Biopsychosocial Pain Model Crippled?

At the beginning of the nineties, a group of researchers and clinicians proposed a new classification system for temporomandibular disorders (TMD).[1] The goal was to develop standardized diagnostic criteria for defining clinical subtypes of TMD to further the understanding of this disorder. The effort yielded a set of research diagnostic criteria, labeled RDC/TMD, used in many studies to define, standardize, and replicate the characteristics of the study samples. One of the great advantages of that classification system was the recognition that TMD patients cannot be diagnosed only according to physical signs but also to psychological, behavioral, and cognitive characteristics. Indeed, as it is for every pain condition, there is a great variability in pain perception between patients having the same pathology, a variability that is mainly due to the patient's coping strategies and the consequences that the pain has on the psychosocial patient's context.

Since publication of the RDC/TMD, a number of studies have been undertaken to validate the physical diagnoses. On the other hand, very little research dealt with the expansion of the patient psychosomatic evaluation and the analysis of whether and how psychosomatic factors may influence the disorder progression, although substantial evidence exists. A series of psychosocial factors, such as anxiety, depressed mood, distress, fear-avoidance beliefs, catastrophic thoughts, passive coping strategies, and social isolation, have been recognized as risk factors for the development of chronic pain in patients with musculoskeletal disorders, to which TMD belong.[2–4] Similar risk factors, including several aspects related to pain beliefs, have also been reported for TMD patients.[5–7] In addition, psychosocial factors are at least as important for the treatment outcome as the initial pain intensity and the pathophysiology.[8,9] The presence of these risk factors should, therefore, be addressed from the beginning of the therapy in order to decrease the risk of developing chronic pain in patients that are at risk.[3,10]

Contrary to the intention of the RDC/TMD, the majority of studies on treatment outcome have not included a psychosocial diagnosis but instead compared different treatment modalities matching the samples only for their physical diagnoses. It is, therefore, not surprising that the intervention studies continue to report that the vast majority of TMD patients can be managed with simple noninvasive therapies and that no one therapy seems to be clinically superior. This last observation proves that the therapies are not specific and that their comparable success rates are likely due to uncontrolled confounders, eg, the placebo effect. Yet, researchers continue repeating the same kind of studies hoping that, by improving the methodology or by changing for instance the design of an occlusal appliance, they will be able to find the "magic bullet." It is difficult to foresee how research that does not take into consideration important risk factors may improve our understanding of TMD and provide us with the treatment of choice.

Considering that TMD have a good prognosis and that the majority of patients can be managed even if the pain lasted for more than 3 or 6 months, there is a great need for a better understanding of those 10% to 15% of patients who are therapy refractory, since they pose the greatest challenge. The clinical experience shows that in these individuals the pain is associated with high pain-related disability and psychosocial distress, challenging the definition of chronic pain based only on pain duration. Thus, it is mandatory to also define samples on chronic pain severity by using at least the Chronic Pain Grade Scale.[11] Thus, improvement in TMD management likely requires definitions of the patients not only based on physical diagnosis and pain duration but also on psychosocial functioning. Türp and colleagues wrote: "A fundamental requirement for improved therapeutic outcomes is the clinician's acceptance of the importance of psychological factors and knowledge about the efficacy and effectiveness of psychological interventions."[12]

Why has the message of the RDC/TMD not gotten across? Why does the scientific community continue disregarding this most relevant aspect of pain? This attitude seems to indicate that the biopsychosocial concept is not understood in its proper value. As stated by Klasser and Green,[13] the word "biopsychosocial" provides an excellent descriptor of the condition that pain patients are living with. "They have a biological problem (ie, activation of pain pathways, with or without a demonstrable pathologic condition) that may have psychological antecedents as well as behavioral consequences. This situation exists in a social framework that includes interpersonal relationships…which almost always produces major negative experiences for the patients as well as for their immediate families." Unfortunately, the majority of the studies comply only with the first part of the RDC/TMD, overemphasizing the importance of

the biological problem and neglecting its impact on the psychosocial patient's context. The failure of scientific studies to analyze the psychosocial condition and to stress only the physical, somatic condition emphasizes to the clinician that TMD patients can be treated solely with physical modalities and/or medications and that a psychosocial evaluation is important only for chronic pain patients.

The field of TMD has undergone major transformations related, to a large extent, to the awareness that TMD are a localized form of a musculoskeletal pain condition that in the presence of an unfavorable psychosomatic context can become chronic, as it is for all other musculoskeletal-related pain conditions. For the dental profession, this implies a consciousness-raising of the consequences that the pain has in the emotional, affective, cognitive, and behavioral sphere. The new version of the diagnostic criteria for TMD (DC/TMD)[14] expands the physical diagnoses, compromising on the initial project's goal to use only diagnoses supported by scientific evidence. This unfortunate compromise was done in order to have the clinician use the DC/TMD in daily practice. It is to be hoped that the new version will succeed in an even far more important task, ie, in making researchers and clinicians implement the biopsychosocial pain model in all its three dimensions.

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References

1. Dworkin SF, LeResche L. Research diagnostic criteria for temporomandibular disorders: Review, criteria, examinations and specifications, critique. J Craniomandib Disord 1992;6: 301–355.
2. Nicholas MK, Linton SJ, Watson PJ, Main CJ. Early identification and management of psychological risk factors ("yellow flags") in patients with low back pain: A reappraisal. Phys Ther 2011;91:737–753.
3. Hasenbring M, Hallner D, Klasen B. Psychological mechanisms in the transition from acute to chronic pain: Over- or underrated [in German]? Schmerz 2001;15:442–447.
4. Hasenbring M. Attentional control of pain and the process of chronification. Prog Brain Res 2000;129:525–534.
5. Galli U, Ettlin DA, Palla S, Ehlert U, Gaab J. Do illness perceptions predict pain-related disability and mood in chronic orofacial pain patients? A 6-month follow-up study. Eur J Pain 2010;14:550–558.
6. Garofalo JP, Gatchel RJ, Wesley AL, Ellis E. Predicting chronicity in acute temporomandibular joint disorders using the research diagnostic criteria. J Am Dent Assoc 1998;129:438–447.
7. Wright AR, Gatchel RJ, Wildenstein L, Riggs R, Buschang P, Ellis E III. Biopsychosocial differences between high-risk and low-risk patients with acute TMD-related pain. J Am Dent Assoc 2004;135:474–483.
8. Grossi ML, Goldberg MB, Locker D, Tenenbaum HC. Reduced neuropsychologic measures as predictors of treatment outcome in patients with temporomandibular disorders. J Orofac Pain 2001;15:329–339.
9. Litt MD, Shafer DM, Kreutzer DL. Brief cognitive-behavioral treatment for TMD pain: Long-term outcomes and moderators of treatment. Pain 2010;151:110–116.
10. Hallner D, Hasenbring M. Classification of psychosocial risk factors (yellow flags) for the development of chronic low back and leg pain using artificial neural network. Neurosci Lett 2004;361:151–154.
11. Von Korff M, Ormel J, Keefe FJ, Dworkin SF. Grading the severity of chronic pain. Pain 1992;50:133–149.
12. Türp JC, Jokstad A, Motschall E, Schindler HJ, Windecker-Getaz I, Ettlin DA. Is there a superiority of multimodal as opposed to simple therapy in patients with temporomandibular disorders? A qualitative systematic review of the literature. Clin Oral Implants Res 2007;18 (suppl 3):138–150.
13. Klasser GD, Greene CS. The changing field of temporomandibular disorders: What dentists need to know. J Can Dent Assoc 2009;75:49–53.
14. DC/TMD Announcement. The International RDC-TMD Consortium website. http://www.rdc-tmdinternational.org. Accessed 26 Sept 2011.