

Influence of biopsychosocial approaches and self-care to control chronic pain and temporomandibular disorders*

Influência de abordagens biopsicossociais e autocuidados no controle das disfunções temporomandibulares crônicas

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ABSTRACT

BACKGROUND AND OBJECTIVES: Temporomandibular joint disorder (TMD), which is a musculoskeletal condition of the masticatory system, may become chronic and further worsen quality of life (QL) of patients. Due to the interrelation between physical and emotional symptoms, there is increasing search for the integrative model, which includes psychosocial approaches for the treatment of painful conditions. This study aimed at reviewing in the literature the impact of education and simple self-care modalities on pain and disorders related to chronic painful TMD.

CONTENTS: Psychosocial factors are often involved with pain chronicity, making bio-behavioral approaches increasingly more indicated to change pain perception and to decrease distress and psychosocial changes which go along with persistent pain.

CONCLUSION: Current literature, although not extensive, indicates positive results of education and self-care methods for chronic painful TMD. Further studies are needed to reinforce such findings and spread the application of such approaches to control chronic and TMD pain.

Keywords: Facial pain and temporomandibular joint disorder syndrome, Self-care.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A disfunção temporomandibular (DTM), condição musculoesquelética do sistema mastigatório, pode se tornar crônica, causando maior comprometimento na qualidade de vida (QV) dos pacientes. Devido à inter-relação entre sintomas físicos e emocionais, há uma crescente busca pelo modelo integrativo, o qual inclui aborda-

gens psicossociais para o tratamento de condições dolorosas. O objetivo deste estudo foi realizar uma revisão de literatura sobre o impacto que a educação e modalidades simples de autocuidados podem ter na dor e na disfunção relacionadas à DTM dolorosa crônica.

CONTEÚDO: Os fatores psicossociais estão frequentemente envolvidos na cronificação da dor, tornando as abordagens bio-comportamentais cada vez mais indicadas para mudar a percepção da dor, reduzir o sofrimento e as alterações psicossociais que acompanham as dores persistentes.

CONCLUSÃO: A literatura existente, apesar de não ser vasta, indica resultados positivos da aplicação de métodos de educação e autocuidados em DTM dolorosa crônica. Mais estudos são necessários para reforçar tais achados e disseminar a aplicação de tais abordagens no controle da dor crônica e da DTM.

Descritores: Autocuidado, Dor facial e síndrome da disfunção da articulação temporomandibular.

INTRODUCTION

Temporomandibular disorder (TMD) refers to a group of masticatory system changes characterized by pain in temporomandibular joint (TMJ) and/or masticatory muscles, joint sounds, joint movement shifts or limitations. As other musculoskeletal pains, if not adequately diagnosed and successfully treated, acute TMD may become chronic, further impairing quality of life (QL) of patients and leading to economic implications for patients, health system and society¹. Chronic pain is highly prevalent, with major impact on patients' health, on health services and society, in addition to presenting major treatment difficulties.

TMD is defined as a heterogeneous group of clinical conditions, being a minority associated to specific structural changes and several coexist with pain in other anatomic areas². It negatively affects emotional health³⁻⁵, and psychosocial factors maintain and exacerbate pain symptoms⁶. In addition, psychological and emotional changes are co-morbid conditions with chronic pain^{3,7}. Due to the interrelation between physical and emotional symptoms, there is increasing search for the integrative model, which includes psychosocial approaches to treat painful conditions⁸. This model gives equal emphasis to physical and emotional factors, leading to significant improvements⁶.

The scientific literature has shown that behavioral and educational modalities are effective options to treat chronic pain, in-

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cluding TMD^{4,6,9-12}. Educational modalities are sessions where patients receive information about TMD, in addition to possible predisposing, triggering and perpetuating factors¹. Such educational and behavioral approaches aim at changing pain perception and evaluation, and at decreasing distress and psychosocial changes which follow persistent pain. Bio-behavioral modalities are: biofeedback, relaxation techniques, behavioral change techniques, cognitive-behavioral therapy, education and hypnosis⁹. In light of this context, Pubmed database was reviewed from 1977 to 2013, by crossing the keywords: self-care, facial pain and syndrome of temporomandibular joint dysfunction. Inclusion criteria were articles with specific studies about the correlation among education, self-care and TMD, being excluded those not effectively addressing the matter, or in languages different from Portuguese or English.

This study aimed at reviewing in the literature the impact of education and simple self-care modalities on pain and disorders related to chronic painful TMD.

TEMPOROMANDIBULAR DISORDER: EPIDEMIOLOGY

TMD is a prevailing condition, present in approximately 10% of the population above 18 years of age. It is approximately twice as common in females as compared to males^{13,14} and is predominant during productive years, between 20 and 50 years of age, and in single individuals, generating significant social costs and decreasing labor productivity¹⁴⁻¹⁹.

TMD is often associated to other conditions, such as headaches, allergies, depression, rheumatoid arthritis, chronic fatigue, fibromyalgia, irritable bowel syndrome and sleep disorders^{20,21}.

Biopsychosocial model applied to pain

The mind-body dualism is a concept which separates physical and mental conditions. According to this biomedical model, disease and pain are result of an apparent physical condition and do not consider the effects of mind and society on the disease²². The

biopsychosocial model, on the other hand, considers biological, psychological and sociological issues as body systems, similarly to cardiovascular or musculoskeletal system, that is, there is no separation between mind and body²³.

“Bio-behavioral” refers to therapeutic approaches derived from the application of behavioral science theory and methods to change pain perception and evaluation and to improve or eliminate personal distress and psychosocial disorders which very often follow persistent pain. Behavioral and educational modalities are effective tools to control chronic pain conditions, including TMD⁹.

Biopsychosocial approaches and self-care to control temporomandibular disorder

Patients with painful TMD, especially chronic TMD, tend to experience significant psychological distress, such as mood disorders, high levels of anxiety and stress^{7,24}. They have also exacerbated reaction to environmental stimuli, with higher cardiovascular activity and changes in breathing rates²⁴. So, a cost-effective measure to handle pain is the early biopsychosocial intervention²⁵. Several evidences support the recommendation of educational and behavioral modalities to control TMD⁹. Table 1 summarizes modalities indicated to control TMD.

Electromyographic biofeedback is a type of behavioral intervention which may be applied to TMD. During the biofeedback session, masticatory muscles contraction is monitored by electromyography of such muscles. At the same time, muscle relaxation techniques are taught. The level of muscle activity is informed to patient by means of visual or sound signals⁹. If compared to the use of occlusal splint, although both promoting pain decrease, biofeedback also shows significant improvement of jaw movements amplitude²⁶. A higher number of patients treated with biofeedback have become free of symptoms or have shown significant improvement as compared to the number of patients receiving placebo or no treatment (69% versus 35%)²⁷.

Cognitive-behavioral therapy (CBT) incorporates several interventions based on cognitive and behavioral perspectives consid-

Table 1 – Bio-psychosocial and self-care modalities to control temporomandibular disorders.

Modalities	Method	Results	Authors/References
Electromyographic Biofeedback	Monitoring of masticatory muscles contraction by electromyography and orientation about muscle relaxation techniques.	Significant improvement of jaw movement amplitude and painful symptoms.	Dworkin ⁹ Dahlstrom, Carlsson and Carlsson ²⁶ Crider and Glaros ²⁷
Cognitive-behavioral therapy	Interventions based on cognitive and behavioral perspectives considering that physical symptoms or persistent pain lead patients to avoid movement and function.	Considered adequate to treat chronic pain. Further studies are needed.	Aggarwal et al. ² Blyth et al. ⁴
Self-care	Includes thermal therapy, self-massage, stretching, stabilization, coordination and mobilization exercises.	Simple, noninvasive and low cost method, effective to decrease pain and dysfunction associated to TMD. There are no studies defining its efficacy parameters.	Michelotti et al. ²⁹ Epstein et al. ³⁰ Ersek et al. ³⁴ De Laat, Stappaerts and Papy ³⁵ , Bair et al. ³⁷
Education	Counseling, noxious habits reversion techniques and correct jaw use.	More effective to decrease spontaneous muscle pain in TMD patients as compared to occlusal splint alone.	Michelotti et al. ²⁹ Michelotti et al. ³¹ Ersek et al. ³⁴ De Laat, Stappaerts and Papy ³⁵

ering that physical symptoms of persistent pain lead patients to avoid movement and function which, in turn, may prolong and worsen symptoms. In addition, emotional stress (anxiety, depression, anger) may increase pain triggering activity in psychophysiological systems which are also activated by noxious events². A study aiming at presenting a review of cognitive and behavioral interventions for chronic pain in the elderly and focusing on the efficacy of the treatment has indicated that cognitive and behavioral interventions were effective in pain experience self-report²⁸. Although CBT is considered an adequate method to treat chronic pain, further studies are needed to evaluate its efficacy and to determine the number of needed sessions, the way to convey instructions and the cost-effectiveness ratio^{2,4}.

There is a consensus that TMD treatment strategies should preferably be reversible¹. Among them, self-care is highly indicated for being a simple, noninvasive and low cost method. The objectives of this approach are to control pain and discomfort, to decrease muscle tone, and to improve kinetic parameters and temporomandibular joint function.

A self-care program includes procedures such as counseling, education (habit reversion techniques and correct jaw use), thermal therapy, self-massage, stretching, stabilization, coordination and mobilization exercises. Although these treatments are effective to decrease pain and improve dysfunction associated to TMD, we still lack studies defining effectiveness parameters²⁹. In addition, well-informed patients are more prone to actively participate in their care, to make more conscious decisions and to totally adhere to the treatment³⁰. Studies to evaluate the short-term efficacy of education as compared to occlusal splint to treat myofascial pain have observed that education was more effective to decrease spontaneous muscle pain in TMD patients as compared to occlusal splint alone^{31,32}.

A different study has compared pain of patients attending a self-management program (SMP) using cognitive-behavioral therapy and exercises in chronic pain patients above 65 years of age. The SMP group has shown significant improvement, observed in up to one month of follow up, in measures of distress, pain, incapacity and mood, as compared to the group receiving treatment as usual and to the group performing exercises alone³³.

Different clinical guidelines emphasize the need for multimodal therapies, such as training and self-care guidelines to control pain³⁴. A treatment protocol involving counseling and physical therapy has also shown significant pain intensity improvement³⁵. In spite of the fact that half the patients know their diagnosis, 40% are not adequately oriented about the proposed treatment. In addition, expectations about treatment have significant association with the level of adhesion to it³⁶. Barriers to the application of self-care include lack of support of friends and relatives, limited resources, depression, inefficacy of pain relief strategies, time limitations and other priorities of life, lack of adaptation strategies to meet personal needs, physical limitations and poor professional-patient interaction. Among facilitators there are the incentive offered by involved professionals, improved levels of depression with the treatment, support of relatives and friends and the availability of different pain self-care strategies³⁷.

CONCLUSION

Education and self-care are approaches based on pain biopsychosocial model. Current literature, although not vast, indicates positive results of the application of education and self-care methods to chronic painful TMD, contributing to improve pain and discomfort. Although further studies are needed to reinforce such findings, current literature supports the application of self-care strategies for chronic painful TMD, aiming at improving awareness and at incorporating active and more effective strategies³.

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