Psychological screening of temporomandibular disorder patients

van der Meulen, M.J.

Publication date
2011

Chapter 8

Summary

The term 'temporomandibular disorder' (TMD) refers to a number of different symptoms, located in the joints of the jaw, and in the tendons and muscles surrounding the joints. The most common symptoms are pain and muscle tenderness. TMD, like most other physical, and more particularly, pain disorders, is affected by psychological factors. However, the exact nature of the relationship between physical and psychological factors is not yet known. In 1992, the Research Diagnostic Criteria for TMD (RDC/TMD) were published. They include a dual-axis assessment of physical symptoms (axis I) and psychological and behavioral factors (axis II), expected to be relevant for TMD. The Dutch translation was completed in 2005. For the studies reported in this thesis, RDC/TMD axis II questionnaires were collected from TMD patients referred to the TMD clinics of the Academic Centre for Dentistry Amsterdam (ACTA) and the Centre for Special Dental Care (SBT). In the thesis, five studies are reported. The purpose of these studies was to evaluate some parts of the axis II questionnaire (chapters 2 and 4), and to contribute to the translation/ development and statistical testing of new assessment tools (chapters 3, 5, and 6).

The aim of the first study in this thesis (chapter 2) was to examine the relationship between different types of self-reported oral parafunctions and pain intensity in patients with TMD. For this purpose, two cohorts of consecutive TMD-pain patients, comprising 303 and 226 patients (83.8% and 88.5% women; mean age = 37.2 ± 14.2 years and 38.5 ± 13.3 years, respectively), completed a 12-item oral parafunctions questionnaire as well as the RDC/TMD axis II questionnaire, which includes a characteristic pain intensity score (CPI). Relationships between oral parafunctions and CPI were examined, while controlling for age and gender. The effects of phrasing of the oral parafunction questions were also examined. For one cohort, the questions were directed at the mere occurrence of the parafunctions; in the other, the questions addressed the perceived stressfulness of parafunctional behavior to the jaw. A principal component analysis of the responses to the questionnaires led to three factors (scales) in both cohorts: (1) a BRUX scale for bruxism activities; (2) a BITE scale for biting activities (e.g., chewing gum, nails); and (3) a SOFT scale for soft tissue activities (e.g., tongue, lips). Statistical significance was reached for 2 of the 6 relationships studied ($P<0.05$), but with a very low explained variance (approximately 3.5%). The conclusion therefore was, that no clinically relevant relationships were found between different types of self-reported oral parafunctions and TMD-pain complaints.

The second study of this thesis (chapter 3) was aimed at examining TMD patients' illness beliefs and self-efficacy in relation to bruxism, and to examine whether these beliefs are related to the severity of patients' self-perceived bruxing behavior. 504 TMD patients (75% women; mean age = 40.7 ± 14.6 years), referred to the TMD clinics of ACTA and SBT, completed a battery of questionnaires, of which one inquired about the frequency of oral parafunctional behaviors, including bruxism (clenching and grinding). Patients' illness beliefs were assessed with a question about the perceived causal relationship between bruxism and TMD pain; patients' self-efficacy was assessed with questions about the general possibility of reducing oral parafunctional behaviors and patients' own appraisal of their capability to accomplish this. Sleep or awake bruxism was attributed by 66.7 and 53.8 percent of the patients, respectively, as a cause of TMD pain; 89.9 percent believed that oral parafunctions could be reduced, and 92.5 percent believed themselves capable of doing so. The higher a

patient's bruxism frequency, the more bruxism was believed to be the cause of TMD pain (Spearman's rho 0.77 and 0.71, P<0.001), and the more pessimistic the self-efficacy beliefs were about the reducibility of oral parafunctions (Kruskal-Wallis X^2=19.91, df=2, P<0.001; and Kruskal-Wallis X^2=7.15, df=2, P=0.028). The conclusions were that most TMD patients believe in the harmfulness of bruxism and in the possibility to reduce this behavior. Hence, bruxism frequency is associated with illness beliefs and self-efficacy.

In the study in chapter 4, possible associations were examined between ethnic background of TMD patients and the level of TMD pain, psychological factors, and behavioral factors, while controlling for the possible interaction between ethnic background and socioeconomic factors. A sample of 504 consecutive TMD patients referred to the TMD clinics of ACTA and SBT (74.6% women; mean = 40.9 ± 14.6 years) completed the RDC/TMD axis II questionnaire (pain intensity, pain-related disability, somatization, depression, ethnic background, and socioeconomic status), an oral parafunctions questionnaire, and questions related to stress. Ethnic background was classified, following the method of Statistics Netherlands (CBS), using the country of birth of the subject and both parents, which resulted in a classification into three subgroups: native Dutch (ND; 69.6%), non-native western (NNW; 14.8%), and non-native non-western (NNNW; 15.6%). No differences in age or gender were found between the three ethnic groups, nor were there any differences in characteristic pain intensity or oral parafunctions. However, TMD patients from the NNNW subgroup had significantly higher scores on psychological factors, namely pain-related disability, disability days, somatization, depression, and stress. These patients had less often work, a lower level of education, and a lower level of income than patients from the ND and NNW ethnic background. Analysis of variance showed no interaction effects between ethnic background and socioeconomic factors in relation to the psychological variables mentioned. The conclusions were that ethnic background of TMD patients in The Netherlands is associated with psychological factors, regardless of socioeconomic status, but that ethnic background is not associated with TMD-pain complaints and oral parafunctions.

The aim of the study in chapter 5 was to make a cross-culturally adapted, Dutch version of the Oral Health Impact Profile (OHIP), a 49-item questionnaire measuring oral health-related quality of life (OHRQoL), and to examine its psychometric properties. The original English version of the OHIP was translated into the Dutch language, following the guidelines for cross-cultural adaptation of health-related quality of life measures. The resulting OHIP-NL's psychometric properties were examined in a sample of 119 patients (68.9 % women; mean age = 57.1 ± 12.2 years). They were referred to the Clinic of Prosthodontics and Implantology of ACTA with complaints concerning their partial or full dentures or other problems with missing teeth. To establish the reliability of the OHIP-NL, internal consistency and test-retest reliability (N = 41; 1 - 2 weeks interval) were examined, using Cronbach's alpha and intraclass correlation coefficients (ICC), respectively. Further, construct validity was established by calculating ANOVA. The internal consistency and test-retest reliability were excellent (Cronbach's alpha = 0.82 - 0.97; ICC = 0.78 - 0.90). In addition, all associations were significant and in the expected direction. The conclusion was that the OHIP-NL can be considered a reliable and valid instrument to measure OHRQoL.

The aim the study in chapter 6 was to evaluate the psychometric characteristics of three versions of the Dutch Oral Health Impact Profile (OHIP-NL), for clinical use with temporomandibular disorder (TMD) patients. To that end, two abbreviated OHIP versions (OHIP-NL14 and OHIP-NL5) were developed by respectively selecting 14 and 5 items from the officially translated and culturally adapted original 49-item OHIP-NL questionnaire. 245 consecutive patients, referred by their dentist to the TMD clinic of the Academic Centre for Dentistry Amsterdam (77 % female; mean age ± SD = 41.0 ± 14.9 years), completed the Research Diagnostic Criteria for TMD (RDC/TMD) axis II questionnaire and the OHIP-NL. Reliability and validity of all three OHIP versions were compared, and their associations with four psychological axis II variables, indicating the TMD patients' level of impairment, were examined. According to guidelines for clinical application, internal consistency scores were sufficient for OHIP-NL and OHIP-NL14, but insufficient for OHIP-NL5. Test-retest reliability (n=64) was excellent for OHIP-NL, and OHIP-NL14 and fair to good for OHIP-NL5. For all three versions, there was evidence for score validity: associations between OHIP summary scores on the one hand and validation variables and other RDC/TMD axis II variables on the other hand met the expectations and were statistically significant ($P< 0.001$). In conclusion, the OHIP-NL and OHIP-NL14 both performed comparatively well, and better than the OHIP-NL5. When the length of the questionnaire (i.e., the time needed for its completion) is an issue, the OHIP-14 would therefore be the preferred version.

Recommendations

The recommendations for the upcoming revision of the RDC/TMD axis II are to include other oral parafunctional items besides clenching and grinding, like nail biting, and pushing with the tongue, and to make use of the statistical BRUX, BITE, and SOFT scales found. Furthermore, it is recommended to introduce questions about illness beliefs and self-efficacy as related to oral parafunctions in the questionnaire. Questions about ethnic background of patients should be introduced, but only after more research and debate about this factor has taken place. The OHIP should also be added to the axis II questionnaire, with the 49-item versions as the preferred versions for further research on OHRQoL, and the 14-item version for use with TMD patients in the clinic. Finally, it is suggested to change the Graded Chronic Pain (GCP) classification in such a way that pain intensity and pain-related disability are used separately.