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Exploring mental health experience in individuals living with temporomandibular disorders

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Abstract

Despite the evidence supporting deteriorating mental health because of temporomandibular disorders (TMDs) conditions, there is limited evidence of TMD patients' experience regarding how their mental health is affected by the disorders. As a sequence of these conditions, TMD patients suffer from physical and mental complications, not to mention the loss of food enjoyment. In this study, we aim to explore TMD patients' lived experiences who had changed their dietary habits concerning their mental health. Six participants were interviewed to answer open-ended questions during semi-structured interviews regarding their mental health experiences with TMD-related food routine changes. These interviews were held face-to-face with the participants and were recorded and transcribed. Interpretive phenomenology was used to organize and analyze the narrative data collected. We identified three themes amongst participants who have concerns about their mental health that included (i) depraving of favored food, (ii) rethinking in all aspects of their life, and (iii) fear of future. For each of these themes, the participants' mental health was affected by TMD's pain due to diet changes, consequently, lifestyle, daily activities, and hopefulness for a cure. The participants' mental health was mostly unaddressed by their healthcare providers. Our findings highlight the need for healthcare providers to establish nutritional guidelines for TMD individuals at risk of psychological and physiological comorbidities. Also, the need for healthcare for intervention programs to treat people living with chronic TMD pain.

Keywords

Temporomandibular disorders, nutrition/diet, phenomenology, mental health, experience.

Introduction

Temporomandibular disorder (TMD) is a group of clinical conditions that affect the masticatory muscles, the temporomandibular joint (TMJ), and associated structures such as the capsule, articular disc, and retrodiscal tissue.¹⁻³ These conditions are characterized by chronic pain, dysfunction of the masticatory system, and limited movement of the lower jaw.^{1,4} The two most common categories of painful musculoskeletal TMD are arthralgia and myofascial pain (MP).⁵⁻⁷ Arthralgia, localized to TMJ, includes conditions that originate from and cause pain.^{5,8} Typical jaw movements associated with chewing food may exacerbate TMD pain.^{9,10} MP is considered a source of discomfort in individuals with regional pain symptomatology.^{11,12} The prevalence of MP is around 30% in patients with local pain complaints seen in primary care clinics and up to 85% in patients seen at specialized pain management centers.^{13,14} TMD accounts for 25% of the population, with up to 11% in chronic pain.¹⁵ TMD ranks second among common chronic pain conditions with a prevalence of 5% to 12% in the general population; only musculoskeletal lower back pain has a more significant majority.^{4,16-18} However, TMD's etiology is still not well understood even though its treatment's annual

cost doubled, amounting to four billion dollars in the last decade.¹⁶ TMD's poorly understood causes add complexity to its treatment, including physical, pharmacological, cognitive-behavioral, and dietary therapies.⁷ Approximately 50% of patients who suffer from TMD look for professional dental or psychotherapeutic care. Nearly 33% of them will continue to suffer from moderate to severe levels of pain, disability, and psychological distress independent of the treatment received.^{19,20}

As a consequence of the painful TMD, TMD patients are forced to choose softer foods that require less chewing to minimize their pain.^{7,21} Thus, TMD patients tend to focus on the texture of their food rather than on its nutritional benefits, which leads to health issues such as weight gain, weight loss, loss of energy, and mental health issues.²²⁻²⁶

TMD pain negatively affects TMD patients' mood and mental health. TMD pain reduces life enjoyment and diminishes a desire to attend social activities such as going out to restaurants and family dinners.²⁷ Mental health includes psychological, emotional, and social well-being. It influences how we feel, conceive, and behave. It also helps control how we deal with stress, relate to others, and make choices. Mental health is crucial at all life stages, from

childhood through adulthood.^{29, 30, 32} Mental health is influenced by environmental effects³⁰ and nutritional status, which is known as a measurement of how an individual's physiological need for nutrients is being met by their dietary patterns and choices.³¹

Food and drink consumption (since ancient times) has been considered to affect mental health and mood, ranging from increased happiness, relaxation, alertness, contentment, energy, relief of sadness, and anxiety to feelings of guilt and failure.²⁸ Eating whole foods is preferable to capsules of nutrients, and that real food is not amenable to double-blind experimental conditions because aroma, taste, and mouth sensations are giveaways.²⁹

Unfortunately, healthcare providers rarely devote time to understanding these patients' total mental suffering.^{22,33} Providers mainly focus on treatment's medical aspects while unaware of the functional, emotional, and social issues contributing to personal suffering.^{22, 33, 34}

As compassionate researchers of human experience, we are interested in learning from people who have had experiences that differ from our own. Appropriately researched, interpreted, and written research may provide valuable insight regarding the experience of change in dietary preferences due to TMD pain, enabling greater sensitivity of healthcare providers, clinicians, educators, and others for their patients.³⁶ TMD patients' experiences are pervasive in all aspects of their life, such as socially, emotionally, and physically.^{37, 38} Considering various aspects of patient experience, one can assess how patients receive care that is respectful of and responding to individual patient preferences, conditions, and values.³⁹ Patient experiences focus on individualized care and tailoring services to meet patient needs and engage them as partners in their care.³⁵ Patient experience improves patients' health care experiences means more than just providing better clinical care. Assessment of patient experience and other elements like the safety of care and effectiveness is essential to providing a clear picture of health care quality.

Therefore, understanding patients' suffering might help healthcare providers become more aware or empathetic about their patients' experiences. This study is intended to provide healthcare providers with insight into the mental suffering that TMD patients experience.

Method

Research Approach

An interpretive phenomenology study approach was used to explore TMD patients' lived experiences with changed dietary habits concerning their mental health.^{40, 41} Interpretive phenomenology has a deep philosophical

foundation and is used in qualitative research as a tool by which we can gain perspective into the lived experiences of our daily lives.⁴¹⁻⁴⁴ Phenomenological researchers endeavor to understand how individual participants, and participants as a collective, make sense of a given experience.⁴³⁻⁴⁵

Patient Recruitment

Participants were English-speaking, ≥ 18 years old with chronic TMD (confirmed by TMD specialist). They had self-reported changes in dietary habits and were recruited through referrals from specialists at the McGill Student Dental Clinic, the Jewish General Hospital, and the Montreal General Hospital in Montreal, Canada, between September and November 2017. Informed consent was obtained for each participant.^{43, 46} For the research population and sample size, we sought out a sample size of 6 participants.⁴³ In phenomenological research practice, the participants' size can be situated between 2 and 25.⁴⁸⁻⁵⁰ The interpretive phenomenological approach in human science does not base its sample size on the number of participants but instead on the availability of suitable participants.^{43, 46} Smith et al. emphasize that "IPA studies are conducted on relatively small sample sizes, and the aim is to find a practically homogeneous sample, so that, within the sample, we can examine convergence and divergence in some detail." (p3).⁵¹ The selection of these participants should symbolize the homogeneity that exists among the participants' sample pool. The fundamentals of conducting an IPA research study with homogenous participants are to capture a superior gauge and a 'better understanding' of the overall viewpoints among the participants' 'lived experiences.' "It is essential that all participants have [similar lived] experience of the phenomenon being studied." (p155).⁵⁰

We seek out the means to understand the meaning of these phenomena to help make sense of the world. So, perhaps as a research methodology, phenomenology requires a relationship to the interpretative to accomplish this difficult task, "the phenomenological reduction teaches us that full reduction is impossible, that full or final descriptions are unattainable" (p.18).⁴⁷ As a qualitative research tradition, a phenomenological analytical approach like IPA intends to investigate and interpret the 'lived experience' of any research participant with the desired objective to understand the experience from the participant's perspective and try to amplify it.⁴⁹ As a research methodology, phenomenology reaches out for a way to better understand a phenomenon in a lifeworld. That being-in-the-world is not only a set of detailed and accurate descriptions of that engagement alone. For this study, we were not concerned with generalizability but rather the transferability of findings to healthcare systems in similar political, social, and cultural contexts.⁴³

Table 1. Interview Guide

1. Tell me about your experience living with TMD (jaw pain) and what it means for you?
2. Have you had to change your diet because of this condition?
3. Could you explain how you have changed your eating and drinking practices and the duration of these changes?
4. Have you stopped eating any foods because of your pain?
 - a. If yes, which foods? And how do you feel regarding this change?
 - b. If you could, would you want to add these foods back into your diet?
5. How has your pain affected your general health?
6. How do you feel regarding these problems?
7. Have you received any treatment for these conditions?
8. Has your pain affected other aspects of your life?
9. Did your doctors understand about your suffering? What advice did they offer?
10. How is your outlook for your future?
11. Is there anything else you would like to add to this topic?

Data Collection

Data were collected through individual semi-structured qualitative interviews conducted by a single interviewer.^{43,52} An interview guide consisting of open-ended questions was used to obtain a rich and detailed account for each participant (Table 1).⁵³ The open-ended format allowed patients to further detail and express issues that were not otherwise specified by the interviewer's questions.⁵⁴ All interviews were conducted in person at the Faculty of Dentistry (McGill University) and recorded in a private office.^{55,56} No field notes were taken during the interview to focus on the participants' responses. At the beginning of each interview, participants were welcomed and made comfortable to establish a relaxed atmosphere where they could converse freely. Interviews began with addressing less sensitive topics (i.e., introductions) and gradually focused on questions pertaining to the research objective (i.e., experiences with TMD, digestion, eating habits, etc.).⁵⁴ Depending on the participants' responses, interview questions were adapted to remain relevant to their experiences with TMD and nutrition.⁵⁴

Data Analysis

The strength of phenomenological research lies in its flexibility to remain adaptive to the interviewed individual's experience. Therefore the data analysis process is not strict, procedural, or rule-oriented.^{57,58} Accordingly, we adopted the Van Manen "way towards human understanding" approach to data reduction and interpretation.⁵⁹ Descriptions gathered throughout the interview process were familiarized and interpreted together with non-verbal clues (ex., sighing, smiling) observed throughout the interview process. Similar interview excerpts were grouped, and key recurrent themes were identified. Data were compared within and between participants, and this process continued until no novel themes could be identified.

Ethical Considerations

Ethical approval was obtained from McGill University's Research Ethics Board Office, Montreal, Canada. All participants consented to a confidentiality agreement. Pseudonyms for participants' names were used in the study.

Table 2. Participant Demographics

Participant ID	Age (years)	Sex	Residence	Level of Education	Occupation
Respondent 1	51	Male	Montreal	Ph.D.	Student
Respondent 2	22	Female	Montreal	Undergraduate Student	Student
Respondent 3	39	Female	Montreal	Master	Massage Therapist
Respondent 4	29	Male	Montreal	Master	IT Advisor
Respondent 5	25	Female	Montreal	Bachelor	Music Teacher
Respondent 6	64	Female	Montreal	Master	Retired

Findings

A total of 6 participants, four females and two males, with a mean age of 45 years (range: 25-64 years), participated in this study (Table 2). Participants resided in Montreal and had varying levels of education. All participants had undergone physiotherapy to reduce tension in their facial muscles and reduce pain, and some were on medications, including antidepressants, painkillers, and anti-inflammatory drugs. Through our series of interviews with these participants, we recognize that participants have mental health concerns. These themes are constructed to three themes that captured the lived experience of TMD patients regarding their mental health (i) deprivation of favored food, (ii) rethinking in all aspects of their life, and (iii) fear of future.

The participants confronted several challenges while living with TMD. These affect their quality of life, which included concern for their declining health experienced due to changes in their diet and subsequent feelings of disappointment, upset, anger, and frustration. The implications of nutritional changes negatively affected their mental health in general.

Deprivation of favored food:

Although Respondent 1 loved food, he was angry because he lost his enjoyment of eating, personally and socially. He also showed his displeasure regarding the "fiber substitutes," which he reportedly did not work in his case. He described his situation as a "vicious circle":

If I go in social life to have dinner or lunch or stuff with friends, and if I have pain, I can't eat what they eat. So, I have to ask like for softer things.... And sometimes I would like to eat. I like meat very much. But I can't eat it, so I need to eat minced, but minced meat is good only with sauce.... I liked very much to eat dried figs. Yes, and celery and celery buttons. But now I can't just because of this problem, and I had this (orthodontic brackets). I can't bite.... I am

angry. I feel angry [because I can't eat meat]; it's a vicious circle. I am angry, and I don't drink. I don't drink at all. I don't use drugs... I like food, and I crave food... I like eating... I like the taste... I like all the things... I think food is a social equalizer no matter what country, or this is something that we can all agree on. No matter from any, a terrorist and non terrorist will agree. They will agree on the food part. And I think having a lot of food places and food meetings will make a better world, actually, because that's something that we can really make.

In regard to the fiber substitute, he was recommended to take, he said:

I don't think it's really working, and it's awful.

Respondent 2 explained in detail her feelings of loss in terms of enjoying her favorite foods, especially with her friends. She also expressed the need to have more to eat, which in turn increased her stress. She used the terms "bad, rough, and frustrating" to express her feelings related to pain:

I haven't been eating anything that's too crunchy. So, I like carrots and a lot of vegetables that are crunchy, I've had to take out of my diet or alter them, like cook them or something like that. No more pizza, which is the hardest part. Drinking hasn't changed all that much, although I was told not to drink coffee anymore because it's inflammatory. So, I have been suffering. Not drinking coffee but eating-wise. It's mostly just the change of the diet and the duration of eating. That's been frustrating.

Respondent 3 experienced similar issues of being deprived of her favorite foods:

It's more about these. I love dry bread because it's easy on my stomach to digest. But there is certain bread I don't eat anymore, like rye bread that is a little harder with the rye or nuts. I don't eat as much nuts because it's a lot of crunching I've had moments where I just don't eat just because I'm in pain. The pain grows even more, so

I just skipped meals, which is not good. But I mean, you know... Oh yeah, I love nuts. Yes, and I love crab, and I won't have it. I love anything crunchy, and I a lot of crunchy things I won't have.

Respondent 4 and Respondent 5 were in the same situation with regards to feeling deprived of their favorite foods. Respondent 4 said:

I was fine, but now it's started again. So again, I'm being forced to change it again to food that is soft. You know, no nuts, no steak meat... Yes, I have stopped eating meat. You know, like raw red meat. You know I eat like fish or ... really nicely cooked chicken in smaller pieces. So, no steaks, no burgers, not even pizza. Yeah, you know these are really good food you know tasty food. I would love to get those back into my diet.

Respondent 5 shared her sadness of missing certain foods:

So, I do get pain when I eat hard foods or just steak or very hard candies or chewing gum. [So, I don't like that hard food anyway....] So, yes, I have a problem. I kind of completely stopped eating steak. It's sad. I like to eat somethings like steak and hard food. Or something like a hot hard shell. I like taco shells, sometimes very hard. So, it's sad that I do not really have them anymore. I just mainly avoid steak. Otherwise, it's pretty much fried like chicken and fish. I cut it into small pieces.

Respondent 6 became accustomed to soft foods such as smoothies as the best solution when she had pain. In sharing her story, she explained that she had to be ready for the pain, it was inevitable, and she needed to be prepared. For her, it was learning to live with a chronic condition:

So, in case of an emergency, I will manage to make myself a good smoothie... I always have vegetables and fruits in the freezer.

Respondent 2 continued by stating that this has also affected her socially:

I feel kind of bad because I miss a lot of foods that I used to eat. And it's hard to like watching your friends eat pizza and other food so it really... I would say yes, a lot of effects socially ... sure. You can't really go out to eat anymore as often. And if you do, you're really restricted on what you eat.... I have been eating a lot softer food like you heard apple sauce, which I never really ate that much before. So, I guess it is kind of rough, Yeah.

All the participants showed a strong desire to return to their favorite foods and shared that they considered missing these foods as more loss in their lives. To the question, "would you want to add this food back into your diet," participants replied:

Yeah. Yeah definitely ... but I like to have it if I can. Yes. Oh yeah, I love crunchy food... Yes, definitely.

Rethinking in all aspects of their life

Respondent 4 was forced to rearrange most things in his daily life, ranging from changing components of his meals to booking specific restaurants that could adapt to his dietary needs. He also showed his readiness to adopt any solution to relieve the pain caused by eating:

It is kind of frustrating. For sure, it is frustrating, but I accept the fact that I am in the problem that's started. I have to do whatever it takes so that I can get better because it's a constant pain, and I don't; obviously, nobody likes to live with it. So, you know, I'm going to make whatever changes and do whatever it takes to kind of suppress it, manage it. So that's what I'm going through. So, maybe later I want to try and control.... I try to balance it in other ways. You know, I try to eat food that is equally rich in protein.... and later on, socially if I'm meeting with some other people I have to go toward, you know, to have a steak or something and I can't have that. I'm having a salad. So, yeah ... I hope that I can manage it. You know I don't get it. Sometimes if people say that you want to go out, maybe it's, you know, I have to accept that it may never go away, but I can learn to manage it. Like, reduce or suppress it as much as I can. So that's what I feel.

Respondent 6 described her experiences, permeated with caution in its details, through feelings of sadness and brokenness as she handled many decisions needed to cope with the chronic pain:

It is more about the interpersonal relationships that it would entrench my freedom like I have to be careful about how I will speak up or when I teach. I have to learn to cope with it. That is really like when I have a flare. I really have to say, okay, if I have to teach that day, I have to manage to get my class differently and organized differently.

Respondent 3 also was affected mentally, and she was not satisfied with her condition that irritated her. She stated that she had to think about everything constantly, which led to exhaustion and affected her personality:

You can't focus, you can't concentrate, and obviously, my quality of life is affected ... [like] my personal relationship with my boyfriend because I get irritated and he doesn't understand.... He wants to sit down and have a nice meal, and I'm, like, but I'm not hungry because the pain is bothering me. You know I just don't feel like eating. The pain is sometimes unbearable... it's frustrating. It affects my hearing, the buzzing. It comes and affects all my scapular muscles, and you feel like the pain sometimes goes through in deep lines. Why?... I take care of myself. I eat well. I continue studying all the time, and I feel like I can't do anything. So, yeah, it's the lifestyle.

She said that TMD pain has affected her thinking and has made her question how she views herself:

It has affected my well-being, my thought process, how I think I'm less of a person, which I'm not. I understand that. Yeah, I understand that, but when something is not working, when it only loses part of your health that you realize that it's that important. And this, unfortunately, affects me a lot on all kinds of things that I

do... So, I'm not crazy because all these years I'm like, oh, it's something else. It's just stress, it's just this, just that, and the grinding that probably doesn't help TMJ either. So, I don't know; everything is correlated to each other.

Fear of future

For many of the participants, negative feelings reflected a pessimistic view of their future, increased by the burden placed on them by their physical pain. Respondent 1 described the repercussions of his experience on his psyche:

I am angry. I feel angry. So, the outlook for the future realistically it's not very bright, but I hope it is a very good motivator.

Respondent 2 shared that she was scared of her disease's prognosis and what will happen in the future, especially as she is young and lacks information about what will further exacerbate her jaw pain. This lack of information and uncertainty caused her mental health to suffer. When speaking about her future, she said:

Right now, not so great.... I would say if anything it's frustrating, is the word I would use because I'm like I'm only 22 years old and to be having this kind of pain. Eating is just kind of discouraging because I feel like as I get older, it's going to get worse. I just don't understand anything that's happening, and I don't know if it's going to get worse and how much worse. I don't know about these things personally. And you know things can be a little bit intimidating because everything always tells you to have cancer.

Respondent 6 wonders and worries about what will happen in her future:

I don't know. So far, now I can manage. I still give a class in the fitness gym, testing. I still swim and give swimming classes, but for how long? I have a problem with my hands and to clean my teeth, but at least I take time to do it. But as soon as I can't be able to do this myself, who can do it for me?

Respondent 5 was upset and annoyed during the interview about the implications of TMD. She shared that she felt hopeless and had lost motivation in her life:

Health, if you're even talking about mental health, I would feel not really motivated, and always you know. Yeah, also because of the medicine, I'm really just not motivated to do anything. I was a very active person, and now I just feel like relaxing. And then, so I'm not as active as before... I definitely feel sad. Also, I'm getting bigger and bigger and fatigued. Yes, it's, yeah, my life has changed a lot. Well, the problem has changed in my life pretty much sad. But I'm still trying to work on it. And if there's any treatment or, like you know, just a new way of dealing with this TMD, I'm ready to try it.

Respondent 3 feels an overall decline:

In terms of mental power and energy, all this is declining... I would say it is not as good, and general well-being mentally is not as good either because you're constantly thinking, I need it. Even when you're not thinking of it, subconsciously, you're constantly taken aback because of this, so everything you want to do... some days you think there's nothing to be done. You just want to crawl into a ball and stay under your sheets, under dark sheets, not white sheets, dark, and just forget about the world, you know.

Discussion

This study's findings provide insight into the lived experience of six TMD patients who have changed their eating habits due to TMD-related pains. We have identified that the participants described various psychological complications that arose and provided us with insight into how the quality of living is impacted in these patients. Many of these complications could be mitigated by appropriate education about alternative diets that are accessible to the patients; however, in many cases, healthcare providers do not provide sufficient information to ensure their patients are informed and capable of actualizing these changes.

Oral health specialists use several indicators to identify difficulties with mouth opening, biting, and chewing in individuals with TMD, including the Manchester Disability Scale and Kurita's Score of Chewing Ability.^{21, 60, 61} Durham et al. (2011) have suggested using a TMD-specific Oral Health Impact Profile tool that contains questions on the eating-related quality of life.⁶² However, clinicians have no validated measures to assess diet and nutritional status or eating-related quality of life in TMD patients.²¹ For example, there are no patient assessment tools to address the scope of eating and beverage consumption issues that patients with TMD disorders are faced with.²¹

The participants' mental health was affected by TMD pain due to lifestyle changes, daily activities, diet, and hopefulness for a cure. The participants expressed feeling sad and pessimistic about being deprived of their favorite foods and needing to substitute these with less satisfying food. They spoke of craving particular foods that they were no longer able to eat or, conversely, no longer wishing to eat. Furthermore, due to developing chewing activity changes, the digestion process, weight, and muscle fatigue resulted in decreased engagement in simple tasks like talking or smiling, which consequently negatively affected their social lives and well-being. Feelings of loss and depression were increased in the participants.

These findings support the literature that currently exists wherein individuals' quality of life and mental health are affected by reduced food intake ability.^{63, 64} Changes in participants' diet caused by TMD pain affected every

aspect of their lives. As they rethink their entire life while trying to cope with the pain on their own without sufficient professional support, they are not in a position to live their lives as they had previously. Pain and motor activity (mastication) are influenced by psychological factors and can manifest in stress and depression.²⁵

Some of the participants in this study have come to accept their painful TMD conditions. This outcome reinforces the findings from Italia's work that showed that some participants reacted to their chronic pain condition by acceptance. In contrast, others ask why they must suffer such multifaceted pain.⁶³ However, some of the study participants expressed being hopeful, which contradicts Italia's finding that participants in the same conditions lived without hope. Additionally, some participants live with an uncertain future, which generally affects their lives, which contradicts Eaves et al.'s finding that TMD patients are at risk of a previously experienced level of pain, but they are not at risk of becoming too sick or having an unknown future.⁶⁵

The outcome has shown that TMD patients need to seek out programs to help in terms of addressing their mental health concerns before they become too distraught. This care could be through psychological or social interventions from specialists to improve their quality of life. The findings inform healthcare providers about the need for intervention programs to treat comorbid physiological and psychological concerns resulting from having a TMD diagnosis and enduring treatments. These comorbid conditions affect the gastrointestinal (GI) system, especially constipation, and the musculature system, thereby diminishing mental health and overall quality of life.^{26, 66} These findings also emphasize the importance of managing TMDs with a multidisciplinary approach, which means that dentists, psychiatrists/psychologists, physiotherapists, and nutritionists cooperate in designing and applying a successful therapeutic strategy for these conditions.⁶⁷ The study can improve health policy and managerial practices, as the findings suggest an urgent need for an integrated care team at the policy level for the clinicians on such a team will be compensated for their services.

Limitation of this study

The findings may not be generalizable to other societies with political, social, cultural, and healthcare systems different from the one in Quebec. Nevertheless, if there are similarities between the Quebec healthcare system and those of other countries or provinces, our findings may be transferable to their contexts. Additionally, the study focused on patients' perspectives and experiences; therefore, this study did not address healthcare providers' perceptions and opinions. Further research could explore

dentists' and healthcare providers' views to gain their insights about this topic of concern.

Conclusion

Our findings have highlighted the need for healthcare providers to establish nutritional guidelines for individuals at risk of physiological and psychological comorbidities that arise throughout the course of TMD disorders and treatments. In particular, healthcare providers should focus on effective communication and awareness of TMD-related complications to support their patients—also, the need for healthcare for intervention programs to treat people living with chronic TMD pain. Future directions include examining the prevalence of mental health amongst the TMD population, informing healthcare professionals about the association between TMD and mental health, and developing novel strategies to mitigate complications arising from TMD.

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