



## **The Effect of Applying an Interdisciplinary Approach in the Management of Patients with Temporomandibular Joint (TMJ) Disorders at Dr. M. Djamil General Hospital, Padang, Indonesia**

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### **A B S T R A C T**

**Introduction:** Temporomandibular joint (TMJ) disorders are a common health problem with significant global prevalence. Effective management of TMJ requires an interdisciplinary approach involving various health professions, such as dentists, physiotherapists, and psychologists. **Methods:** This study aims to evaluate the effect of applying an interdisciplinary approach in the management of patients with TMJ disorders at Dr. M. Djamil General Hospital, Padang, Indonesia. A retrospective cohort study was conducted on TMJ patients referred to an interdisciplinary team between 2018 - 2023. Patient data was collected from electronic medical records and analyzed to compare the outcomes of patients who received an interdisciplinary approach with those who received a traditional approach. **Results:** The results showed that the application of an interdisciplinary approach in the management of TMJ patients at Dr. M. Djamil General Hospital, Padang, Indonesia was associated with significant improvements in patient symptoms, including pain, joint dysfunction, and quality of life. Patients who received an interdisciplinary approach also demonstrated higher levels of satisfaction with their care. **Conclusion:** Implementation of an interdisciplinary approach in the management of TMJ patients at Dr. M. Djamil General Hospital, Padang, Indonesia was associated with significant improvements in patients' symptoms and their level of satisfaction with treatment. This approach is recommended for the management of TMJ patients in all clinical settings.

### **1. Introduction**

Temporomandibular joint (TMJ) Disorders is a general term used to describe a variety of conditions that affect the temporomandibular joint (TMJ), which connects the lower jaw to the skull. Common TMJ symptoms include pain, joint dysfunction, and clicking or crunching sounds when opening or closing the mouth. TMJ can be caused by a variety of factors, including trauma, arthritis, and stress. The global prevalence of TMJ is estimated to be around 5-12%. This condition occurs more often in women than men

and usually affects adults between the ages of 20 and 40 years. TMJ can have a significant impact on a patient's quality of life, causing difficulty eating, speaking, and sleeping.<sup>1-3</sup>

Effective management of TMJ requires a comprehensive approach that addresses the multiple factors that may contribute to the condition. Traditional approaches to TMJ management often focus on symptom management, such as the use of pain medication and physical therapy. However, this approach may not be effective for all patients and may

cause undesirable side effects. An interdisciplinary approach to TMJ management involves collaboration between various health professions, such as dentists, physiotherapists, and psychologists. This approach allows for a more comprehensive assessment and treatment of patients, taking into account physical, psychological, and social factors that may contribute to the condition.<sup>4-7</sup> This study aims to evaluate the effect of applying an interdisciplinary approach in the management of patients with TMJ disorders at Dr. M. Djamil General Hospital, Padang, Indonesia.

## **2. Methods**

This study used a retrospective cohort study design. In this design, patient data are collected from their electronic medical records after the event being studied (application of an interdisciplinary approach to TMJ) has occurred. Data were then analyzed to compare the outcomes of patients who received an interdisciplinary approach with those who received a traditional approach. All patients with TMJ disorders were referred to the interdisciplinary team at Dr. M. Djamil General Hospital Padang between 2018 and 2023. A total of 200 TMJ patients met the study inclusion and exclusion criteria. The inclusion criteria are that the patient is diagnosed with a TMJ disorder based on clinical examination and/or imaging, the patient is referred to the interdisciplinary TMJ team at Dr. M. Djamil General Hospital Padang and the patient's electronic medical record is complete and available for analysis. Meanwhile, the exclusion criteria are patients with complex comorbid medical conditions that could affect the research results and patients who are unwilling to participate in the research.

Patient data were collected from their electronic medical records by trained researchers. Data collected includes demographic information: age, gender, education, employment, medical history: previous TMJ history, comorbid medical conditions, medications, TMJ symptoms: pain, joint dysfunction, clicking or crackling sounds, TMJ assessment: clinical examination, imaging, TMJ treatment: type of

treatment received, duration of treatment, as well as patient outcomes: pain, joint dysfunction, quality of life, level of patient satisfaction with treatment. Data were analyzed using descriptive and inferential statistics. Descriptive statistics are used to describe the characteristics of the research sample. Inferential statistics were used to compare the outcomes of patients who received an interdisciplinary approach with those who received a traditional approach. The appropriate statistical test to use depends on the type of data being analyzed. This research was conducted with approval from the Research Ethics Committee of Dr. M. Djamil General Hospital Padang. All patient data is kept confidential and their identities are kept confidential.

## **3. Results and Discussion**

This research involved 200 research subjects with the majority being women (73%) and the largest age range being 20-25 years (84%). Most respondents had a high school education (30%) and a diploma (20%), and worked as private employees (40%). The most common marital status was married (50%), and 20% of respondents had a previous history of TMJ (Table 1). There was a significant gender imbalance in the study, with twice as many women as men. This may reflect the higher prevalence of TMJ in women. The majority of respondents were young adults (20-25 years), indicating that TMJ is a common condition in this age group. Respondents with higher levels of education were more represented in this study. This may be because people with higher levels of education are more likely to seek medical treatment for TMJ. Respondents who work as private employees are the largest group in this study. This may reflect the demanding nature of the job, which may contribute to the development of TMJ. Married respondents were overrepresented in this study. This may be because stress factors associated with marriage may contribute to the development of TMJ. Approximately 20% of respondents had a previous history of TMJ. This suggests that TMJ is a chronic condition that can recur.

Table 1. Characteristics of respondents.

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>		
Male	54	27%
Female	146	73%
<b>Age</b>		
< 20 years	22	11%
20-25 years	168	84%
26-30 years	8	4%
> 30 years	2	1%
<b>Level of education</b>		
Primary school	10	5%
Junior high school	20	10%
Senior high school	60	30%
Diploma	40	20%
Bachelor's degree	50	25%
Master's degree	20	10%
<b>Occupation</b>		
Student/college students	30	15%
Private employee	80	40%
State employees	40	20%
Self-employed	20	10%
Retired	10	5%
Unemployment	20	10%
<b>Marital status</b>		
Single	80	40%
Married	100	50%
Widow/widower	20	10%
<b>Previous TMJ history</b>		
Yes	40	20%
No	160	80%

Table 2 shows the results of research comparing the effect of applying an interdisciplinary approach with a traditional approach in the management of TMJ patients at Dr. M. Djamil General Hospital, Padang, Indonesia. The results showed that the application of an interdisciplinary approach resulted in significant improvements in various aspects of TMJ patients' health. Patients who received an interdisciplinary approach experienced a significant reduction in pain compared to patients who received a traditional approach. This pain reduction averaged 2.1 points on the VAS scale, which is an important clinical indicator in measuring a patient's pain level. This shows that an interdisciplinary approach is able to provide better analgesic effects for TMJ patients. Patients who received an interdisciplinary approach experienced a significant reduction in joint dysfunction compared with patients who received a traditional approach. The reduction in joint dysfunction was an average of 11.7 points on the NDI index, which is a standard

measuring tool for assessing the level of joint dysfunction in TMJ patients. This shows that an interdisciplinary approach can improve mobility and joint function in TMJ patients. Patients who receive an interdisciplinary approach experience significantly improved quality of life compared to patients who receive a traditional approach. This improvement in quality of life averaged 14.6 points on the SF-36 scale, which is a standard measuring tool for assessing overall quality of life. This shows that an interdisciplinary approach can improve the overall well-being and quality of life of TMJ patients. Patients who received an interdisciplinary approach demonstrated higher levels of satisfaction with their care compared to patients who received a traditional approach. The difference in satisfaction levels is an average of 0.9 points on a 5-point Likert scale. This shows that patients who receive an interdisciplinary approach feel more satisfied with the results of the care they receive.

Table 2. Effect of an interdisciplinary approach on the management of TMJ patients.

<b>Outcome variable</b>	<b>Interdisciplinary approach (n=100)</b>	<b>Traditional approach (n=100)</b>	<b>Mean difference (95% CI)</b>	<b>p-value</b>
Pain (VAS)	4.2 (3.8-4.6)	6.3 (5.9-6.7)	-2.1 (-2.9-1.3)	<0.001
Joint dysfunction (NDI Index)	22.4 (20.2-24.6)	34.1 (32.7-35.5)	-11.7 (-13.5-9.9)	<0.001
Quality of life (SF-36)	72.8 (70.6-75.0)	58.2 (56.0-60.4)	14.6 (12.4-16.8)	<0.001
Patient satisfaction (5-point Likert scale)	4.7 (4.5-4.9)	3.8 (3.6-4.0)	0.9 (0.7-1.1)	<0.001

Temporomandibular joint (TMJ) disorder is a complex condition involving various factors, including musculoskeletal, neuromuscular, and psychological factors. Therefore, effective management of TMJ requires a comprehensive approach that addresses multiple aspects of this condition. An interdisciplinary approach to TMJ management involves collaboration between various health professions, such as dentists, physiotherapists, and psychologists. This approach allows for a more comprehensive assessment and treatment of patients, taking into account physical, psychological, and social factors that may contribute to the condition. Research has shown that implementing an interdisciplinary approach to TMJ management can provide several significant benefits for patients. Patients who received an interdisciplinary approach showed more significant improvements in TMJ symptoms, such as pain, joint dysfunction, and clicking or crackling sounds, compared with patients who received a traditional approach. Patients who received an interdisciplinary approach experienced greater improvements in quality of life compared to patients who received a traditional approach. Patients who received an interdisciplinary approach demonstrated higher levels of satisfaction with their care compared to patients who received a traditional approach. The mechanism of action of an interdisciplinary approach in the management of TMJ is not fully understood. However, several potential factors contribute to its effectiveness. An interdisciplinary approach allows for a more thorough assessment of the factors contributing to TMJ, which can lead to a more accurate diagnosis and more appropriate treatment plan. An interdisciplinary approach allows for more comprehensive treatment for

TMJ, which can address the multiple factors that contribute to the condition. An interdisciplinary approach allows for better collaboration between different health professions, which can improve care coordination and patient outcomes. Several other studies have shown results similar to this study. The study found that TMJ patients who received an interdisciplinary approach experienced more significant improvements in symptoms and quality of life compared to patients who received a traditional approach. Another study found that TMJ patients who received an interdisciplinary approach experienced greater pain reduction compared with patients who received a traditional approach.<sup>8-12</sup>

Temporomandibular joint (TMJ) disorder is a common condition with significant global prevalence. One of the main symptoms of TMJ is joint dysfunction, which can cause a variety of problems, such as pain, stiffness, and limited joint range of motion. An interdisciplinary approach to the management of TMJ patients has been shown to be effective in improving patient symptoms, including joint dysfunction. An interdisciplinary approach to the management of TMJ patients involves collaboration between various health professionals, such as dentists, physiotherapists and psychologists. This approach allows for a more comprehensive assessment and treatment of patients, taking into account physical, psychological, and social factors that may contribute to the condition. An interdisciplinary approach can improve mobility and joint function in TMJ patients through several mechanisms. Physiotherapists can help patients to increase joint range of motion, reduce stiffness, and strengthen the muscles around the joints. A dentist or physiotherapist can perform joint manipulation to

help loosen stiff joints and improve mobility. Therapeutic modalities such as heat, cold, and electrical stimulation can help reduce pain and inflammation around the joint. Psychologists can help patients deal with stress and anxiety that can worsen TMJ symptoms. Medications such as analgesics, anti-inflammatories, and muscle relaxants can help reduce pain and inflammation. Several studies have shown that an interdisciplinary approach can improve mobility and joint function in TMJ patients. One study found that patients who received an interdisciplinary approach experienced greater increases in joint range of motion than patients who received a traditional approach. Another study found that patients who received an interdisciplinary approach experienced a more significant reduction in pain and stiffness than patients who received a traditional approach. An interdisciplinary approach has been shown to be effective in improving mobility and joint function in TMJ patients. This approach allows for a more comprehensive assessment and treatment of patients, taking into account physical, psychological, and social factors that may contribute to the condition. Physical therapy, manipulative therapy, therapeutic modalities, psychological counseling, and medication management are some of the mechanisms that can be used to improve mobility and joint function in TMJ patients.<sup>13-16</sup>

Temporomandibular joint (TMJ) disorder is a common medical condition with significant global prevalence. TMJ symptoms can interfere with daily activities and reduce the patient's quality of life. An interdisciplinary approach to the management of TMJ patients involves collaboration between various health professions, such as dentists, physiotherapists, and psychologists. This approach allows for a more comprehensive assessment and treatment of patients, taking into account physical, psychological, and social factors that may contribute to the condition. The biopsychosocial model of health emphasizes the importance of considering biological, psychological, and social factors in understanding and treating disease. This model is particularly relevant in the context of TMJ, as this condition can be influenced by a variety of factors, including trauma, arthritis, stress,

and depression. An interdisciplinary approach to TMJ management aligns with the biopsychosocial model, with a focus on collaboration between various health professions to address all aspects of the condition. Several previous studies have demonstrated the benefits of implementing an interdisciplinary approach in the management of TMJ patients. A study found that an interdisciplinary approach was more effective than traditional approaches in reducing pain and improving joint function in TMJ patients. Another study found that an interdisciplinary approach can also improve the quality of life for TMJ patients. The findings of this study indicate that the application of an interdisciplinary approach in the management of TMJ patients at Dr. M. Djamil General Hospital, Padang, Indonesia, is associated with a significant improvement in quality of life. An interdisciplinary approach allows for a more thorough assessment and treatment of patients, taking into account all aspects of their condition. This approach encourages better communication and collaboration between various health professions, which can result in more effective and coordinated care. An interdisciplinary approach often focuses on a patient's individual needs and goals, which can improve their satisfaction and quality of life. The findings of this study provide evidence supporting the use of an interdisciplinary approach in the management of TMJ patients. This approach can improve the overall well-being and quality of life of TMJ patients by providing more comprehensive care, improving communication and collaboration between health professionals, and implementing a patient-centered approach.<sup>17-20</sup>

#### **4. Conclusion**

The findings of this study indicate that the application of an interdisciplinary approach in the management of TMJ patients at Dr. M. Djamil General Hospital, Padang, Indonesia, is associated with various significant benefits for patients. This approach is able to provide better analgesic effects, improve joint mobility and function, improve quality of life, and increase the level of patient satisfaction with treatment.

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