

Biopsychosocial Solutions to TMD

• Robert Ferrari, MD, FRCP(C) •

© J Can Dent Assoc 1999; 65:498-9

In the last year or so, the *JCDA* has published a number of debates on temporomandibular disorder (TMD).¹⁻³ The real controversy behind TMD lies in the approach used to treat this problem — the dualistic model. A dualistic model considers that either there is an organic (biological/physical) disease, or if there is “nothing wrong,” then there must be a psychiatric/psychological problem (non-organic). It is increasingly clear, however, that the dualistic approach to TMD has little value and that change is required, particularly in relation to TMD and whiplash-associated disorders.

As such, a biopsychosocial model of TMD following whiplash has been put forward, based on available scientific evidence on the epidemiology of this problem, considerations of injury mechanism and engineering, radiologic studies, electromyographic studies, and psychosocial evaluations.⁴⁻⁶ This model operates within a larger biopsychosocial model of the late whiplash syndrome itself, which must account for not only TMD and whiplash, but also chronic neck and back pain, neurologic symptoms, cognitive symptoms, and the psychological outcomes of this syndrome — a daunting but necessary task.⁷⁻¹⁰

But what does a biopsychosocial model really mean? Is this term merely a euphemism for our own uncertainty about what causes the symptoms and behaviour of these patients? Or is there a scientifically supportable premise to biopsychosocial models?

Increasingly, there is a scientifically verifiable basis to the biopsychosocial approach. Such a model means that psychosocial factors do not in themselves generate the symptoms like, for example, the somatic component of psychological distress. Instead, psychosocial factors modify the patient's reaction to symptoms of physical origin, modulating the patient's recognition of these symptoms, their severity, the response and attribution to a specific cause, and further effects on behaviour. The origin of the symptoms is still physical, but their severity and attribution, along with the patient's behaviour, are otherwise dependent on psychosocial factors.

Take, for example, the chronic neck pain of whiplash patients. The scientific evidence for the role of postural abnormalities in neck and back pain, especially in whiplash patients, has been explained in detail.⁷ There is increasing evidence that following acute neck pain (regardless of the source), patients in some cultures or settings will, often on the advice of their health care provider, have a tendency to respond by withdrawing from normal activities for fear that more pain means more harm. It has been observed that the initial acute period of pain

is often followed by the development of postural abnormalities of the spine, either as a result of drastically reduced activities or as a maladaptive — and deliberate — measure for relieving pain. It has also been demonstrated that healthy subjects who assume postural abnormalities every day will ultimately generate neck and back pain, albeit minor.

It has therefore been proposed, and studies are currently reaffirming this position, that one of the many physical sources for chronic neck pain in whiplash patients is the development of postural abnormalities even long after the acute injury has resolved. Thus, we have a truly physical source for pain, not at all psychiatric in origin, nor the result of the somatic component of anxiety. Yet what led to those postural abnormalities? In whiplash patients, studies indicate that the cultural factors responsible for symptom expectation, amplification and attribution produce a behaviour that leads to withdrawal from activities following minor injury and maladaptive postures.⁷ Psychosocial factors ultimately generate a physical source for pain. That is a biopsychosocial model. Interestingly, there has been some investigation regarding the etiologic role of postural factors in some aspect of chronic TMD symptoms.^{11,12}

Psychosocial factors affect chronic neck pain in other ways, by drawing on pre-accident and post-accident aches and pains that arise from daily life, occupations, etc., many of which are presumed in otherwise healthy people to have physical sources, even though we can seldom identify those sources. These symptoms are usually minor, even if felt daily, and seldom cause much distress or disability. Yet, in the model proposed of the late whiplash syndrome, psychosocial factors compound the effect of physical symptoms to produce more severe — and apparently new — symptoms that are attributed to one cause. Thus, the sources of pain remain physical in origin, but the severity and attribution of the pain, as well as further behaviour in response to the pain, are determined by psychosocial factors.

Such a model provides new approaches to treatment and truly reaffirms for the patient that the pain is not due to psychological factors.¹³ The treatment is not “cognitive or behavioural therapy,” which implies therapy aimed at “psychological disorder.” Rather it is physical therapy (e.g., progressive exercises and posture correction/maintenance measures) which prevents behaviour that allows psychosocial factors to foster chronic pain. It is really biopsychosocial therapy.

The patient is not told that the pain is all in his or her head, but rather that if he or she withdraws from normal activities because of neck pain, and fails to mobilize the neck with exercises, that postural abnormalities will ensue, causing more

pain. The patient will recognize that the therapist is not judging psychological factors to be the cause of pain, but to be the cause of behaviour, which if not modified, will produce physical effects. It legitimizes the patient's belief (likely correct) that there is a physical source of chronic pain. But that physical source of pain comes about because of the behaviour chosen following the acute injury.

It is likely that such an approach, already being applied by some, will ultimately be necessary in treating TMD, as the current dualistic model is not part of the solution, but rather part of the problem. ♣

Dr. Ferrari is in private practice and conducts independent medical examinations in Edmonton, Alta.

The views expressed are those of the author and do not necessarily reflect the opinion and official policies of the Canadian Dental Association.

References

- Goldstein BH. The TMD controversies continue. *J Can Dent Assoc* 1999; 65:47-8.
- Goldstein BH. The TMD controversies. *J Can Dent Assoc* 1998; 64:65-6.
- Mulrooney, R. The TMD controversies — a second opinion. *J Can Dent Assoc* 1998; 64:529-30.
- Ferrari R, Leonard MS. Whiplash and temporomandibular disorders: a critical review. *JADA* 1998; 129:1739-45.
- Ferrari R, Leonard M. Whiplash and TMD. Authors' response [letter]. *JADA* 1999; 130:168, 170.
- Ferrari R, Schrader H, Obelienene D. Prevalence of temporomandibular disorders associated with whiplash injury in Lithuania. *Oral Surg Oral Med Oral Path Oral Radiol Endod* 1999; 87:653-7.
- Ferrari R. *The whiplash encyclopedia. The facts and myths of whiplash*. Gaithersburg, (MD): Aspen Publishers Inc.; 1999.
- Ferrari R, Russell AS. Epidemiology of whiplash: an international dilemma. *Ann Rheum Dis* 1999; 58:1-5.
- Ferrari R, Russell AS. Development of persistent neurological symptoms in patients with simple neck strain. *Arthritis Care Res* 1999; 12:70-6.
- Ferrari R, Russell AS. Neck injury and chronic pain syndromes: comment on article by Buskila et al. [letter]. *Arthritis Rheum* 1998; 41:758-9.
- Gonzalez HE, Manns A. Forward head posture: its structural and functional influence on the stomatognathic system, a conceptual study. *Cranio* 1996; 14:71-80.
- Zonnenberg AJ, Van Maanen CJ, Oostendorp RA, Elvers JW. Body posture photographs as a diagnostic aid for musculoskeletal disorders related to temporomandibular disorders (TMD). *Cranio* 1996; 14:225-32.
- Ferrari R, Kwan O, Russell AS, Pearce JM, Schrader H. The best approach to the problem of whiplash? One ticket to Lithuania, please. *Clin Exp Rheumatol* 1999; 17:321-6.

C D A R E S O U R C E C E N T R E

Information package, October 1999

This month's package contains a selection of reading material on the diagnosis and management of temporomandibular joint disorders. It is available to CDA members for \$5.00 plus applicable tax.

A complete list of information packages is available upon request by calling 1-800-267-6354 or can be easily accessed on the CDA Web site at www.cda-adc.ca. Once inside our site, please log into the "CDA Members" area and click on "Resource Centre" to view the list of packages.

A D V E R T I S E R S ' I N D E X

American Association of Orthodontists.	480
Amex Bank of Canada	490
Ash Temple	474
Aurum Ceramic	519
BridgeCrown & Fillings Corp.	512
CDA Convention.	520
CDA Funds	525
CDSPI.	505, 521, 535
Dentsply Canada Ltd.	536
East Coast Dental.	526
Jaguar	478
Kodak Canada Inc.	514
LIOH Inc.	513
Nobel Biocare	476
Oral B	477
Pharmacia & Upjohn	523, 524
SciCan.	531
Strathcona Pharmacy	504
Warner Lambert	484, 486