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Original Article

Saudi Dentists' Knowledge about Symptoms and Treatments of Temporomandibular Disorders: A Cross-Sectional Study

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Abstract

Introduction: Temporomandibular Disorders (TMDs) affect the temporomandibular joint, leading to issues such as jaw pain and restricted movement. Despite these consequences, there remains a lack of understanding among Saudi dentists, highlighting the crucial need for increased awareness. Given the prevalence and impact of TMDs, dental professionals must acquire accurate and current information for effective diagnosis and treatment. This study aims to assess the knowledge of Saudi dentists regarding the symptoms and treatments associated with TMDs.

Methods: This descriptive cross-sectional study was conducted among various dental departments and centers across Riyadh, Saudi Arabia, from September 2023 to October 2023. A self-administered questionnaire consisting of demographic and knowledge assessment sections was distributed among the study participants. All residents, interns, and dental students were excluded. The responses collected were entered into the Microsoft Excel program and later transferred to SPSS for statistical analysis. Additionally, knowledge scores were calculated and categorized into low, intermediate, and high levels.

Results: A total of 143 individuals participated in the study. Nearly two-thirds were male, with the majority being general dentists (45.5%), while 39.2% reported having six to ten years of experience. Of the participants, 116 (81.1%) had observed TMD patients in their practice. The majority of participants, comprising 90.2%, fall into the category of intermediate knowledge TMD. While only 8.4% of participants had a low level of knowledge, and quite a smaller proportion, 1.4%, was classified as having an average level of knowledge.

Conclusion: Based on the findings, it can be concluded that the majority of dentists had intermediate knowledge about the general knowledge, clinical features, diagnosis, and treatment of TMD. However, these findings underscore the need for targeted educational initiatives to enhance knowledge among dental professionals, fostering improved decision-making and more effective TMD management for better patient outcomes.

Keywords: *Temporomandibular Disorders, Saudi dentists, Knowledge assessment, practice, TMD*

Introduction

Temporomandibular disorders (TMDs) represent heterogeneous musculoskeletal disorders and are considered one of the most common disorders in the maxillofacial region. This group of disorders is typified by localized pain in the facial and preauricular regions or by restrictions and disturbances in the movement of the jaw (1). In addition, TMDs are frequent causes of craniofacial diseases (2), which are characterized by pain, clicking, and discomfort during chewing and mouth opening (3). Previous studies have defined TMDs as a "common musculoskeletal disease affecting the structure of the temporomandibular joint in the orofacial region" (4). In addition to pain, other clinical manifestations of TMD may include impaired jaw function, malocclusion, deviation from the midline on opening or closing the jaw, limited range of motion, joint noises, and locking, headaches, and sleep disturbances (5, 6). Pain associated with chronic forms of TMDs may negatively impact the social and work activities of the individual, leading to an overall decrease in quality of life (7, 8). Moreover, studies have highlighted that (9, 10), among children and adolescents, TMDs stand out as the primary non-dental source of orofacial pain.

The diagnosis of TMDs relies mainly on clinical examination, incorporating patient history and physical examination, and has undergone various stages (11). In the past, the diagnosis of TMD was made based on a combination of clinical and radiographic findings. Conventional and panoramic tomography have limited use in assessing the temporomandibular joints (TMJs) (12). Depending on the clinical findings, MRI and 3D imaging using CT or CBCT are necessary (12, 13). Research Diagnostic Criteria for TMD (RDC/TMD) were developed on the core principles of 1) a dual-axis system reflecting the biopsychosocial model, 2) a clear operationalization for reliability, and 3) the allowance of multiple diagnoses (14). A more recent Diagnostic Criteria for TMD (DC/TMD) was introduced, distinct from the previously established Research Diagnostic Criteria for TMD (RDC/TMD) (1).

Some clinical conditions mimic TMD, including dental caries or abscess, oral lesions such as herpes zoster, herpes simplex, oral ulcerations, lichen planus, conditions resulting from muscle overuse (including clenching, bruxism, excessive chewing, spasm), trauma or dislocation, maxillary sinusitis, salivary gland disorders, trigeminal neuralgia, postherpetic neuralgia, glossopharyngeal neuralgia, giant cell arteritis, primary headache syndrome, pain associated with cancer, and autoimmune diseases, such as systemic lupus erythematosus, Sjögren syndrome, and rheumatoid arthritis (15, 16).

Prior investigations indicate that TMD impacts approximately 10% to 15% of the adult populace (17), while some studies report a higher prevalence of 25% (1, 18). In the United States, TMDs affect about 5% to 12% of the population (19), and Italy reports a high prevalence among adults (20). However, it's worth noting that only a fraction, around 5%, necessitates active intervention or treatment (21). The prevalence of TMD is notably prominent within the age bracket of 20 to 40 years, with a greater occurrence observed among women, nearly twice as much as in men (22).

In Saudi Arabia, studies conducted have revealed a high prevalence of TMDs, reaching 35% of the general population and affecting around one-third of Saudi children (23, 24). Additionally, a study focused on Saudi dental students reported a substantial prevalence of 36.99%, emphasizing the need for increased awareness and targeted interventions within the Saudi Arabian context (25).

Most patients with TMD primarily refer to dentists. Thus, to correctly diagnose and effectively treat TMD, it is important that dentists acquire a comprehensive knowledge of the disease. Many studies reported that general dentists spent additional time and effort with patients suffering from TMDs (26, 27). However, it has been shown that patients suffering from TMDs are misdiagnosed and poorly managed in primary healthcare centers, thus delaying treatment and referral (26). Furthermore, previous studies have shown that dentists' level of knowledge in the diagnosis and

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management of chronic, non-dental oro-facial pain is insufficient (28-30). In Saudi Arabia, studies reported that newly graduated general dentists have limited knowledge of TMD (31). Another study in Saudi Arabia showed that knowledge of TMD in children and adolescents is low among general dentists in Saudi Arabia compared to Swedish orofacial pain specialists (28).

Dentists play a crucial role as the primary healthcare professionals for individuals experiencing TMDs. The timely and accurate diagnosis provided by dentists significantly impacts the effective treatment of TMD-affected patients. In Saudi Arabia, various post-graduate and training programs specialize in different dental fields. Given the unique nature of TMD as a distinct condition, it is essential to explore the understanding of TMD symptoms and treatments not only among general dentists but also among specialists and consultants.

Therefore, this study aims to evaluate the knowledge of Saudi dentists, including general practitioners as well as specialists and consultants, regarding the symptoms and treatments associated with TMDs.

Materials and Methods

Study Design

The study employed a cross-sectional design to assess the knowledge of Saudi dentists regarding TMDs. Cross-sectional studies provide a snapshot of a population at a specific point in time, allowing for the examination of knowledge levels among participants. The ethical approval was obtained from King Saud University Medical City via Vision College in Riyadh (IRB No. VCR-23-015).

Study Setting and Population

The study was performed among four different dental departments and centers in Riyadh, Saudi Arabia, from September 2023 to October 2023. Centers included are Prince Sultan Military Medical City, King Abdulaziz Medical City, King Saud Medical City and North of Riyadh Dental Clinic. All general dentists and consultants were invited to willingly participate and be included in the study, while interns and residents were excluded.

Data Collection Tool

The survey comprised two distinct sections featuring close-ended inquiries and was administered in the English language. The initial section inquired about demographic information, encompassing gender, years of professional experience post-graduation, and clinical rank. The subsequent section encompassed 19 statements, each to be responded to with options of "yes," "no," or "I don't know," aiming to evaluate participants' knowledge pertaining to TMDs. To enhance the questionnaire's reliability, 19 statements were devised and subjected to a pilot test.

The questionnaire was designed to explore three primary domains: firstly, participants' general understanding of TMDs through six statements; secondly, their knowledge concerning the clinical manifestations and diagnosis of TMDs, encapsulated in seven statements; and thirdly, their familiarity with the treatment modalities for TMDs conveyed through six statements.

Participants who correctly answered a statement were assigned a score of 1. Responses that were answered incorrectly or marked as 'I don't know' were scored 0. To calculate the total score, the first statement was omitted, and the remaining 18 statements were considered. Total scores were then calculated, ranging between 0 and 18.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics (version 24.0, 2016). Categorical variables were expressed as percentages and frequencies. Fisher exact tests were used to assess differences between knowledge categories and sociodemographic variables such as gender, professional experience since graduation, and clinical rank. Knowledge scores were categorized based on percentiles. Below 30% were categorized as a low level, 30–70% were intermediate levels, and above 70% were high levels. *P* values of less than 0.05 were considered statistically significant.

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Results

Questionnaire reliability analysis

A 19-item questionnaire was employed to assess the participants' knowledge of TMDs. The obtained Cronbach's alpha for the questionnaire was 0.608. A Cronbach's alpha in the range of 0.6 to 0.8 is considered moderate but acceptable **(Table 1).**

Table 1: Reliability analysis result

Measure	No of items (n)	Cronbach's alpha (α)	
TMD knowledge assessing statements	19	0.608	Moderate acceptable

Study Population

A total of 143 individuals participated in the study, and the demographic characteristics are presented in **Table 2**. Nearly two-thirds of the participants were male, with the majority being general dentists (45.5%). Among the participants, 39.2% had six to ten years of experience.

Table 2. Demographic characteristics of participants.

Characteristic		N	%
Gender	Male	98	68.5
	Female	45	31.5
Clinical Rank	General Dentist	65	45.5
	Specialist	78	54.5
Experience since graduation	0-5 years	34	23.8
	6 – 10 years	56	39.2
	11 – 15 years	29	20.3
	> 15 years	24	16.8

Participant Knowledge in TMDs - General Knowledge, Clinical Features, Diagnosis, and Treatment

The survey results offer valuable insights into the participants' general knowledge about TMDs. It is noteworthy that a majority of respondents (81.1%) reported having encountered patients with TMDs in their practice. Furthermore, a significant proportion (96.5%) acknowledged the pivotal role of depression and stress in the development of chronic TMDs, underscoring an awareness of psychosocial factors in TMD etiology. The recognition of oral parafunctional habits as significant contributors to chronic TMDs was high, with 93% of participants acknowledging their importance **(Table 3).**

Regarding the understanding of TMD prevalence across different age groups, responses indicated varied awareness. While 64.3% of participants reported that TMDs are more common among adults with permanent dentition, a substantial proportion (21.7%) expressed uncertainty. Additionally, the misconception that all individuals with TMJ clicking necessitate treatment was identified, as 74.8% correctly rejected this notion, but a notable 18.2% believed in its necessity **(Table 3).**

Moving to the domain of clinical features and diagnosis, the survey revealed a strong consensus among participants on recognizing pain as the most common reason for seeking TMD treatment (77.6%). However, it is noteworthy that a considerable portion (18.2%) did not attribute treatment-seeking behavior to pain. The majority (79.7%) demonstrated awareness that patients with rheumatoid arthritis should be queried about TMJ symptoms, highlighting a connection between systemic conditions and TMD.

In terms of treatment knowledge, the results indicated diverse perspectives. Notably, 91.6% of participants acknowledged the role of psychology counseling and behavioral therapy in treating chronic TMDs. However, 46.2% of the participants disagreed with the idea that occlusal grinding is a universally useful early treatment modality for all TMD cases. Conversely, misconceptions were identified, such as the belief that a hard night guard should be used in treating all TMDs (25.2%) and the notion that surgery is the best treatment for all TMD cases (5.6%). These findings underscore the importance of addressing these misconceptions and promoting evidence-based approaches to TMD management within the dental community **(Table 3).**

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Table 3: Participant Knowledge in Temporomandibular Disorders (TMDs) - General Knowledge, Clinical Features, Diagnosis, and Treatment

	Questions	Answers	N	%
Participants general knowledge about TMDs.	Did you see a patient with TMDs	Yes	116	81.1
		No	23	16.1
		I don't know	4	2.8
	Depression and stress are very important factors in the development of chronic TMDs	Yes	138	96.5
		No	2	1.4
		I don't know	3	2.1
	Oral parafuntional habits are often significant in the development of chronic TMDs	Yes	133	93
		No	2	1.4
		I don't know	8	5.6
	TMDs are more common amongst children with mixed dentition than amongst adults with permanent dentition	Yes	20	14
		No	92	64.3
		I don't know	31	21.7
	All individuals with TMJ clicking need treatment	Yes	26	18.2
		No	107	74.8
		I don't know	10	7
	TMDs affect the dentists' performance of dental treatment procedures on patients with TMDs	Yes	122	85.3
		No	8	5.6
		I don't know	13	9.1
Knowledge about clinical features and diagnosis of TMDs	Pain is the most common reason to seek treatment of TMDs	Yes	111	77.6
		No	26	18.2
		I don't know	6	4.2
	Patients with rheumatoid arthritis should be asked for any TMJ symptoms	Yes	114	79.7
		No	10	7
		I don't know	19	13.3
	Headache is a common symptom in patients with TMDs	Yes	102	71.3
		No	23	16.1
		I don't know	18	12.6
	TMJ disorders pain is often associated with clicking sound of the joint and/ or restricted mouth opening	Yes	113	79
		No	23	16.1
		I don't know	7	4.9
	Examination of neck muscles and palpation of the TMJ with patients with TMDs are important in diagnosis	Yes	125	87.4
		No	10	7
		I don't know	8	5.6
		Yes	18	12.6

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	Reduced mouth opening capacity is almost never caused by TMDs	No	110	76.9
		I don't know	15	10.5
	Palpatory tenderness in the masticatory system and/ or TMJ is the most important clinical sign of TMDs	Yes	98	68.5
		No	18	12.6
		I don't know	27	18.9
Knowledge about the treatment of TMDs	In all TMDs cases, occlusal grinding is a useful early treatment modality	Yes	40	28
		No	66	46.2
		I don't know	37	25.9
	Orthodontic treatment can prevent the onset of TMDs	Yes	64	44.8
		No	53	37.1
		I don't know	26	18.2
	Anti-inflammatory drugs are effective in the treatment of acute arthralgia	Yes	98	68.5
		No	6	4.2
		I don't know	39	27.3
	Psychology counselling and behavioral therapy are one of the treatment plans in patients which chronic TMDs	Yes	131	91.6
		No	4	2.8
		I don't know	8	5.6
	Surgery is the best treatment for all TMDs cases	Yes	8	5.6
		No	118	82.5
		I don't know	17	11.9
	Hard night guard should be used in the treatment of all TMDs	Yes	36	25.2
		No	81	56.6
		I don't know	26	18.2

The data indicates that the majority of participants, comprising 90.2%, fall into the category of intermediate knowledge on TMD. Only 8.4% of participants have a low level of knowledge, while a smaller proportion, 1.4%, is classified as having an average level of knowledge. This distribution suggests that the study participants generally possess a moderate level of knowledge regarding TMD, with a smaller percentage exhibiting either lower or average levels of understanding **(Table 4).**

Table 4: Distribution of Temporomandibular Disorders (TMDs) knowledge levels among study participants

	N	%
low	12	8.4
intermediate	129	90.2
high	2	1.4

Among males, the majority exhibited an intermediate knowledge level (67.4%), while 75.0% of females had a low knowledge level. Regarding clinical rank, general dentists predominantly demonstrated a high knowledge level (100.0). Fisher exact tests indicated no statistically significant associations between gender ($p = 0.884$), clinical rank ($p = 0.479$), and knowledge levels. In terms of experience since graduation, those with 6 to 10 years showed a high knowledge level. However, no significant associations were observed for the experience and knowledge level categories ($p=0.836$) **(Table 5).** In summary, the survey outcomes reflect both areas of strong awareness and potential gaps in knowledge among the participants, emphasizing the need for targeted educational initiatives to enhance the understanding of TMDs across different facets of dental practice.

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Table 5: Association of participants' knowledge levels with socio-demographic characteristics				
	Knowledge level			Fisher's exact p-value
	low level	intermediate level	high level	
Gender				
Male	9 (75.0)	87 (67.4)	2 (100.0)	0.884
Female	3 (25.0)	42 (32.6)	0 (0.0)	
Clinical Rank				
General dentist	5 (41.7)	58 (45.0)	2 (100.0)	0.479
Specialist	7 (58.3)	71 (55.0)	0 (0.0)	
Experience since graduation				
0 to 5 years	2 (16.7)	32 (24.8)	0 (0.0)	
6 to 10 years	4 (33.3)	50 (38.8)	2 (100.0)	0.836
11 to 15 years	3 (25.0)	26 (20.2)	0 (0.0)	
More than 15 years	3 (25.0)	21 (16.3)	2 (100.0)	

Discussion

This study assessed the knowledge regarding the diagnosis and management of TMD among various practicing dentists, with almost 81.1% of respondents reporting observing TMD patients in their practice. Findings indicate that the majority of the study participants had intermediate levels of knowledge. Regarding TMD diagnosis, participants displayed awareness of symptoms, with the majority recognizing the importance of examining neck muscles and palpating the TMJ. While assessing awareness of the management strategies, uncertainty (25.9%) and skepticism (46.2%) were noted about occlusal grinding. However, psychomotor counseling and the use of anti-inflammatory medications received substantial support.

TMDs are common diseases caused by various etiological factors affecting the orofacial region with varying severity. It ranks as the second most common cause of orofacial pain (32, 33). Despite its high prevalence, many dentists struggle to treat TMD patients. Until recently, TMD pain was often misdiagnosed by general dentists as dentoalveolar pain, leading to incorrect management (29). The misdiagnosis of the TMDs results in poor management, which leads to delayed treatment and referral (26). A prior study reported a 35% prevalence of TMDs in Saudi Arabia (23). Given that TMD patients primarily seek dental care, it's crucial for Saudi dentists to possess knowledge about diagnosis and appropriate treatment modalities. Findings from this study will make a significant contribution in this regard since this cross-sectional study investigated awareness levels across five hospitals in Riyadh.

In comparison to other studies in the literature, an Italian study reported that of the general dentists, 41% had adequate knowledge of TMD, 12% were aware of it, and 47% had poor/insufficient levels of knowledge (34). The findings of our study, however, reveal a higher percentage of participants having an intermediate level of knowledge and a lower number (1.4%) of participants with poor knowledge. Results from a Spanish study concluded that in terms of managing patients with TMD, physicians can still do better, despite their general proficiency in understanding the etiologic factors that contribute to the diagnosis of TMD (35). This depicted that although dentists in this study had better awareness and understanding of the diagnosis of TMD patients, their management skills still needed to improve. Results of another Iranian study concluded that for the diagnosis and management of

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TMD, general dentists have an unfavorable degree of knowledge and attitude (36).

Similarly, another comparative study from Saudi Arabia demonstrated that compared to Swedish orofacial pain/TMD specialists, dental and medical practitioners in Saudi Arabia and Sweden have less professional understanding regarding orofacial pain/TMD in children and adolescents. Professional knowledge is more accurate in Swedish groups than it is in similar Saudi Arabian ones. In light of these findings and the common occurrence of orofacial pain/TMD in children and adolescents, the authors further recommended that it is possible to conclude that current medical education is necessary for dentists and physicians to understand orofacial pain/TMD, particularly in Saudi Arabia (37).

Similarly, another cross-sectional study from Saudi Arabia stated that, compared to the reference group of orofacial pain specialists, freshly graduating general dentists' knowledge of TMD demonstrated weaker consensus in practically all fields. However, in the chronic pain and pain behavior domain, where there was an agreement for no more than one-third of the assertions, freshly graduating general dentists varied from orofacial pain specialists the least (31). However, in our study, no significant associations were determined between specialists, years of experience, rank, or awareness levels. While previous studies have reported differences in the outcomes of similar TMD surveys based on gender, rank, specialty, and years of experience (34, 38). Although similarly, Lopez-Frias observed non-significant associations between professional experience and knowledge of the diagnosis and treatment of TMD (35). Overall, in comparison to these studies, dentists in our study population exhibited better awareness and understanding of diagnosis and management. However, this needs to be backed up with more strong evidence from future research.

The etiology of TMD still remains unclear. The most prevalent theories to explain the onset and persistence of symptoms are those that link occlusal factors and psychological disorders; thus, the etiology of TMD is typically defined in the literature as multifactorial (39). Multiple direct and indirect factors play a complex and multifaceted role in the etiology of TMD. No significant improvement in the prevention or relief of TMD appears to be achieved with orthodontic treatment. It is still unclear from the research whether aberrant skeletal traits lead to TMD or vice versa. On the other hand, Angle Class II and III malocclusions, anterior open bite, posterior crossbite, and greater overjet have all been linked to TMD. A joint or muscular condition may potentially be the cause of some acute malocclusions. Despite this, recent studies appear to indicate that orthodontic therapy is not a very effective way to prevent TMD. Because there was no statistically significant difference in TMD events between patients receiving orthodontic treatment and those who did not (40). In our study, 44.8% of the dentists, however, believed that orthodontic treatments could prevent TMD, while 37.1% disagreed.

Moreover, among our study participants, 96.5% considered that depression and stress are critical factors for the development of TMDs. Similarly, Namvar et al. indicated a strong correlation between students with TMD symptoms and high DASS survey scores, indicating that stress, depression, and anxiety were significantly associated with TMD symptoms, and the most effective cause of TMD was stress alone (41). Additionally, a systematic review of the present time also observed a significant association between anxiety and TMD (42). Al-Khudhairy et al. narrated that it is undeniable that those who are under stress have a higher chance of developing TMDs. There is a well-established relationship between TMD and psychological risk factors including stress, anxiety, and depression, all of which have a significant impact on TMD development. Numerous studies have demonstrated that stress has a significant role in the prevalence of TMDs (43).

Furthermore, almost 79.7% of the dentists in our study were of the opinion that patients suffering from rheumatoid arthritis should be asked about experiencing any TMJ symptoms. It is, however, vital to assess TMJ symptoms in rheumatoid arthritis patients, as Lin et al. stated that, in

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comparison to non-rheumatoid arthritis patients, patients with rheumatoid arthritis experienced 2.538 times more TMD events (44). Byun et al. also concluded that TMD is more common in individuals with rheumatoid arthritis, and to reduce the risk of aggravation, patients with rheumatoid arthritis should be monitored for early TMD symptoms (45). Sodhi et al. described that finding the inflammatory changes in the synovium of these joints in 100% of rheumatoid arthritis patients during diagnostics, compared to 2% in the control group, offers direct evidence of the association between the disease and the joint (46).

Although the majority of the study participants in this study demonstrated an intermediate level of knowledge, previous studies have reported that continuing postgraduate education has been shown to have a positive impact on the knowledge of Swedish dentists about TMDs (47, 48). It has been recommended that dentists acquire a continuous update of TMD taxonomies, including the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) diagnostic system that was developed by the International Network for Orofacial Pain and Related Disorders Methodology (INfORM) (1). Additionally, awareness seminars and workshops can be helpful in enhancing the understanding and skills needed for the diagnosis and management of the disease. Collectively, these educational initiatives can play a significant role in yielding better patient outcomes through better knowledge and understanding among dentists and can also aid in the development of standardized guidelines.

Future research on TMDs among Saudi dentists can focus on tracking changes in their knowledge and practices over time, evaluating the effectiveness of targeted educational programs, and exploring interdisciplinary collaboration for enhanced patient care. Additionally, qualitative research can offer nuanced insights, and comparative studies with other regions can identify best practices. Assessing the impact of technology in training and understanding the broader public health implications of dentists' roles in TMD diagnosis and management are vital areas for further investigation. This comprehensive approach aims to inform evidence-based practices and improve TMD patient care outcomes in dental settings.

Strengths and limitations

The study design boasts several strengths that bolster its robustness. Clear objectives center on evaluating Saudi dentists' knowledge of TMDs. A structured questionnaire, pilot-tested for refinement, enhances data reliability. The study outlines a concise statistical analysis plan using descriptive statistics. With a reasonable sample size of more than one hundred subjects, the study design is methodologically sound, promising reliable and valid findings. The study unveils key insights into the knowledge and practices of Saudi dentists regarding TMDs. Noteworthy findings include a high encounter rate (81.1%) with TMD patients in dental clinics.

Limitations within the study are crucial to acknowledge for a comprehensive understanding of its scope. Firstly, this research focuses solely on dentists in Riyadh, potentially limiting the generalizability of findings to other regions within Saudi Arabia. The exclusion of interns and students, while aimed at focusing on practicing professionals, might inadvertently overlook valuable insights from individuals in training or recent graduates who could provide differing perspectives. Additionally, the study's cross-sectional design offers a snapshot at a specific time, preventing the exploration of changes in knowledge over time or causality assessments. The reliance on self-reported data through a questionnaire introduces the potential for response bias or subjective interpretation of questions, influencing the accuracy of gathered information. Lastly, while the sample size of 143 participants is reasonable for a cross-sectional study, larger sample sizes could offer a more comprehensive understanding of Saudi dentists' knowledge about TMDs.

Conclusion

Based on the findings, it can be concluded that the majority of dentists had intermediate knowledge about TMD; however, these findings underscore the

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need for targeted educational initiatives to enhance knowledge among dental professionals, fostering improved decision-making and more effective TMD management for better patient outcomes.

Disclosure

Declaration

The authors declare no conflict of interest.

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None

Ethical Considerations

The ethical approval was obtained from King Saud University Medical City via Vision College in Riyadh (IRB No. VCR-23-015).

Data Availability

All data is available within the manuscript, and the survey is attached as a supplementary material.

Author Contribution

All authors contributed equally in the conceptualization, data collection, data analysis and writing of the paper.

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