



The importance of developing evidence-based clinical examinations for low back pain

Arnold Wong

*Department of Rehabilitation Sciences
The Hong Kong Polytechnic University, Hong Kong*

arnold.wong@polyu.edu.hk

Accepted 22 November 2018; Published 11 December 2018

Low back pain (LBP) is the number one cause of years lived with disability in the world.¹ Approximately 80% of people experience LBP at least once in their lifetime and many of them remain to have LBP at older ages.¹⁻³ Despite the high prevalence of LBP, approximately 90% of LBP are labelled as non-specific LBP because no clear etiologies can be found.¹ Given that medical imaging has limited values in diagnosing patients with LBP, lumbar imaging is recommended only when serious pathologies (e.g., malignancy, fracture, infection) are suspected.⁴

In order to prescribe treatments for patients with LBP, physical therapists need to rely on patient history and clinical examinations to inform clinical decisions. In the absence of robust evidence or knowledge on the assessment criteria for identifying patients with different underlying causes of non-specific LBP, a Delphi process is commonly used to solicit expert opinions regarding the most appropriate assessment criteria for classifying patients into different subgroups for treatment allocations.⁵⁻⁷ Following the Delphi process,

further studies should be conducted to evaluate the clinimetric properties of the recommended assessment criteria. Since some clinical examinations initially thought to be useful for differentiating different patient subgroups for treatment allocations may display suboptimal clinical values in some patient populations later,^{8,9} any clinical examinations derived from the Delphi process must be evaluated thoroughly before applying them in clinical practice.

In this issue of Hong Kong Physiotherapy Journal, Vongsirinavarat and co-workers¹⁰ conducted a single-group, repeated measures reliability study to evaluate the agreement of two experienced physical therapists in using nine assessment criteria derived from a Delphi study to diagnose patients with lumbar facet joint pain in a clinical setting.⁷ Specifically, the assessment criteria include three subjective assessments (i.e., localized unilateral pain, referred pain above knee, and no radicular pain), three movement tests (i.e., pain reduction in flexion, pain in extension, and pain in extension with side flexion and rotation

toward the same side of the painful facet joint), and three manual assessments (i.e., replication or aggravation of pain by local pressure over a facet joint or a transverse process, localized muscle spasm over the lumbar facet joint, and reduced passive range of movement or increased stiffness on the painful facet joint during palpation). The results revealed fair to substantial agreements between the two physical therapists in using the nine criteria to distinguish patients with and without lumbar facet joint pain. The suboptimal agreement on some criteria may be attributed to poor reliability of the palpation-based assessments,^{11,12} and/or lack of detailed definitions and training on some assessment criteria prior to the commencement of study. As such, the authors provided specific pragmatic solutions and suggestions for future research.

While a Delphi consensus methodology has been commonly used to solicit consensus from experts regarding the diagnosis or classification of patient with different medical conditions,^{5,13} the results derived from these Delphi studies may not necessarily be adopted by clinicians. It is partly because there is no standard methodology to validate the new knowledge and to put the validated knowledge into practice. To facilitate this knowledge translation, a multistage methodology used for the validation of clinical prediction rules may be adopted.^{14,15} In brief, the validation process includes: (1) a narrow validation (i.e., validation of the diagnostic criteria in one or two clinics), (2) a broad validation (i.e., validation of the criteria in separate populations), and (3) an impact analysis (i.e., evaluation of the usefulness of the diagnostic criteria in improving patient outcomes, changing clinicians' behavior, and/or reducing resource consumption). The first two stages validate the psychometric properties of the experts derived diagnostic criteria in different patient populations or different healthcare settings. The diagnostic criteria can be refined during these two stages. The third stage aims to evaluate the impact of implementing the diagnostic criteria on the diagnostic accuracy, medical costs, and patient satisfaction in clinical practice.¹⁵ Collectively, while a Delphi consensus process can be used as an initial step to derive diagnostic criteria for a disease,¹⁶ a standard validation process should be followed to ensure the validity of the suggested diagnostic criteria and to evaluate the benefits of using those criteria in improving clinical practice.

References

- Balagué F, Mannion AF, Pellisé F, Cedraschi C. Non-specific low back pain. *Lancet* 2012;379(9814):482–91.
- Wong A, Karppinen J, Samartzis D. Low back pain in older adults: Risk factors, management options and future directions. *Scoliosis Spinal Disord* 2017;12:14.
- Ogunlana MO, Odole AC, Adejumo A, Odunaiya N. Catastrophising, pain, and disability in patients with nonspecific low back pain. *Hong Kong Physiother J* 2015;33:73–79.
- Darlow B, Foster BB, O'Sullivan K, et al. It is time to stop causing harm with inappropriate imaging for low back pain. *Br J Sports Med* 2017;51:414–5.
- Tomkins-Lane C, Melloh M, Lune J, et al., ISSLS prize winner: Consensus on clinical diagnosis of lumbar spinal stenosis: Results of an international Delphi study. *Spine* 2016;41:1239–46.
- Wong A, Lauridsen H, Samartzis D, Macedo L, Ferreira P, Ferreira M. Global consensus from clinicians regarding low back pain outcome indicators for older adults: Pairwise wiki survey using crowdsourcing. *JMIR Rehabil Assist Technol*. [accepted].
- Wilde VE, Ford JJ, McMeeken JM. Indicators of lumbar zygapophyseal joint pain: Survey of an expert panel with the Delphi technique. *Physic Ther* 2007;87(10):1348–61.
- Mitchell U, Hurrell J. Clinical spinal stability: 10 years since the derivation of a clinical prediction rule. A narrative literature review. *J Back Musculoskelet Rehabil* 2018; [Epub ahead of print].
- Kendell M, Beales D, O'Sullivan P, Rabey M, Hill J, Smith A. The predictive ability of the STarT Back Tool was limited in people with chronic low back pain: A prospective cohort study. *J Physiother* 2018;64:107–13.
- Vongsirinararat M, Wahyuddin W, Adisaiphaopan R. Agreement of clinical examination for low back pain with facet joint origin. *Hong Kong Physiother J* 2018;38(2):125–31.
- Streder LE, Sjoblom A, Sundell K, Ludwig R, Taube A. Interexaminer reliability in physical examination of patients with low back pain. *Spine* 1997;22(7):814–20.
- Wong A, Kawchuk G. The clinical value of lumbar posterioranterior segmental stiffness: A narrative review. *PM&R* 2017;9:816–30.
- INSITE Collaborations (INTernational Study group for Identification and Treatment of Endofibrosis). Diagnosis and management of iliac artery endofibrosis: Results of a Delphi consensus study. *Eur J Vasc Endovasc Surg* 2016;52:90–8.

14. Falk G and Fahey T. Clinical prediction rule. *BMJ* 2009;339:b2899.
15. Childs JD and Cleland JA. Development and application of clinical prediction rules to improve decision making in physical therapist practice. *Phys Ther* 2006;86:121–31.
16. Nair R, Aggarwal R, Khanna D. Methods of formal consensus in classification/diagnostic criteria and guideline development. *Semin Arthritis Rheum* 2011;41:95–105.