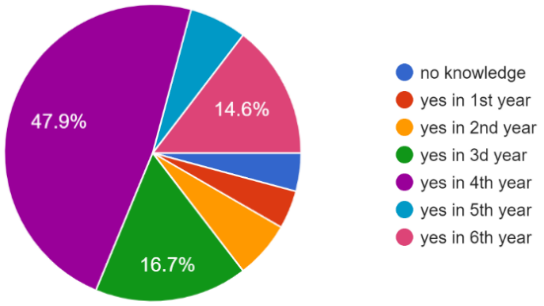

Fig. 3. Do you have knowledges related to temporomandibular disorders (TMDs)? In which year did you study temporomandibular disorders (TMDs)?

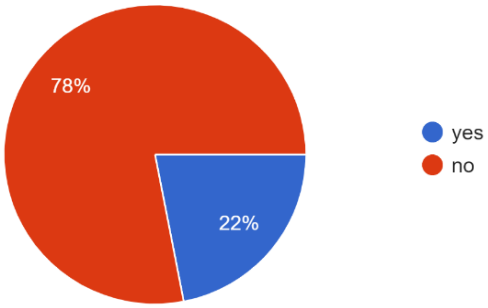

Fig. 4. Have you encountered such cases during your summer practice?

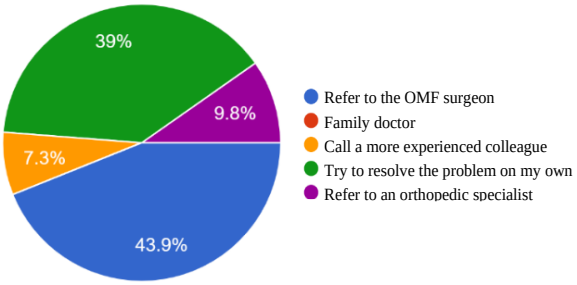

Fig. 5. How would you react if a patient presented to your office with limited mouth opening and intense pain when moving their mandible?

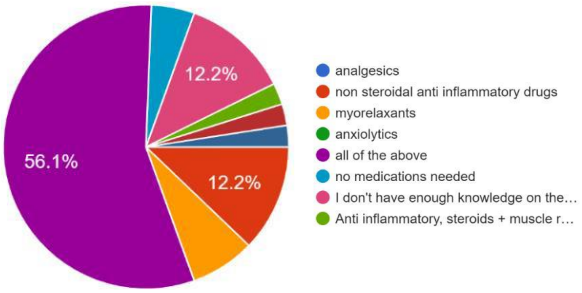

Fig. 7. What medication would you recommend?

Regarding what they believed would ease the suffering of patients, 28 participants chose the option of medications, 29 students chose the option of joint exercises, 10 participants chose the option "symptoms will be resolved on their own", 15 participants chose the option "surgery", 2 participants mentioned "I don't have enough knowledge on the matter", 1 participant stated "depends on the case and diagnosis" (Fig. 6).

For the question about recommended medication, 23 participants chose the option "all of the above", 5 chose "non-steroidal anti-inflammatory drugs", 5 participants chose "I don't have enough knowledge on the matter", 2 chose "no medications needed", 3 chose "myorelaxants", 1 mentioned "Anti-inflammatory, steroids + muscle relaxants", 1 added "Pain relief medications or even anti-depressants", 1 mentioned "Depends on the case and what causes the pain" (Fig. 7).

For the question about improving knowledge

related to Disc Dislocation (DD), 18 participants chose "read books regarding the pathology", 13 chose "take additional courses regarding the pathology", 8 chose "improve the university courses", 2 mentioned "I am not interested in this pathology" (Fig. 8).

When asked if they would be tempted to specialize in the diagnosis and treatment of TMDs, 22 participants answered "no", 17 chose "maybe", 3 chose "I'm not interested", 1 chose "yes" (Fig. 9).

Regarding the sufficiency of the TMDs courses during their university studies, 31 participants answered "no", 4 answered "yes", 5 answered "I don't know", and 1 mentioned "the knowledge is never enough, maybe more courses regarding that pathology will be useful" (Fig. 10).

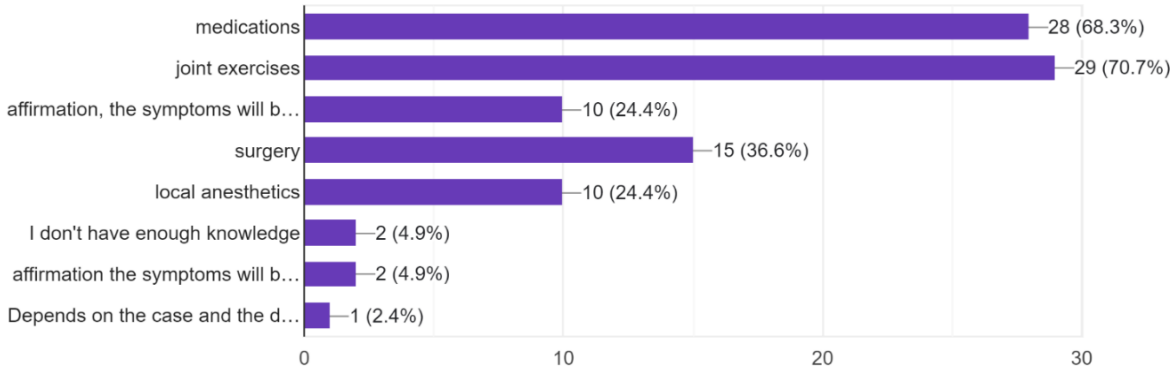

Fig. 7. What do you believe would alleviate the patients' suffering?

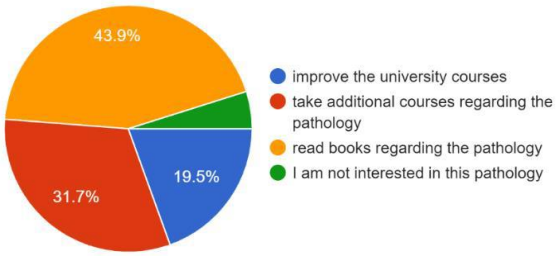

Fig. 8. In your opinion, how can your knowledge related to disc dislocation (DD) be improved?

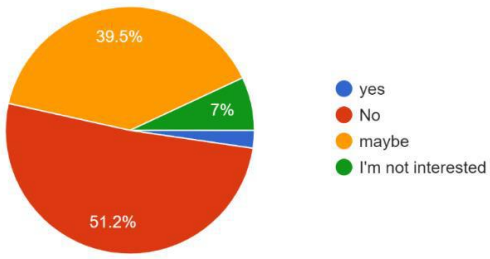

Fig. 9. Would you consider specializing in the diagnosis and treatment of TMDs?

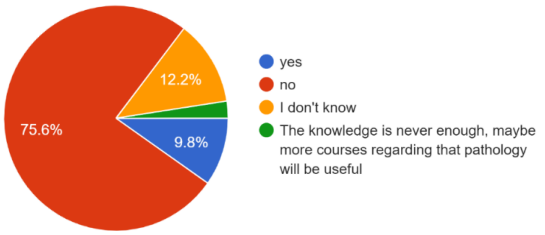

Fig. 10. Do you think the courses on TMDs provided during your university studies were adequate?

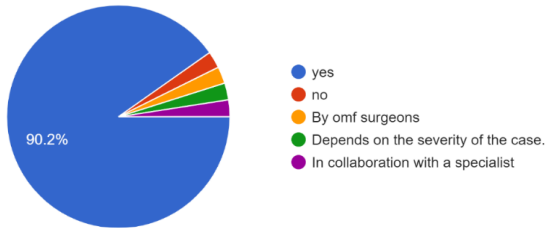

Fig. 11. Are you familiar with the condition known as TMJ disc displacement? Please provide a brief explanation.

In response to the open question about knowing what TMJ disc displacement is, 33 out of 41 participants provided answers. Most of the answers indicated some knowledge of the pathology, but not a deep understanding. Many mentioned "a dislocation of the temporomandibular disc", indicating a limited level of knowledge about this condition.

When asked if they believed these patients should be treated by dentists, 37 participants answered “yes”, 1 participant answered “no”, 1 m “by OMF surgeon”, 1 answered “depends on the severity of the case”, 1 participant answered “in collaboration with a specialist”.

The treatment of disc dislocations can be a challenging experience for both patients and healthcare professionals, particularly dentists who are expected to possess detailed knowledge of the oral cavity and maxillofacial area, including the TMJ.

TMDs and orofacial pain are essential aspects of the modern dental philosophy, which focusing on treating the patient as a whole, rather than just their teeth. It was thirty years ago that these conditions began to be recognized as specialties. In 1993, the International Association for the Study of Pain (IASP) first proposed the inclusion of study of pain in undergraduate dental curricula [24,25].

However, there is limited published evidence to date regarding the adoption of the curriculum recommended by the IASP in dental schools. Various studies have identified deficiencies in "knowledge, competencies and attitudes" about orofacial pain and TMDs across healthcare professions, but little research has been conducted on pain knowledge specifically among dentists [26].

Unfortunately, dental schools have allocated very few credit hours to incorporate new pain-related and TMDs content into their curricula [24]. Moreover, the teaching of TMDs is primarily conducted by dental prosthesis professors, rather than experts in the field [27]. Despite the importance of this subject, the lack of standardized academic curricula makes it challenging to acquire and implement knowledge about orofacial pain and TMDs [28], As a result, undergraduate students often lack confidence in treating patients with TMDs [29].

Insufficient credit hours dedicated to studying TMDs and broad curriculum structure without specific disciplines focusing on the study of TMDs and orofacial pain have resulted in limited knowledge among students. These topics are usually integrated into basic components such as Physiopathology, Pharmacology, Prosthodontics and Endodontics. Similarly, the teaching of TMDs is predominantly handled by dental prosthesis teachers, rather than experts in the field. However, studies indicate that practical clinical experience following theoretical study of TMDs improves students' knowledge [25].

Competencies such as identifying risk factors, making diagnoses, planning treatments, and collaborating with multidisciplinary teams are developed through clinical training [28].

The Dentistry course at UMPh Iasi does not include a specific discipline for TMDs, orofacial pain or bruxism. The initial knowledge acquired is often insufficient and may be forgotten due to the lack of practical activities for recognition, reinforcement, and enhancement of the theoretical content. There is a clear need to prioritize TMDs and orofacial pain within the field of dentistry, considering the social relevance of health and educational interventions, which necessitates the development of curricula that prepare professionals to address the population's needs. Additionally, the lack of public policies addressing these issues and providing support for individuals suffering from TMDs is evident.

Dentists should take an interest in complex pathologies such as temporomandibular disorders (TMD), specifically TMJ disc displacement and orofacial pain. They should be able to recognize, diagnose, and provide basic supportive treatment for these conditions. They should be aware that patients experiencing TMJ disturbances, which can be debilitating and distressing, often approach them as the first point of contact. Dentists

should know how to approach such patients, give appropriate treatment plan, or refer them to the maxillofacial surgeon if a more invasive treatment approach is required.

CONCLUSIONS

1. This study highlights a lack of knowledge among young general dentists regarding temporomandibular joint disc displacement.
2. There should be an increased emphasis on TMJ pathologies in dental education at universities.
3. Although this study does not encompass graduates from other universities, it suggests that TMDs is a field that receives less attention in terms of investigation, teaching, and interest among general dental practitioners.
4. It is recommended to implement more courses on TMDs in dental education at the university level.
5. The inclusion of more clinical cases in classes would be beneficial for students' understanding and practical application of TMD concepts.
6. It is important to distribute relevant information on TMDs throughout the dental curriculum, with a focus on the later years when students are more likely to retain the knowledge.
7. Further research should be conducted to enhance the understanding and management of disc displacement pathology in the temporomandibular joint.

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