Functional Assessment Tools

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Michael P. Zaccagnino and Srdjan S. Nedeljkovic

Introduction

Assessment of patients' pain-related physical and emotional functioning is one of the most important measures in pain evaluation, and are two of the four key domains recommended by IMMPACT for interpreting the significance of treatment outcomes in clinical trials.

Because functional assessment is a multidimensional experience, multiple domains are concomitantly evaluated; these include the impact of pain on daily activities and the level of function in emotional, occupational, and social settings. In general, functional assessment largely involves self-report questionnaires that attempt to measure patients' perception of how pain interferes with specific activities and behavior.

M.P. Zaccagnino, MD (✉)
Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115, USA
e-mail: mzaccagnino@partners.org

S.S. Nedeljkovic, MD
Department of Anesthesiology, Perioperative and Pain Medicine, Pain Management Center, Brigham and Women's Hospital, Boston, MA, USA

Harvard Medical School, Boston, MA, USA

Functional Assessment Questionnaires

This review will focus on the more well-known functional assessment tools.

Global Pain Related Physical Functioning

Multidimensional Pain Inventory (MPI)

- Description: The MPI (formerly known as the West Haven-Yale Multidimensional Pain Inventory—WHYMPI) consists of 64 items composed of 3 parts and 12 subscales. Part 1 includes 6 scales measuring pain-related interference across several domains, including a pain severity scale. Parts 2 and 3 assess spouse responses to patient pain behaviors and participation in various life activities, respectively. The interference domain assesses the degree to which pain affects daily activities, satisfaction with activities, and social relationships.
- Pros/Cons: Takes 10–15 min to complete and is written at a 5th grade reading level. Demonstrates reliability, validity, and utility in many medical conditions including chronic back pain, temporomandibular disorders, and headaches. Has a strong association with pain severity and is responsive to change associated with

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pain treatments. Is particularly useful for assessing spousal predictors of patients' severity of pain and pain-related disability and distress. Appreciably, IMMPACT has recommended use of the MPI interference scale as a functional outcome measure in pain clinical trials.

Brief Pain Inventory (BPI)

- Description: Originally developed for cancer patients, however, is widely used in all pain conditions. The original BPI consists of 32 items used to assess seven domains of pain interference: general activity, mood, walking ability, relations with other people, work, sleep, and enjoyment of life. Patients rate their pain interference on a NRS between 0 and 10, with "no interference" and "completely interferes" endpoints, and responses from each of the seven domains are averaged to form the pain interference scale score.
- Pros/Cons: Takes 10 min to administer, and demonstrates reliability, validity, and utility in all pain patients. It also shows strong associations with measures of pain intensity. The BPI was modified to reflect patients with physical disability (by changing the wording from "walking" to "mobility" interference), and increased its validity by including 5 additional domains of pain interference: self-care, recreational activities, social activities, communication, and learning. However, this modification sacrificed brevity, which is why the short-form BPI (SF-BPI) was developed.

Short-Form Brief Pain Inventory (SF-BPI) and PEG

- Description: The SF-BPI consists of 15 items. The PEG is an ultra-brief version of the BPI that consists of 3 items: (P) pain intensity, (E) enjoyment of life, and (G) general activity.
- Pros/Cons: The SF-BPI maintains the original's psychometric qualities, is available in many languages, and is appreciably recommended by IMMPACT for use as a measure of physical functioning in pain clinical trials. The PEG also demonstrates reliability and validity, although some sources say PEG warrants further validity evaluation.

Pain Disability Index (PDI)

- Description: Consists of 7 items that assess perceived disability within family and home responsibilities, recreation, social activity, sexual behavior, self-care, and life support activity. Each item is rated on a 10-point Likert scale with "no disability" and "worst disability" endpoints.
- Pros/Cons: Brief assessment with excellent reliability. Validity has been demonstrated through its association with the Oswestry Disability Index. Proven useful in tracking responses to treatment in a broad range of painful conditions across a variety of different treatment modalities.

Back Pain Related Physical Functioning

Oswestry Disability Index (ODI)

- Description: Specific questionnaire for back pain research. Consists of 10 sections that include pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex, social life, and travelling. Each section is scored on a 0–5 NRS, with "no limitation" and "maximal limitation" endpoints, and are added up for a total of 50 points, then doubled and interpreted as a percentage of the patient's perceived disability (the higher the score, the greater the disability).
- Pros/Cons: Excellent reliability and clinical face validity. Considered by many to be the gold standard for measuring degree of disability and estimating quality of life in a person with low back pain.

Roland-Morris Disability Questionnaire (RDQ)

- Description: Originally derived from the Sickness Impact Profile (SIP) questionnaire and modified by adding "because of my back

pain" to each item; thus, specific to assessment of back pain. Consist of 24 items involving physical function that are potentially affected by low back pain, and patients simply answer "yes" or "no," for a total possible score of 24.

- Pros/Cons: Strong psychometric properties of reliability and validity, and sensitive to change over time. Used in a variety of studies and translated into many different languages.

Global Pain Related Emotional Functioning

Beck Depression Inventory II (BDI-II)

- Description: Probably a well known measurement of depressive symptoms, and used commonly in pain assessment. This questionnaire consists of 21 items with each containing 4 answer statements designed to assess severity of depressive disorders for a total score ranging from 0 to 63.
- Pros/Cons: Demonstrates excellent reliability and validity, as well as sensitive to change especially in pain treatments (pharmacological and non-pharmacological). Recommended by IMMPACT for assessment of emotional functioning, one of the core outcome measures, in pain clinical trials. Chronic pain patients have demonstrated that somatic items may be associated with pain rather than mood. Also, bias may exist in certain populations (i.e., women, adolescents, and elderly persons).

Profile of Mood States (POMS)

- Description: Used extensively as per the pain treatment literature. Consists of a 65 item adjective checklist that provides a total mood disturbance score and 6 subscale scores (tension, depression, anger, vigor, fatigue, and confusion). Patients are report the degree to which each mood state has applied to them over the past week via a 0 (not at all) to 4 (extremely) Likert scale.
- Pros/Cons: Strong psychometric properties and sensitive to change (especially in analgesic medication trials) in a variety of painful conditions. Has the ability to capture negative and positive dimensions of emotional function, takes 5 min to administer, and available in multiple languages. Recommended by IMMPACT for assessment of emotional functioning, one of the core outcome measures, in pain clinical trials.

Hospital Anxiety and Depression Scale (HADS)

- Description: Originally developed in 1983 for patients with physical health problems in a general medicine clinic. This questionnaire consists of 14 items that generate ordinal data for the two most common mood disturbances – depression and anxiety. Seven items relate to anxiety and seven to depression, each of which is scored 0–3, providing a 0–21 severity score for either condition.
- Pros/Cons: Shows great psychometric properties in a wide variety of settings, including chronic pain with responsiveness to change as a result of pain treatment. Easy to complete in only a few minutes and available in multiple languages. Importantly, avoids the use of somatic symptoms to reduce false positives, as well as adequately distinguishes between the two mood states. Does not over-report the incidence of depression.

Patient Health Questionnaire 8 (PHQ-8)

- Description: The original, self-report questionnaire developed by Pfizer in the 1990s to assess anxiety, depression, and somatoform disorders (known as the Primary Care Evaluation of Mental Disorders (PRIME-MD)) was modified for more efficient administration into the Patient Health Questionnaire. Today, there exists a few different versions of the PHQ, including the full and brief PHQ, as well as, the PHQ-2, -8,-9 (evaluates depression only), and -15 (evaluates somatoform disorders). We will focus on the PHQ-8, which omits the 9th item (self-harm) on the PHQ-9 for reasons of

redundancy and lack of added clinical value in non-depression research studies and clinical settings. The PHQ-8 consists of eight items, each of which is scored 0–3, providing a 0–24 severity score (mild, moderate, and severe).

- Pros/Cons: Shows great psychometric properties in a variety of different settings, including the elderly, patients with mild cognitive impairment, adolescents, and peripartum women. Demonstrates sensitivity to change over time periods and with treatment, is easy to administer, and available in multiple languages.

Functional Capacity Evaluation (FCE)

Introduction

A FCE is a systematic, comprehensive, and "objective" set of tests, practices, and observations that are combined to determine a person's maximum safe functional ability relative to a variety of circumstances, most often for employment. There are a number of different types of functional capacity evaluations, with recent interest from insurance companies and governmental agencies (i.e., United States Social Security Administration (SSA)) for their utility. Typically, a physical or occupational therapist provides recommendations on which FCE to use, as well as, administers the evaluation. The United States SSA has its own FCE, called the Assessment of Disability. Also, the World Health Organization (WHO) recently designed a new FCE called the International Classification of Functioning, Disability and Health (ICF).

Physician Role

Clinicians provide the best evidence of medical impairments and their implications. As a result, their role is to define and document such findings from all available sources and integrate the information into a coherent picture of the patient's overall medical-related ability.

General Functions of FCEs

- Determine fitness to work following a period of medical leave
- Provide information on prognosis and potential occupational rehabilitation treatment measures, as well as evaluate the effectiveness of such rehabilitation
- Identify changes in the workplace that an employer might be able to undertake to accommodate an employee
- In some instances, required by insurers before payments can be made
- Determine eligibility for disability or pension insurance in the event that an person is unable to return to work

Limitations of FCEs

- Performance testing by a trained therapist, vs. self-report, is considered more useful; however, such testing is time-consuming, requires specialized equipment, and expensive.
- Self-report measures have been found to systematically underestimate functional ability when compared to performance testing.
- Less than maximal effort on the patient's part will severely limit the results.
- Measure functional ability at a single point of time, so issues of fatigue and endurance are minimized.
- Patients' performance appears to be influenced by psychological and social factors.
- Overall, FCE results are not predictive of outcome following multidisciplinary rehabilitation and are only modestly predictive of future return-to-work.

Suggested Reading

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