

## Can We Further Improve Clinical Orofacial Pain Research?

It is the nature of science that the quality of research will vary. With the arrival of evidence-based medicine and dentistry in the 1990s and the subsequent avalanche of systematic reviews and meta-analyses, it became clear that a considerable amount of published research did not meet the necessary quality standards. Furthermore, the results of many studies that were almost considered canon when we were students were revealed to be “low quality” when assessed in systematic reviews and could in fact be questioned due to high risk of bias. This problem is conceivably due in part to previously lower standards for reporting of studies. Since then, guidelines and checklists have been created to ensure transparency in the reporting of studies with different designs. *The Journal of Oral & Facial Pain and Headache*, among many other journals and publishers, nowadays therefore requests that authors use checklists when they plan their research and write their manuscripts, referring to the EQUATOR (Enhancing the QUALity and Transparency Of health Research) Network initiative, which is self-defined as “an ‘umbrella’ organisation that brings together researchers, medical journal editors, peer reviewers, developers of reporting guidelines, research funding bodies and other collaborators with mutual interest in improving the quality of research publications and of research itself”<sup>1</sup> for guidance.<sup>2</sup> Generic guidelines and associated extensions are available online for many study types in health research, including randomized trials (CONSORT), observational studies (STROBE), systematic reviews (PRISMA), study protocols (SPIRIT/PRISMA-P), diagnostic/prognostic studies (STARD/TRIPOD), case reports (CARE), clinical practice guidelines (AGREE/RIGHT), qualitative research (SQOR/COREQ), animal preclinical studies (ARRIVE), quality improvement studies (SQUIRE), and economic evaluations (CHEERS).<sup>1</sup> In addition, more and more specialized guidelines for specific diseases, disorders, and patient groups are continuously being developed and added to the EQUATOR library. However, specific guidelines for the reporting of orofacial pain research in general have thus far not been proposed.

Another aspect of quality and validity of research is the need to consider the patient perspective by using patient-related outcomes (PROs),<sup>3</sup> defined by the National Quality Forum as “any report of the status of a patient’s health condition that comes directly from the patient, without interpretation of the patient’s response by a clinician or anyone else.”<sup>4</sup> This is in line with the biopsychosocial model, which suggests that, in addition to the often-reported crude measures of pain intensity and frequency, many other measures

are important to patients in, for instance, treatment efficacy studies or observational research. Generic, disease-specific, or condition-specific PROs, as well as dental PROs (dPROs),<sup>5–8</sup> have been proposed for implementation in orofacial pain research as patient-reported outcome measures (PROMs) in treatment evaluation as well as for screening purposes.<sup>3</sup>

In the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD)<sup>9</sup> and the International Classification of Orofacial Pain (ICOP),<sup>10</sup> PROs/PROMs recommended for psychosocial assessment include pain intensity and related disability (Graded Chronic Pain Scale[-Revised] GCPS[-R]), functional limitations (Jaw Function Limitation Scale-8), psychologic distress (Physical Health Questionnaire-4), oral behaviors (Oral Behavior Checklist), and pain location (anatomical drawing), but there is still need for further development. To establish which specific PROs are most relevant to patients, qualitative research may be needed to inform on patients’ experiences and priorities.

The identification of appropriate PROs/PROMs would be helpful for the next step: the development of core outcome sets (COS) for orofacial pain research. According to the COMET (Core Outcome Measures in Effectiveness Trials) initiative developed in 2010, a COS is “an agreed standardised set of outcomes that should be measured and reported, as a minimum, in all clinical trials in specific areas of health or health care.”<sup>11</sup> The systematic literature review is the lens through which the evidence from primary studies can be assessed,<sup>12</sup> but for the review to be useful, it must be possible to compare results from different original clinical trials and, ideally, to also be able to pool data in meta-analyses. A prerequisite for this is that the measured outcomes are sufficiently similar in nature. In many areas of medicine and dentistry, COS have been developed and published to promote clinical research in the field. The Initiative on Methods, Measurements, and Pain Assessment in Clinical Trials (IMMPACT) identified six core domains to be evaluated in chronic pain trials: pain, physical functioning, emotional functioning, satisfaction with treatment, adverse effects, and adherence to treatment.<sup>13</sup> In orofacial pain, the IMMPACT outcome domains have so far been considered for burning mouth syndrome,<sup>14</sup> trigeminal neuralgia,<sup>15</sup> and in relation to the DC/TMD criteria,<sup>16</sup> but there is need for further improvement and development of orofacial pain COS with special attention to PROs/dPROs.<sup>3</sup>

But is there a downside to this drive for order and documentation? Is there truly a need for establishing extremely specific reporting guidelines? It is time

consuming to produce development protocols, checklists, and documents for explanation and elaboration of the checklists (yes, this process has its own guidelines to follow!). The procedure often involves a Delphi process in several steps. As world experts in their respective fields, many competent senior researchers get involved, and time that could be spent on original research is instead spent writing up recommendations for the same. The aim is high, but are we now shooting over the target? May the requests for structure, standardization, and extensive reporting risk deterring eager junior researchers with fresh eyes from inspired, outside-the-box thinking and realizing research ideas and experiments that could lead to new insights? Is there enough room for novel ideas to bud and bloom (and become published) in this era of adherence to recommendations and guidelines? Are we considering the additional obstacles that may be encountered in developing countries?<sup>17</sup> How should we tackle the abundance of systematic reviews published nowadays, out of which > 90% were suggested to be clinically useless or misleading<sup>18–20</sup> due to poor design of the systematic review itself, review questions with limited clinical relevance, or large heterogeneity and low quality of the included publications? Taken together, this production of research with limited or no impact on clinical care and decision-making can unfortunately only be considered as research waste.<sup>21</sup>

Thus, critical reflection should be invited—but most would probably agree that, at the bottom line, this development is mostly for the good. When reporting guidelines are disseminated and checklists are used as intended, the scientific value of each published research item will increase. Applying COS will ensure less heterogeneity across study results and allow meaningful meta-analyses of data to a greater extent. Choosing COS with attention to PROs/dPROs in orofacial pain will help us better understand and incorporate the patient's view of pros and cons of various management regimes. It is our belief that balanced and thoughtful efforts to improve the design and reporting of clinical studies, with our ears tuned in to the patient's voice, have the potential to strengthen the impact of orofacial pain research and, by extension, benefit our patients.

**Maria Pigg, Associate Editor**  
**Birgitta Häggman-Henrikson, President, InFORM/IADR**

## References

- Equator network. Enhancing the QUALity and Transparency Of health Research. Accessed 6 March 2023. <https://www.equator-network.org/>
- Journal of Oral & Facial Pain and Headache Guidelines for Authors. Updated July 2020. Accessed 6 March 2023. <http://www.quintpub.com/journals/ofph/guidelines.pdf>
- Häggman-Henrikson B, Lobbezoo F, Durham J, Peck C, List T. The voice of the patient in orofacial pain management. *J Evid Based Dent Pract* 2022;22(1S):101648.
- U.S. Department of Health and Human Services FDA Center for Drug Evaluation and Research, FDA Center for Biologics Evaluation and Research, FDA Center for Devices and Radiological Health. Guidance for industry: Patient-reported outcome measures: Use in medical product development to support labeling claims: Draft guidance. *Health Qual Life Outcomes* 2006;4:79.
- Hua F. Increasing the value of orthodontic research through the use of dental patient-reported outcomes. *J Evid Based Dent Pract* 2019;19:99–105.
- John MT. Standardization of dental patient-reported outcomes measurement using OHIP-5—Validation of Recommendations for use and scoring of Oral Health Impact Profile versions. *J Evid Based Dent Pract* 2022;22(1S):101645.
- Reissmann DR. Dental patient-reported outcome measures are essential for evidence-based prosthetic dentistry. *J Evid Based Dent Pract* 2019;19:1–6.
- Shayestehpour S, Sharma K, Mosor E, et al. Patient-reported outcome measures for pediatric dental patients: A methodological review and mapping exercise. *J Evid Based Dent Pract* 2022;22(1S):101661.
- Schiffman E, Ohrbach R, Truelove E, et al. 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;28:6–27.
- International Classification of Orofacial Pain, 1st edition (ICOP). *Cephalalgia* 2020;40:129–221.
- COMET Initiative. Core Outcome Measures in Effectiveness Trials. Accessed 6 March 2023. <https://www.comet-initiative.org/>
- Murad MH, Asi N, Alsawas M, Alahdab F. New evidence pyramid. *Evid Based Med* 2016;21:125–127.
- Dworkin RH, Turk DC, Farrar JT, et al. Core outcome measures for chronic pain clinical trials: IMMPACT recommendations. *Pain* 2005;113:9–19.
- Carey B, Farag AM, Nasri-Heir C, et al. IMMPACT-recommended outcome measures and tools of assessment in burning mouth syndrome RCTs: An international Delphi survey protocol. *Trials* 2020;21:711.
- Nova CV, Zakrzewska JM, Baker SR, Riordain RN. Treatment outcomes in trigeminal neuralgia—A systematic review of domains, dimensions and measures. *World Neurosurg* 2020;6:100070.
- Haythornthwaite JA. IMMPACT recommendations for clinical trials: Opportunities for the RDC/TMD. *J Oral Rehabil* 2010;37:799–806.
- Lobbezoo F, Aarab G, Kapos FP, et al. The global need for easy and valid assessment tools for orofacial pain. *J Dent Res* 2022;101:1549–1553.
- Powell JT, Koelemay MJW. Systematic reviews of the literature are not always either useful or the best way to add to science. *EJVES Vasc Forum* 2021;54:2–6.
- Ioannidis JP. The mass production of redundant, misleading, and conflicted systematic reviews and meta-analyses. *Milbank Q* 2016;94:485–514.
- Manfredini D, Greene CS, Ahlberg J, De Laat A, Lobbezoo F, Klasser GD. Evidence-based dentistry or meta-analysis illness? A commentary on current publishing trends in the field of temporomandibular disorders and bruxism. *J Oral Rehabil* 2019;46:1–4.
- Roberts I, Ker K. How systematic reviews cause research waste. *Lancet* 2015;386(10003):1536.