Complementary and Alternative Therapy Use by Patients with Myofascial Temporomandibular Disorders

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Aims: *To examine the prevalence and predictors of complementary and alternative medicine (CAM) use among patients with temporomandibular disorders (TMD), prior to their first treatment with an intraoral splint.* ***Methods:*** *Sixty-three women with a diagnosis of myofascial TMD, and who had never been prescribed an intraoral appliance, reported on their use of CAM and other treatments for their facial pain. In addition to providing a comprehensive symptom history, participants completed a 2-week daily diary in which they described the nature of daily efforts to reduce their facial pain.* ***Results:*** *Although more than half of all participants had not sought any prior treatment for their facial pain, 22.2% had received CAM treatment. The only single type of treatment more commonly used than CAM treatment was medication (28.6%). The most common type of CAM treatment was relaxation therapy (12.7%), followed by chiropractic treatment (9.5%). Although pain duration, pain severity, or mood did not predict CAM use, users were significantly more likely to report work or social disability associated with their facial pain and were more likely to report onset associated with an accident. CAM users were more likely than non-users to employ multiple pain reduction strategies over the 2-week daily diary report, including prescription medication use.* ***Conclusion:*** *A sizeable minority of women with myofascial TMD report CAM treatment for their pain, even prior to an initial treatment with an intraoral splint. Since empirical reports have not adequately demonstrated their safety or efficacy, there is a need for controlled clinical trials evaluating the utility of CAM treatments for TMD.*

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Complementary and alternative medicine (CAM) is the term used to describe a diverse group of health-related treatments that are considered to be outside of conventional health care. Evidence from population-based surveys[1] shows that use of CAM therapies has been increasing, with 42% of the American public surveyed in 1997 reporting use of 1 or more CAM therapies. Despite numerous surveys [2–6] on the use of CAM therapy for various medical conditions, no known report to date has documented the prevalence of use of CAM therapies for patients with temporomandibular disorders (TMD).

Individuals with TMD suffer from a number of disorders affecting the temporomandibular joints (TMJs), masticatory muscles, and associated structures. TMD is accompanied by pain and/or dysfunction, with the majority experiencing facial pain.

It might be anticipated that TMD patients would utilize CAM therapy at relatively high rates. First, surveys of general population samples indicate that symptoms of chronic pain are significant predictors of the use of CAM.[7] Also, conventional therapies do not provide symptom relief for a sizeable subset of patients with TMD, and no broad professional consensus exists regarding the most effective treatments for these patients.[8]

In addition, TMD patients are unlikely to seek a single treatment provider for their pain.[9–11] Surveys document that they are more likely than those without TMD to receive a variety of forms of medical and dental care.[12] While such surveys suggest generally high health service utilization rates among TMD patients, no existing study has explored the use of CAM therapy among TMD patients.

The current pilot investigation is the first known examination of the prevalence of CAM usage among TMD patients. In addition to documenting the extent of CAM use, the investigation examines predictors of CAM use in TMD patients. It utilizes data gathered during the conduct of a randomized clinical trial evaluating intraoral splint efficacy for TMD. Since TMD patients who had previously used an intraoral splint were considered ineligible for the clinical trial, the current report documents the use of CAM therapy in a special sample of TMD patients who had not yet been treated with an intraoral splint for their myofascial face pain.

Intraoral splints are the most widely utilized modality for treating patients with myofascial TMD.[13] Somewhere between one eighth and one sixth of those suffering from TMD are reported to be treated with an oral splint in a given year.[14] Thus, documentation of any CAM use in such a sample may be interpreted as CAM use prior to the most common conventional therapy.

Materials and Methods

Subjects

The TMD subjects were patients attending an orofacial pain treatment service at the Oral Medicine Clinic at the University of Medicine and Dentistry of New Jersey. New referrals to the clinic were recruited, and referrals were received from dentists in the local community following mailings announcing a research study evaluating the efficacy of intraoral splints for TMD. All referred female patients received a comprehensive evaluation, including an examination for TMD.

Participating TMD subjects had to meet criteria for the myofascial subtype of TMD based upon the Research Diagnostic Criteria for TMD (RDC/TMD),[15] in which a facial pain complaint was accompanied by tenderness to palpation at 3 or more of 20 masticatory muscle sites. Patients also meeting criteria for other TMD such as osteoarthritis of the TMJ were not automatically excluded, providing that their chief complaint was pain (as opposed to clicking sounds or difficulty opening their mouth). If a potential subject met diagnostic criteria for additional comorbid TMD conditions, but the clinician determined that the primary pain complaint was of muscle origin, she was still eligible to participate.

Only women were enrolled, given evidence that rates of TMD, especially among those seeking treatment, are much higher among women than men.[16–18] Subjects were fluent in English, although English did not have to be their first language. They could not currently be undergoing orthodontic treatment or have ever worn an oral splint for treatment of their facial pain or bruxism.

Sixty-eight women were enrolled, and 63 completed all phases of the clinical trial component of the investigation. Of the 5 who did not complete the study, 4 withdrew. One additional subject was withdrawn from the study by the investigators when she displayed symptoms of a thought disorder. This individual was referred for psychiatric evaluation and treatment.

The average age of the 63 enrolled women was 33.7 years (standard deviation [SD] = 10.9). The average number of years of education was 14.4 years (SD = 2.2), equivalent to 2 years of college. Seventy-eight percent of the women self-identified their race as white. Average pain level at the start of the study was reported as 4.5 (SD = 1.8), assessed on a 0 to 10 pain intensity multipoint scale (where 0 indicates "no pain" and 10 indicates "pain as bad as it could be"). The average duration of pain at the start of the study was 5 years, with 30% of the participants reporting a duration of 1 year or less and 19% reporting pain for 10 years or more.

RDC/TMD

Three clinicians were trained to conduct orofacial examinations according to the RDC/TMD.[15] Periodic reliability examinations were conducted throughout the study, with perfect agreement established at the diagnostic level on the presence or absence of a diagnosis of the myofascial face pain subtype of TMD (Kappa = 1.0 across 27 reliability examinations; correlation of tender point counts among examiner pairs, $r = .89$).

Table 1 Prevalence of Other Therapeutic Modalities Reported by Patients (n = 63) with Myofascial TMD Prior to Intraoral Splint Therapy

Type of therapy	n (%)
No prior treatment	32 (50.8)
Medication	18 (28.6)
Relaxation therapy	8 (12.7)
Chiropractic	6 (9.5)
TENS	5 (7.9)
Injections	4 (6.3)
Stress management	4 (6.3)
Acupuncture	3 (4.8)
Counseling	3 (4.8)
Physical therapy	3 (4.8)
Biofeedback	3 (4.8)
Surgery	2 (3.2)

TENS: transcutaneous electrical nerve stimulation.

History

At the initial visit, in addition to recording demographic information, participants were interviewed regarding their symptoms and prior treatment of facial pain. Questions concerning prior use of specific treatment modalities for their facial pain, including CAM therapies, were asked. Prior to listing the specific treatments (see Table 1), participants were asked, "Before enrolling in this study, what other kinds of treatment had you received for your facial pain?" Thus, CAM treatment history reflects lifetime use of CAM therapy for TMD.

Participants were asked about date of pain onset; initiating factors; and severity of worst, average, and least amount of pain in the 6 months prior to participation (rated on a 10-point scale, where 0 = "no pain" and 10 = "pain as bad as it could be." Similarly, average mood in the past 6 months was rated on another 10-point scale, where 0 = "best possible mood" and 10 = "worst possible mood." To address the extent of functional impairment due to facial pain, they were also asked about the number of days in the last 6 months that they were kept from their usual activities because of facial pain. In addition, they were asked to indicate the extent to which facial pain interfered with their activities in the last 6 months, using another 10-point scale, anchored by 0 = "no interference" to 10 = "unable to carry on any activities."

Pain-Reduction Strategies Diary

Subjects were given a daily diary booklet (see below) that they were instructed to complete on a nightly basis during the first 2 weeks of the study. In addition to recording their pain and mood on a daily basis, subjects recorded whether they had used any 1 of 10 specific strategies to try to reduce their facial pain on that day.

To ensure compliance during the daily diary phase of the study, subjects were required to telephone the study office's answering machine each night before retiring, and verify that they had completed their diary for the day. Overall, compliance levels were extremely high, estimated at more than 80% when aggregated over all subjects and days. However, if a subject enrolled in the study's diary phase did not leave a verification message, project staff contacted the subject the next morning. The subject was instructed to complete the previous day's diary as soon as possible and was reminded to call the study office each evening. Through this procedure, none of the study subject's diary data represented more than a 1-day retrospective report.

Completions of history and RDC/TMD examination, as well as daily diaries, were conducted prior to the enrollment of subjects in the clinical trial phase of the study; for details regarding the clinical trial, see Raphael and Marbach.[19]

Statistical Analysis

SPSS (version 10.0) was used for all descriptive and inferential statistical analysis. For single-measure comparisons on quantitative measures, independent sample *t* tests were used to compare CAM user vs CAM non-user groups on demographic characteristics. The chi-square test was used to test for differences between groups on categorical measures. To determine clinical and other predictors of CAM use in multivariate models that adjusted for demographic differences between users and non-users, multiple logistic regression was used. Statistical significance was set at $P < .05$.

Results

Prevalence of Use

Table 1 documents the prevalence of use of various therapeutic modalities for facial pain, as reported by a sample of patients with myofascial TMD who had never been previously treated with an intraoral appliance. Slightly more than half (50.8%) of all participants reported that they had not previously received any treatment for their facial pain. The most commonly reported treatment was medication (28.6%), followed by relaxation (12.7%), and chiropractic treatment (9.5%).

Table 2 Clinical Factors Predicting Use of CAM by Patients with Myofascial TMD Prior to Intraoral Splint Therapy

Predictor	OR	95% CI	*P* value
Average pain in 6 months prior to study	1.30	0.87, 1.94	NS
Worst pain in 6 months prior to study	1.23	0.84, 1.80	NS
Least pain in 6 months prior to study	1.37	0.99, 1.91	NS
Average mood in 6 months prior to study	1.19	0.84, 1.69	NS
Duration of pain	1.01	0.96, 1.02	NS
Motor vehicle accident identified as cause of facial pain	7.01	1.05, 46.60	< .01
Pain interference with social, recreational, family activities (in past 6 months)	1.39	1.04, 1.85	< .05
Pain interference with ability to work (in past 6 months)	1.36	1.06, 1.75	< .05
No. of days kept respondent from usual activities (in past 6 months)	1.02	0.99, 1.05	NS

Adjusted Odds Ratio (OR): controlling for age and race (white/nonwhite). CI = confidence interval.

Table 3 Daily Pain-Reduction Strategies Predicting Use of CAM by Patients with Myofascial TMD Prior to Intraoral Splint Therapy

Predictor	OR	95% CI	*P* value
Took over-the-counter medication	1.07	0.23, 1.24	NS
Took prescription medication	1.30	1.04, 1.62	< .05
Used cold compresses	2.34	0.61, 9.00	NS
Used warm compresses	3.26	1.39, 7.65	< .01
Massaged facial muscles	1.10	0.96, 1.26	NS
Tried to relax facial muscles	1.08	0.94, 1.22	NS
Tried to distract myself	1.14	0.98, 1.31	NS
Talked to others about pain	1.23	1.01, 1.51	< .05
Did something else	1.74	1.07, 2.84	< .05
Did nothing	0.73	0.55, 0.97	< .05
No. of different pain-reduction strategies used at least once	1.93	1.17, 3.12	< .01

Adjusted Odds Ratio (OR): controlling for age and race (white/nonwhite). CI = confidence interval.

When 6 treatment modalities were classified as CAM (ie, acupuncture, relaxation therapy, stress management, chiropractic, transcutaneous electrical nerve stimulator [TENS], biofeedback), 22.2% of the sample (14 patients) reported using 1 or more CAM treatments.With the exception of a single participant who used TENS but no other CAM treatment, all other CAM users (n = 13) reported using 2 or more CAM treatments.

Demographic Predictors of CAM Use for TMD

CAM users were more likely to identify their race as white (100%) compared to CAM non-users (67.3%) (χ^2 = 6.13, *P* = .01), but were no more likely to be married (57.1%) than non-users (36.7%) (χ^2 = 1.87, *P* > .10). Users showed a trend toward being younger than non-users (32.7, SD = 11.22, vs 37.2, SD = 11.22, respectively; *t* = –1.70, *P* = .10), but the groups did not differ on years of education (13.43, SD = 2.53, vs 14.66, SD = 1.99; *t* = 1.67, *P* > .10) or income (4.00, SD = 1.71, vs 4.11, SD = 1.77; *t* = –0.21, *P* > .10).

Non-demographic Predictors of CAM Use for TMD

In subsequent multivariate analyses of predictors of CAM use, logistic regression analysis was used to predict CAM use from other classes of measures, after demographic controls for both race (white/nonwhite) and age had first been entered for the analysis.

Clinical characteristics of the disorder were first examined. As shown in Table 2, neither pain severity nor mood significantly predicted CAM use (all *P* > .10). Duration of facial pain was not a predictor of CAM use (*P* > .10). However, those subjects who identified an accident as the initiating cause of their facial pain were 7 times more likely than those who did not identify an accident as the initiating cause to report CAM use, with 29% of the users identifying an initiating accident versus only 4% of the non-users. Those who reported a greater extent of pain interference with their social and work activities were significantly more likely (*P* < .05) to indicate CAM use.

Use of various pain-reduction efforts during the 2-week daily diary period were next examined as predictors of CAM use. Table 3 presents the results of logistic regression analysis predicting CAM use from demographic variables and the frequency of use of each pain-reduction effort over the 2-week diary period. Additional analyses (not shown here) were conducted which dichotomized pain-reduction strategies based on ever/never use of a specific strategy. Results were consistent with the analyses utilizing frequency of use of pain-reduction efforts.

During the daily diary phase of the study, CAM use was associated with use of CAM medications, use of warm compresses, talking to others about pain, and use of other unspecified pain-reduction strategies ($P < .05$). The use of each additional pain-reduction strategy was associated with nearly a doubling of the odds of CAM use. Those who reported that they 'did nothing' to reduce their pain on a daily basis were also less likely ($P < .05$) to use CAM.

Discussion

This first study of CAM use among women with myofascial TMD showed that 14 of 63 patients (22%) reported ever using 1 or more CAM therapies for their facial pain. Interpretation of this rate must take into consideration that, for other research project purposes, this study recruited a somewhat unusual subgroup of TMD patients who had never used an intraoral splint. Anecdotally, we learned that several sample members had considered receiving oral splint therapy prior to study participation but had not pursued it, due to the high cost of treatment. Although the average duration of pain in our sample was 5 years, no participant had previously been treated with an intraoral appliance; in fact, approximately half had never sought any treatment for their facial pain. Thus, by definition, the sample was not one that comprised patients who may have failed to respond to conventional therapies or excessive treatment-seekers. In this respect, it was unlike most university-based tertiary care centers for TMD treatment. As such, this sample is likely to have underrepresented the use of CAM therapy by TMD patients seen in tertiary care settings, since perceived failure to respond to traditional treatments may be a risk factor for CAM use.[20] Many participants indicated that they participated in the study rather than seeking care for their TMD problem because of financial concerns related to treatment, including lack of insurance coverage.

The use of CAM in an all-female sample of TMD patients may not reflect CAM use in a mixed-sex or male sample. While studies have found higher CAM use among women than men,[1,21] it has been repeatedly noted[16–18] that most TMD samples, especially treatment-seeking samples, are overwhelmingly composed of women. Thus, while this study's results cannot be extrapolated to samples of male TMD patients, it is likely to represent accurately the use of CAM prior to intraoral splint use among women with TMD.

Several study limitations should be noted. First, a limited number of CAM therapies was included in the list of treatments being considered. The prevalence of CAM use might have been higher, had other treatments such as magnet therapy or homeopathy been included. In addition, the study did not gather data on current or recent use, rendering it impossible to ascertain whether certain treatment modalities had been discontinued due to perceived lack of efficacy or adverse effects.

As documented in other studies of predictors of CAM use,[6,22] this study documents that CAM users with TMD do not use CAM to the exclusion of conventional treatment. In fact, CAM users were more likely to use prescription medications and to use multiple pain-reduction strategies; CAM users are treatment-seekers.

The authors also found that pain severity was not associated with increased odds of CAM use. However, the extent of interference with social and work activities did increase the odds of CAM use, as did pain onset being associated with an accident.

Few existing studies have addressed the efficacy of CAM therapies for TMD. Relaxation therapy and chiropractic treatment were the most commonly used CAM therapies in this sample, but neither has received extensive evaluation for treatment of TMD pain. The use of muscle relaxation combined with biofeedback ('electromyographic biofeedback')[23] has received support, but an early study of relaxation therapy alone failed to demonstrate its efficacy for TMD pain.[24] There are no known clinical trials evaluating the efficacy of chiropractic therapy for TMD. Of the other CAM treatments used less commonly in this sample, arguably acupuncture has received the most empirical support for its use in TMD, with all of 3 randomized controlled trials suggesting its efficacy for TMD.[25,26] Nevertheless, failure of these acupuncture trials to include a sham acupuncture treatment allow for the possibility that results are due to nonspecific effects related to expectancies or placebo.

Research shows[1,21] that the overwhelming majority of CAM users do not tell their conventional health care providers of their CAM use. Some conventional practitioners may be unaware of CAM use by their patients, and others may selectively recommend it to their patients. Just as physicians may suggest to patients to consult a dentist specifically to have an intraoral splint fabricated, dentists frequently advise patients to seek specific CAM therapies, such as physical therapy, in conjunction with the dental therapies being provided. Regardless of the dentist's awareness of

CAM therapy use by his or her patients, lack of knowledge about CAM efficacy may confound the proper assessment of the benefits and side effects of conventional dental treatments.

The prevalence of use of CAM therapies in this TMD sample, albeit relatively modest, points to the possibility that CAM use is likely to be more prevalent in more typical treatment-seeking TMD samples. The lack of controlled clinical trials of CAM therapies for TMD indicates a pressing need for state-of-the-art research determining effectiveness of these treatment methods.

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