Diagnostic Criteria for Temporomandibular Disorders (DC/TMD): Polish assessment instruments

Magdalena Osiewicz[1,A–F], Bartosz Ciapała[1,B], Katarzyna Bolt[2,B], Piotr Kołodziej[3,B], Mieszko Więckiewicz[4,E,F], Richard Ohrbach[5,A,B,D–F]

[1] Department of Integrated Dentistry, Dental Institute, Faculty of Medicine, Jagiellonian University Medical College, Cracow, Poland
[2] Private dental practice, Cracow, Poland
[3] Department of Didactics of Polish Literature and Language, Institute of Polish Philology, Faculty of Humanities, Pedagogical University of Cracow, Poland
[4] Department of Experimental Dentistry, Wroclaw Medical University, Poland
[5] Department of Oral Diagnostic Sciences, School of Dental Medicine, University of Buffalo, USA

A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation;
D – writing the article; E – critical revision of the article; F – final approval of the article

Dental and Medical Problems, ISSN 1644-387X (print), ISSN 2300-9020 (online) *Dent Med Probl*. 2024;61(1):5–8

Address for correspondence
Magdalena Osiewicz
E-mail: magdalena.osiewicz@uj.edu.pl

Funding sources
None declared

Conflict of interest
None declared

Acknowledgements
None declared

Received on January 4, 2024
Reviewed on January 9, 2024
Accepted on January 13, 2024

Published online on January 23, 2024

Cite as
Osiewicz M, Ciapała B, Bolt K, Kołodziej P, Więckiewicz M, Ohrbach R. Diagnostic Criteria for Temporomandibular Disorders (DC/TMD): Polish assessment instruments. *Dent Med Probl.* 2024;61(1):5–8. doi:10.17219/dmp/181149

DOI
10.17219/dmp/181149

Keywords: DC/TMD, temporomandibular disorders, TMD, diagnostic criteria

The article presents the Polish version of the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD), the process of document translation and cultural adaptation.

Temporomandibular disorders (TMDs) constitute a heterogeneous group of conditions characterized by the presence of signs and symptoms associated with the masticatory system, such as pain in the masticatory muscles and/or the temporomandibular joints (TMJs), limited jaw movements, and TMJ sounds (i.e., clicking and/or crepitus) during function.[1] Temporomandibular disorders pose a significant public health problem, affecting approx. 5–12% of the population, based on the United States estimates,[2] and likely have the same prevalence in Poland. Our understanding of the etiology, diagnosis and treatment of TMDs continues to improve. An essential part of the methodology facilitating this development is the use of standardized classification systems for ascertaining the case status, and for further investigating the disorders in terms of mechanisms and taxonomic improvement.

The first evidence-based diagnostic method for TMDs emerged in 1992 as the Research Diagnostic Criteria for TMDs (RDC/TMD).[3] The RDC/TMD came from the openly acknowledged need for a diagnostic system that could not only reliably distinguish cases from controls for epidemiologic and clinical research purposes, but also differentially define and diagnose the common subtypes, such as pain-related TMDs and mechanical disturbances within TMJs. The RDC/TMD consisted of 2 axes: Axis I for a physical diagnosis; and Axis II for assessing the behavioral and functional status of the patient. The RDC/TMD utilize epidemiologic data to determine at a population level the threshold distinguishing a disorder from ordinary symptoms, such as a transient pain process or TMJ clicking that exhibits no symptoms or functional consequences. In the subsequent 2 decades, the RDC/TMD evoked a significant response to these foundational principles from the international scientific community – the research built on testable evidence in the context of an iterative process, providing a basis for reliable and valid revisions that were to come next.[4]

The RDC/TMD instrument utilizes both self-reported and clinical examination data. While the instrument was developed in English, it served as a source for more than 20 approved translations over the 10 years following its development, which included Polish among the languages. The RDC/TMD were replaced by the Diagnostic Criteria for TMDs (DC/TMD), which represent the current reference standard for a reliable and valid diagnosis of the prevalent TMDs for both clinical and research use.[5] While the DC/TMD are not, as of yet, a mandatory protocol in any national patient care guidelines of which we are aware, it is the de facto standard for the clinical examination and diagnosis of the prevalent non-odontogenic disorders affecting the masticatory system.[6,7]

A key feature of both the RDC and DC approaches to TMD assessment is their dual-axis structure. Axis I, which concerns the physical domain, includes guidelines for oral history taking, as well as the clinical assessment of the joints and jaw muscles, and it leads to an algorithm-based diagnosis of the prevalent TMDs. Axis II, which concerns the psychosocial and behavioral dimensions, comprises instruments for the evaluation of pain intensity, pain-related disability, the functional limitation of the masticatory system, oral overuse behaviors, depression, anxiety, and the extent of multi-determined physical symptoms throughout the body. The content of the DC/TMD is presented in Table 1.

Table 1. Content of the English and Polish versions of the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD)

Axis	English	Polish
Axis I	TMD Pain Screener	TMD badanie przesiewowe bólu
	Symptom Questionnaire	Kwestionariusz objawów
	Demographics	Dane demograficzne
	Examination: Pain-related Interview and Examiner Commands	Badanie: wywiad dotyczący bólu i polecenia lekarza badającego
	Examination Form: International	Formularz badania klinicznego (wersja w języku angielskim)
	Decision Tree and Diagnostic Criteria Table	Drzewo decyzyjne i tabela kryteriów diagnostycznych (wersja w języku angielskim)
Axis II	Pain Drawing	Schemat bólu
	Graded Chronic Pain Scale (GCPS), version 2	Skala bólu przewlekłego (GCPS), wersja 2
	JFLS-8	JFLS-8
	JFLS-20	JFLS-20
	PHQ-4	PHQ-4
	PHQ-9	PHQ-9
	GAD-7	GAD-7
	PHQ-15	PHQ-15
	Oral Behaviors Checklist	Lista kontrolna parafunkcji

JFLS-8 – Jaw Functional Limitation Scale-8; JFLS-20 – Jaw Functional Limitation Scale-20; PHQ-4 – Patient Health Questionnaire-4; PHQ-9 – Patient Health Questionnaire-9; GAD-7 – General Anxiety Disorder-7; PHQ-15 – Patient Health Questionnaire-15.

Both the English and the Polish version of the DC/TMD are available on the INfORM (International Network for Orofacial Pain and Related Disorders Methodology) website: https://ubwp.buffalo.edu/rdc-tmdinternational/tmd-assessmentdiagnosis/dc-tmd. The examination procedures are available as a detailed document with explanations and illustrations,[8] and the examination process is fully presented in a video.[9] The Polish translation package includes Axis I and Axis II instruments and diagnostic algorithms (as listed in Table 1), complete specifications for a clinical examination, and a scoring manual for self-reporting instruments.

The English source version of the DC/TMD was formally translated into Polish – the target language – following the guidelines described in several documents.[10–12] They embrace guidelines for establishing the cultural equivalency of instruments, which describe how to create a valid translation of an instrument designed to collect research-quality data,[10] guidelines on the translation and adaptation of the DC-TMD protocol, which highlight specific translation challenges with regard to the DC/TMD,[11] and guidelines on the translation and review process (step by step, with explanatory notes), which further illustrate the procedures involved in the rigorous translation.[12] The development of a valid translation consists of 10 stages, with each stage resulting in written documentation via the translation log:

1. forward translation by 2 independent translators whose first language is Polish;
2. independent resolution of discrepancies between the 2 forward translations and their synthesis;
3. backward translation by 1 independent translator whose first language is English;
4. independent review of the backward translation vs. the source document by a medical translation professional;
5. revision and iterative development related to discrepancies that require repeating the forward and backward translations of the indicated parts, followed by an independent review;
6. after approval from an independent reviewer, consolidation of all translation and review activity into a single instrument appropriate for an internal review;
7. assembly of an expert committee comprised of 4 individuals and review of the translation quality by each committee member;
8. construction of a pre-final instrument;
9. independent review of the translation process and documentation; and
10. posting the translation on the INfORM website so that others can begin to contribute to Phase II: Translation Validation and Documentation.[10]

Specific details further highlight the rigorous process required for creating a medical instrument appropriate for both patient care and research. For the Polish translation, there were 2 forward translators whose first

language is Polish – one was informed or aware of the health concepts intrinsic to the DC/TMD, and the other was uninformed or naive of those concepts. This ideal allocation of the knowledge regarding the instrument ensures that the final translation adheres to both technical accuracy and the common-sense usage of Polish. Each forward translator produced an independent translation from the source language into the target language. The team leader reviewed both forward translations and resolved any differences in the translation style to facilitate the synthesis of the 2 translation versions. The backward translation of the synthesized forward translation was done by 1 independent translator whose first language is English and whose second language is Polish. The backward translator was totally blinded to the original source. The source and the backward translation were submitted for simultaneous evaluation by an independent reviewer, a medical translation professional who works across multiple areas of medicine and whose first language is English – the language of the source instrument. This particular reviewer was also highly experienced with the content and purpose of the source instrument. The reviewer identified the potential translation problems with regard to the backward translation, adding comments on the nature of the discrepancies. This review was sent back to the team leader. During revision and iterative development, the team leader coordinated the repeated forward and backward translations of the problematic areas until the independent reviewer approved the backward translation as the evidence of an acceptable forward translation.

The team leader then created a consolidated version of the approved forward-translation parts for each instrument, and the necessary comments were added for each item. An expert committee for cultural equivalency review was created; the committee consisted of 4 members, not involved in any of the prior steps: 3 of them were clinicians, and one was a language expert. Each committee member independently reviewed the forward translation against the source and the backward translation for the suitability of content within the context of the Polish culture. Recommendations were made with respect to 4 areas: semantic, idiomatic, experiential, and conceptual equivalence. The expert committee members suggested, as needed, further changes to the translation to ensure cultural appropriateness. Collectively, the review of an expert committee leads to cultural validity. The recommendations were submitted to the team leader, who incorporated the concerns and suggestions into the final forward translation.

On the home stretch, the team leader created the final draft of the instrument and compiled the translation logs. The final instrument draft serves for initial administration and the subsequent empirical testing. All documentation was sent to the Chair of Committee on Translation at INfORM, who reviewed the materials and determined whether the documentation for the translation process was acceptable. After the INfORM review was completed and the translation was approved, the Polish DC/TMD were posted on the INfORM website (https://buffalo.app.box.com/s/4ujx1lvndnxtw4suzvk2ymu9xhe8a5oz).

Although the accumulation of evidence over the years has been a strong argument against invasive and irreversible therapeutic TMD procedures, the biopsychosocial model of TMDs is still not fully accepted by all clinicians in Poland. It is partly due to the lack of knowledge on how to effectively implement the model.[13] Hence, this article aimed to introduce the operationalized tools for both a reliable and valid clinical examination leading to the diagnosis and psychosocial assessment of patients with TMDs. The DC/TMD provide the structure for the "bio" with Axis I diagnoses for physical disorders, and the structure for the "psycho" and "social" with Axis II tools for the assessment of the psychosocial profile. This approach is recommended for use in all patients with a potential TMD diagnosis.

ORCID iDs

Magdalena Osiewicz https://orcid.org/0000-0002-8108-4546
Bartosz Ciapała https://orcid.org/0000-0003-4912-121X
Katarzyna Bolt https://orcid.org/0009-0007-4715-185X
Piotr Kołodziej https://orcid.org/0000-0002-3401-254X
Mieszko Więckiewicz https://orcid.org/0000-0003-4953-7143
Richard Ohrbach https://orcid.org/0000-0002-9266-9734

References

1. De Leeuw R, Klasser GD. Differential diagnosis and management of TMDs. In: De Leeuw R, Klasser GD, eds. *Orofacial Pain: Guidelines for Assessment, Diagnosis, and Management/American Academy of Orofacial Pain*. 6th ed. Hanover Park, IL: Quintessence Publishing; 2018:143–207. https://www.quintessence-publishing.com/usa/en/product/orofacial-pain#qpproductpricetab. Accessed December 27, 2023.
2. National Institute of Dental and Craniofacial Research. Facial pain. 2018. https://www.nidcr.nih.gov/research/data-statistics/facial-pain. Accessed December 27, 2023.
3. Dworkin SF, LeResche L. Research diagnostic criteria for temporomandibular disorders: Review, criteria, examinations and specifications, critique. *J Craniomandib Disord*. 1992;6(4):301–355. PMID:1298767.
4. Ohrbach R, Dworkin SF. The evolution of TMD diagnosis: Past, present, future. *J Dent Res*. 2016;95(10):1093–1101. doi:10.1177/0022034516653922
5. Schiffman E, Ohrbach R, Truelove E, et al.; International RDC/TMD Consortium Network, International Association for Dental Research, Orofacial Pain Special Interest Group, International Association for the Study of Pain. Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) for clinical and research applications: Recommendations of the International RDC/TMD Consortium Network and Orofacial Pain Special Interest Group. *J Oral Facial Pain Headache*. 2014;28(1):6–27. doi:10.11607/jop.1151
6. Visscher CM, Baad-Hansen L, Durham J, et al. Benefits of implementing pain-related disability and psychological assessment in dental practice for patients with temporomandibular pain and other oral health conditions. *J Am Dent Assoc*. 2018;149(6):422–431. doi:10.1016/j.adaj.2017.12.031
7. Häggman-Henrikson B, Ekberg EC, Ettlin DA, et al. Mind the gap: A systematic review of implementation of screening for psychological comorbidity in dental and dental hygiene education. *J Dent Educ*. 2018;82(10):1065–1076. doi:10.21815/JDE.018.104
8. Ohrbach R, Gonzalez Y, List T, Michelotti A, Schiffman E. Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) clinical examination protocol. 2014. https://ubwp.buffalo.edu/rdc-tmdinternational/wp-content/uploads/sites/58/2017/01/DC-TMD-Protocol-2013_06_02.pdf. Accessed December 27, 2023.

9. Gonzalez Y, Chwirut J, List T, Ohrbach R. DC/TMD examination protocol. *MedEdPORTAL®*. 2014. doi:10.15766/MEP_2374-8265.9946
10. Ohrbach R, Bjorner J, Jezewski MA, John MT, Lobbezoo F. Guidelines for establishing cultural equivalency of instruments. 2013. https://buffalo.app.box.com/s/bl4g2beu64kgse4hniy9pghiy6ck5f45. Accessed December 27, 2023.
11. Ohrbach R. Translation and adaptation of the DC-TMD protocol. 2017. https://buffalo.app.box.com/s/fugxw2tt9iz4zf5j9lygvfyvdj2fzrhx. Accessed December 27, 2023.
12. Ohrbach R, Conrod G. The translation and review process: Step by step, with explanatory notes. 2016. https://buffalo.app.box.com/s/mk9y4qe0vlz4u14bycpll2xlz7xk1mnv. Accessed December 27, 2023.
13. Sharma S, Breckons M, Lambelet BB, et al. Challenges in the clinical implementation of a biopsychosocial model for assessment and management of orofacial pain. *J Oral Rehabil*. 2019;47(1):87–100. doi:10.1111/joor.12871