Patient-Reported Outcomes

State-of-the-Art Hand Surgery and Future Applications

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KEYWORDS

• Patient-reported outcome measures • Hand surgery • Upper extremity

KEY POINTS

- A key element of the selection of patient-reported outcome measures (PRO) is understanding the content/conceptual domain covered by different options, and matching these to the population and purpose.
- The Numeric Pain Rating Scale, Michigan Hand Questionnaire, Patient-Rated Wrist (Hand) Evaluation, and Disabilities of the Arm, Shoulder, Hand questionnaire are reliable and valid outcome measures for hand conditions.
- Ideally measures should have interval-level scaling, a wide range of measurement capacity, consistent responses when patients are stable, and responsiveness when patients change, and should have formal validation for other cultures/languages.
- Differential item functioning, response bias, ceiling/floor effects, literacy issues, and other factors can result in failure to achieve accurate measurement with PRO.

Patient-reported outcome measures (PRO), once considered subjective and unreliable, are now recognized as pivotal to understanding the impact of clinical decisions. The 5 steps of evidence-based practice (**Box 1**) require moving from specific clinical questions generated on the basis of interaction with a patient, to finding and applying the best available clinical research evidence—in combination with clinical expertise and patient values and preferences—to make the optimal patient-centered, evidence-informed decision.[1,2] The next step in the process of becoming an evidence-based practitioner is to evaluate the outcomes of evidence-informed decisions.[3] Given that evidence-based practice is designed to incorporate patient values and preferences in decision making,[4–7] the outcome of that decision from the perspective of the patient is central to our effectiveness as evidence-based practitioners.

Increasingly it has become recognized that new drugs, devices, and other interventions must prove themselves in terms of better outcomes at the patient level to warrant investment of public or private dollars. Over the past decade, the Food and Drug Administration has moved toward creating standards of expectation on proving better patient outcomes when approving new drugs and devices.[8] The research community has recognized the importance of PRO, in that most large trials now use PRO as the primary outcome of interest to determine the effectiveness of interventions. The importance of PRO is acknowledged by

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Box 1
Five steps of evidence-based practice

1. Ask a specific clinical question.
2. Find the best evidence to answer the question.
3. Critically appraise the evidence for its validity and usefulness (to determine best evidence).
4. Integrate best evidence with clinical expertise and patient values/preferences to make clinical decisions.
5. Evaluate the outcome.

professional groups, including hand surgeons and hand therapists, although implementation has been less speedy in the clinical arena than in the research arena.

IMPLEMENTATION OF OUTCOME MEASURES

Despite the great advances in the development of reliable and valid PRO, the implementation process has been slow, which is not surprising as there is always a lag between invention and implementation, typically up to 10 to 20 years in many areas of medicine. Practice pattern studies indicate that use of PRO by therapists is low in many musculoskeletal upper extremity conditions,[9–13] despite pain and disability being the predominant complaints. Although the use of PRO by physicians is rarely reported, the limited evidence indicates it is substantially lower than use by therapists.[11] There has been a rapid increase in the use of PRO in clinical trials, which is likely related to regulator and funding agency pressures requiring that interventions demonstrate effectiveness for patient outcomes.[8] Most clinical trials use a PRO as their primary outcome, with impairment and imaging considered as secondary measures. However, when it comes to clinical practice the reverse is often true. Substantial implementation of PRO in clinical practice where insurers mandate their use is now becoming apparent. In interviews with clinicians one often finds that PRO are implemented because they are required, but that they are not consistently used in decision making. Situations whereby outcome measures are selected simply to satisfy the needs of insurers represent a substantial lost opportunity. The potential value of PRO in clinical decision making is sizable. However, unless clinicians select outcome measures thoughtfully, they may not be a valid representation of the patient's status, treatment effects, or outcomes (**Box 2**).

Box 2
Planning an overall approach to be implemented in clinical practice

1. Identify the conceptual framework and/or constructs that are important to measure for the patient (population).
2. Find outcome measures/instruments with supporting published data that measure such constructs.
3. Eliminate any outcome measures that are not standardized, not suited to the context/measurement purpose, or that have been shown to be unreliable or invalid.
4. Critically appraise potential outcome scale(s) using a standardized process or instrument to identify measurement properties, or apply basic clinical measurement principles to ascertain reliability, validity, and clinical utility. Record any issues about floor/ceiling effects, respondent burden, availability of comparative data, and other issues that might affect implementation.
5. Determine whether the instrument is able to perform different measurement functions, including evaluation, discrimination, or ability to predict future outcomes.
6. Ensure you have the valid form, correct scoring algorithms, and any specific instructions on administration (including whether valid cross-cultural translations are available).
7. Identify copyright, reimbursement, and compliance issues.
8. Devise and document the clinical strategy for administering PRO (ie, when they will be applied, who will provide them, how/when will they be scored, where the data will be retained, how the data will be used). Ensure that all parties involved participate in devising the implementation strategy and understand their roles.
9. Make relevant tables of comparison data easily accessible. These tables can be used when interpreting scores for individual patients, report writing, and so forth.
10. Consider pilot testing 2 instruments for a specified period, and reevaluate the instruments' performance, feasibility, and implementation process.

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