

Interprofessional care for temporomandibular joint disorders: the patient's perspective

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Abstract

The Indiana University School of Dentistry TMJ Institute is a multidisciplinary clinic designed to support the management of patients with challenging temporomandibular disorders. Professionals across dentistry, medicine, physical therapy, and social work collaborate to create a customised, interprofessional consensus to patient care. Compared with traditional, siloed healthcare models, are patients diagnosed with TMJ dysfunction satisfied with the quality of care received from an interprofessional approach? The objective of this study is to determine the level of patient satisfaction at the Institute using a 5-Point Likert scale patient questionnaire. A total of 93 questionnaires were distributed and 84 were collected. A total of 43% of patients travelled over 50 miles to be seen at the Institute. 'Strongly agree' was the most selected response for each prompt. The exception was whether patients preferred to meet with each clinician individually, to which 'strongly disagree' or 'disagree' was the most popular response, indicating that an interprofessional approach was preferred. The results and comments provided by patients revealed that most patients diagnosed with TMJ dysfunction were highly satisfied with the interprofessional approach used at the TMJ Institute. Our study suggests that positive patient satisfaction is an important factor in assessing the quality and efficacy of interprofessional, patient-centred clinic models.

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Introduction

Temporomandibular disorders (TMD) encompass a group of musculoskeletal conditions that affect the temporomandibular joints (TMJ), masticatory muscles and associated tissues.¹ The Indiana University School of Dentistry TMJ Institute, established in October 2021, is a multidisciplinary clinic designed to support the management of patients with challenging TMD. Professionals from oral and maxillofacial surgery, orofacial pain, physical therapy, orthodontics, prosthodontics, comprehensive care dentistry, psychiatry and social work collaborate to create a customised, interpro-

fessional consensus to patient care at the TMJ Institute.² The aim of this study is to determine whether patients with TMJ dysfunction are satisfied with the quality of care received from the interprofessional approach provided by the TMJ Institute. The objective of this study is to determine the level of patient satisfaction at the Institute using a 5-Point Likert scale patient questionnaire.

Background

There is an increasing number of patients seeking treatment for TMD.^{1,3} Clinical presentation includes pain, impaired function, crepitus, radiographic bony changes and joint space narrowing.¹ Chronic TMJ pain also affects cognitive, emotional, sensory, and behavioural reactions, which further aggravates and maintains the pain; therefore, psychosocial concerns are another catalyst for patients seeking treatment.⁴ Patients with TMD typically consult with their primary med-

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ical or dental providers first. They are then referred to sub-specialists with an interest in orofacial pain or TMJ dysfunction; however, treatment remains controversial given the lack of evidence to support a preferred method. As is also typical for any arthritic joint in the body, management specific to the TMJ is primarily medical and surgical if more conservative treatment fails to improve symptoms.^{2,3}

Recent research by Greene et al has demonstrated that TMDs are complex, multi-system disorders, which indicates the need for an interprofessional, patient-centred treatment approach.⁵ Non-profit patient advocacy groups such as the TMJ Association and TMJ Patient-Led Roundtable in conjunction with the National Institutes of Health produced a consensus report describing eleven recommendations for improving TMD diagnosis and management. Recommendations range from developing a national research consortium focusing on translational, public health and clinical research, to improving the quality of care for TMD patients through improved risk assessment and clinical practice guidelines, professional school education, and patient education. There is currently an active movement towards interprofessional, team-based, patient-centred care models so that professionals can more effectively diagnose, treat and manage complex, chronic conditions such as TMD.⁵

Interprofessional care has been extensively studied in the literature; however, as demonstrated by the consensus report, there is a shift towards applying this novel concept into practice. At present, there are few functional interprofessional-based clinics due to practical limitations such as time, cost and organisation.³ At Indiana University School of Dentistry, the newly established TMJ Institute intends to challenge these limitations and represent a successful example of this type of practice. By establishing a customised, inter-professional approach to patient care, the Institute offers a ‘one-stop-shop’ for patients referred with chronic or challenging TMJ symptoms.² The Institute is also actively engaged in contributing to the education of undergraduate dental students and residents through shadowing opportunities. Since the Institute’s opening in October 2021, it has been observed that patients present with complex dental, medical, and psychosocial clinical profiles, to which specialists in dentistry, medicine, social work and physical therapy have been able to apply their expertise.¹ A team-based approach such as this creates a better understanding of a patient’s multifaceted pathology and enables patients to feel more valued by playing an active role in their own treatment planning process.² Studies have shown that patient satisfaction and perceived healthcare service quality are increased

Evaluation of the TMJ Institute Multidisciplinary Clinic Model - Patient Questionnaire:

1. How far do you travel to get here?
 - Less than 10 miles
 - 10-20 miles
 - 20-50 miles
 - 50-100 miles
 - More than 100 miles

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2. My quality of life is likely to improve as a result of this clinic model.					
3. I felt comfortable with the treatment plan proposed by the group of clinicians in the TMJ Institute clinic.					
4. I would have preferred meeting separately with each clinician involved in this study.					
5. The various types of treatment options were fully explained to me.					
6. Interactions with the providers have met my expectations and all questions were answered to my satisfaction.					
7. Dental/medical providers and other staff members seem genuinely interested in my well-being.					
8. The treatment progressed in a timely fashion.					
9. Treatment that involved more than one department was smoothly coordinated.					
10. Overall, I am satisfied with the quality of care provided.					
11. I would recommend the TMJ Institute to others.					

Please add any additional comments:

Fig. 1. Patient satisfaction questionnaire.

when patients are included as contributing members on inter-professional healthcare teams.⁶

Methods

Clinic structure

The TMJ Institute is attended by professionals from dentistry, medicine, physical therapy and social work. The Institute operates the first Tuesday of every month. The Director of the TMJ Institute, personally triages all incoming patient

referrals for eligibility. It is preferred that patients first attempt conservative treatment options before coming to the TMJ Institute. The team of healthcare professionals typically debriefs on each case in the conference room before entering the examination room and meeting the patient. A thorough history is taken and clinical examination conducted, to which multiple positive findings typically confirms a generic diagnosis of TMJ dysfunction refractory to previous treatment. Having the patient and specialists together in the same room allows the patient to ask questions and be actively involved in their diagnostic and treatment

Distance Travelled to the TMJ Institute

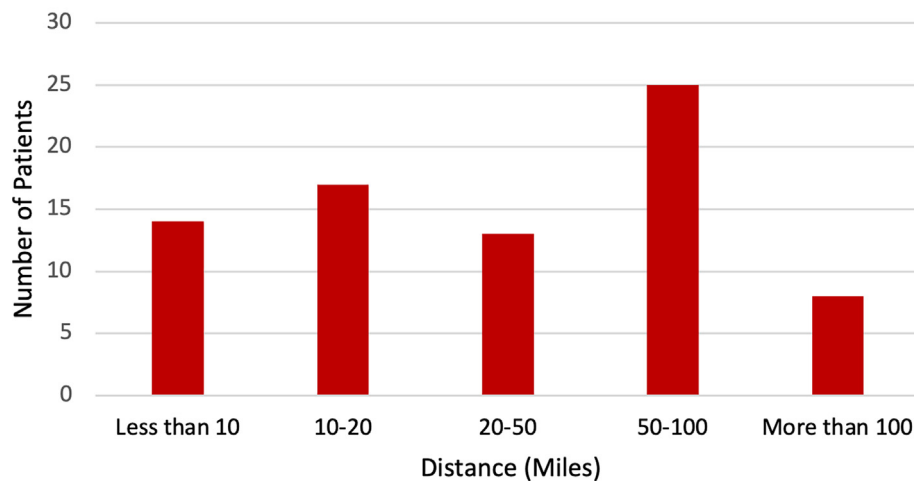


Fig. 2. Distance travelled to the TMJ institute.

Patient Satisfaction

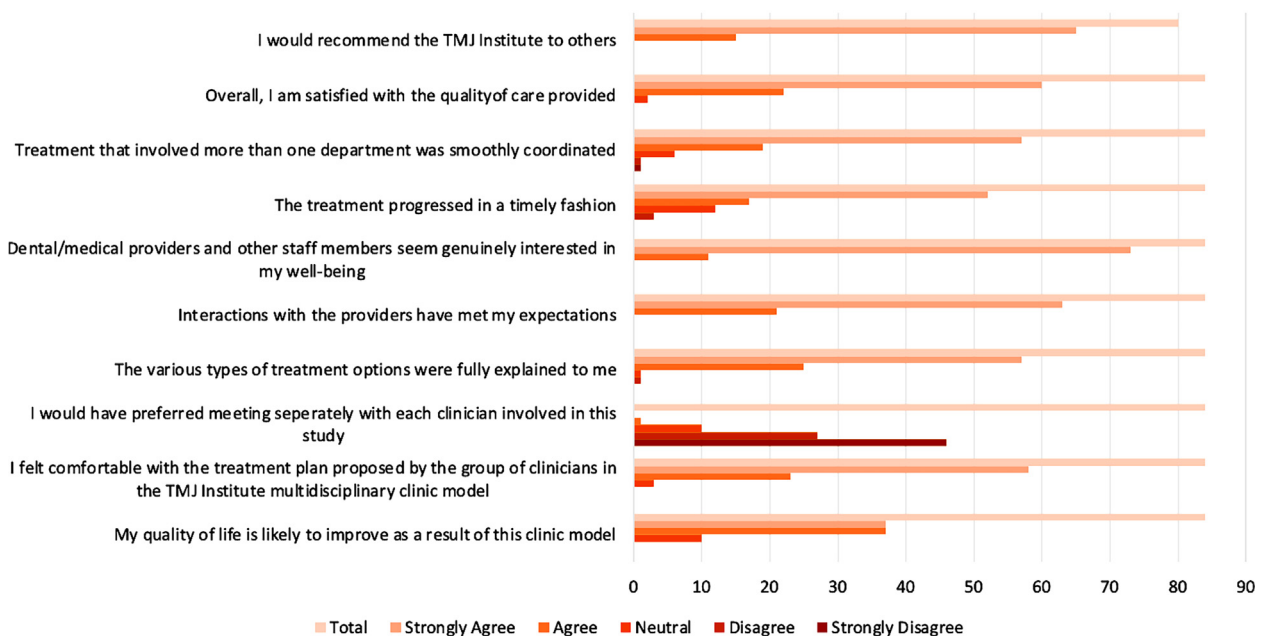


Fig. 3. 5-point Likert scale responses to patient satisfaction prompts.

planning process. Each health care member of the team is given the opportunity to question and examine the patient in turn through the lens of their specific area of clinical interest. The healthcare team then leaves the exam room to discuss a definitive interprofessional management plan using each specialist’s expertise. The proposed care plan is relayed to the patient for their input and approval. Finally, all new patients receive the patient satisfaction questionnaire to complete before checking out. A follow-up appointment is typically scheduled 4-6 months later, whereby the patient returns to the TMJ Institute to reassess their signs and symptoms based on the management plan recommended at the first appointment. A follow-up telehealth consultation is also accessible to patients, if deemed appropriate.

Describing the structure of the TMJ Institute provides context for how a functional interprofessional clinic operates and how the questionnaire, through which the study’s data was collected, is incorporated into the workflow.

Study methodology

This study is an observational retrospective case study with approval from the Indiana University Institutional Review Board (IRB Exempt - Protocol #: 14352). Data was gathered between October 2021-March 2024 from a de novo patient satisfaction questionnaire modelled after the 5-Point Likert scale (Fig. 1). Paper copies of the questionnaire were given to patients to complete anonymously after their first appointment. The completed questionnaires were stored safely in a locked cabinet.

The inclusion criteria were defined as patients seen at the TMJ Institute from October 2021-March 2024, and the exclusion criteria comprised children younger than 18 years old, patients for whom English is not their first language and patients who have not exhausted primary conservative treatment options, namely medication management, splint therapy, and physical therapy.

Positive Comments	Constructive Comments
<ul style="list-style-type: none"> • “Loved the central location, diversity of the team, engagement of the team. Appreciated the follow up process. Loved the 'Starbucks Experience' that the IUSD TMJ Institute gave.” • “This experience was much more thorough than I anticipated! Everyone was so kind and personable. I couldn't be more pleased with the care and thoughtfulness with which I was treated!” • “This was a very informative meeting. Coordinated medical group - this is preferred! Going to see various clinicians gets tedious and important medical issues are missed and scheduling time to meet. This is how all medical/dental treatment should function! Grade: A+!!!” • “All the clinicians that were in the room couldn't have been nicer. The experience was one I would tell everyone about!” • “I appreciate the time and thoughtfulness in the questions that were asked about this TMJ journey I have been on the last few years. All the doctors and interns were thoughtful in the exam process and made me feel like they wanted to help. Thank you!” • “Been with Dr. Matthews for a while but 1st visit to TMJ Institute. Phenomenal model that will really ensure comprehensive treatment. Everyone was great - can't wait to continue with the plan!” 	<ul style="list-style-type: none"> • “Suggestions: I would appreciate a feedback call to me when care is handed to another Dr. I would also prefer if the Institute team were familiar with cases even with new doctors on the team each week. I would have also liked to have been informed that I will be meeting multiple doctors at the appointment (overwhelming). I also think the final treatment plan should be finalized by Dr. Matthews.” • “There were a lot of doctors in the room, which I liked, but there were people asking questions from behind the chair which was a little awkward. I wish I could see who I was talking to, but I appreciated having multiple disciplinaries together at one time. Biggest frustration is with the Prosthodontics Department.” • “A large room would have been ideal, not because of number, but because it hurts my neck to turn very far for long periods (with providers behind me). Thank you so much!” • “Would love to see more availability. My original appointment wasn't until November but was able to attend due to a cancelation.”

Fig. 4. Selected patient comments.

The first section of the questionnaire determined how far the patient travelled for their appointment (Fig. 2). The second section had prompts following a 5-Point Likert scale format to assess patient satisfaction after their first appointment (Fig. 3). The third section allowed the patient to provide free text written comments about their experience (Fig. 4).

Results

A total of 93 questionnaires were distributed and a total of 84 were completed and returned. Patients travelled from less than one to over 100 miles to be seen at the Institute, with 43% traveling over 50 miles (Fig. 2). ‘Strongly agree’ was the most selected response for each prompt, followed by ‘agree.’ The exception was if patients preferred to meet with each clinician individually as ‘strongly disagree’ and ‘disagree’ was the most popular response. A total of 18% of patients disagreed or were neutral towards treatment progressing in a timely manner. Two patients strongly disagreed and disagreed that smooth coordination occurred between departments. One disagreed with whether the various treatment options were fully explained (Fig. 3). Examples of positive patient comments include “Very friendly and genuine,” and “I loved the ‘Starbucks Experience’ that the TMJ Institute gave.” More constructive comments indicated that having multiple doctors in one room can be overwhelming and that a larger room would have been appreciated so that all doctors are visible to the patient rather than behind them. 48% of patients completed the free text comments section. A total of 87% were positive, 13% were constructive (Fig. 4).

If a patient answered “N/A,” “I don’t know,” or left a designated prompt blank, these responses were counted as ‘neutral’ according to the 5-Point Likert Scale. Two questionnaires were discarded from the total due to the prompts being unintentionally answered incorrectly; for example, the patient had positive commentary in the written comments section, however ‘strongly disagree’ was selected for every prompt. Seven patients neglected to fill out the ‘Distance Travelled’ section.

Discussion

Patients travelled great distances to be seen at the TMJ Institute in hopes of improving their quality of life. Studies have shown psychological and physical ailments caused by TMD exacerbate anxiety, depression, insomnia, social impairment, and reduced working capacity resulting in lower quality of life.^{4,7} Due to the limited number of TMD-specific interprofessional clinics in North America, access to this kind of novel, specialised care is limited. The TMJ Institute’s mission intends to challenge this narrative by providing accessible and affordable care to patients in Indiana and beyond. This clinic model is both effective and reproducible; therefore, our study aims to encourage the expansion of, and access to, TMD-specific interprofessional clinics across North America.

The second part of the questionnaire revealed that the only category where ‘strongly disagree’ and ‘disagree’ were

most selected was whether patients preferred to meet with each clinician separately. This indicates that an interprofessional approach was preferred over a traditional, siloed healthcare model.^{3,4,5} Although ‘strongly agree’ was the most selected response, the few prompts that patients ‘disagree’ with indicate areas requiring improvement. Based on these data, the TMJ Institute intends to implement more streamlined systems for executing treatment plans, improving role clarity among providers and communicating more clearly with patients.

The comments section of the questionnaire demonstrated that patients diagnosed with TMJ dysfunction were highly satisfied with the interprofessional approach used at the Institute, as evidenced by 87% of the comments being positive. Our findings emphasise that positive patient satisfaction is an important factor in assessing the quality and efficacy of interprofessional, patient-centred models.

Conclusion

Considering the current climate of TMD diagnosis and management, the opening of the TMJ Institute as one of few functional interprofessional clinics for TMD in North America is both significant and timely. The founders and providers of the TMJ Institute aim to provide comprehensive, contemporary and collaborative care for all TMJ patients in Indiana and beyond. By combining the knowledge of experts in multiple healthcare disciplines, to applying translational research from the current scientific literature, the TMJ Institute strives to be the gold standard clinic model for the multidisciplinary management of patients with TMD through accessible, affordable and evidence-based care.²

Conflict of interest

We have no conflicting interests.

Funding

No funding.

Ethics statement/confirmation of patient permission

This study has been granted approval from the Indiana University Institutional Review Board (IRB Exempt - Protocol #: 14352). Informed consent not required as patients completed questionnaires anonymously (as per IRB approval, stated above)

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