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ORIGINAL RESEARCH

Psychometric Testing of a Rehabilitative Care Patient Experience Instrument

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Abstract

Objective: To evaluate the internal consistency and test-retest reliability, construct validity, and feasibility of the WatLX, a measure of the experience of patients in rehabilitative care.

Design: Multisite, cross-sectional, and test-retest self-report study.

Setting: Outpatient rehabilitative care settings.

Participants: The WatLX was administered to English-speaking, cognitively intact outpatients (N=1174) over 18 years old who had completed a program of cardiac, musculoskeletal, neurologic, stroke, pulmonary, or speech language rehabilitative care, at 2 separate time points: (1) immediately following completion of their rehabilitation program, and (2) 2 weeks later (n=29). A subsequent feasibility study was conducted with 1013 patients from 19 clinics.

Interventions: Not applicable.

Main Outcome Measures: The WatLX measures 6 concepts, previously identified as key to outpatient rehabilitative care patients' experience: (1) ecosystem issues, (2) client and informal caregiver engagement, (3) patient and health care provider relations, (4) pain and functional status, (5) group and individual identity, and (6) open-ended feedback.

Results: Reliability analyses were conducted on 2 versions of the WatLX. Using a 7-point versus a 5-point Likert scale resulted in higher internal consistency and reliability scores. Cronbach's alpha coefficients were .863 and .957 for the 5- and 7-point scale, respectively, and the ICC scores were .827 and .880, respectively. The proof of concept study recruited 1013 patients with little interruption of workflow; results displayed strong internal consistency (Cronbach's alpha coefficient =.906). There is evidence of ceiling effects.

Conclusions: The WatLX is a parsimonious question set that is feasible for administration in ambulatory rehabilitative care settings, and which shows promising psychometric properties.

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There is growing evidence that patient-reported measures are correlated with better health outcomes. Assessment by patients of *satisfaction* with their care is correlated with increased adherence to treatment,[1] reduced length of stay,[2] increased attendance, improved functional capacity, and fewer depressive symptoms at discharge.[3] Assessment by patients of care *experience* is associated with the quality of health care provider processes such as adoption of safe practices, communication, and improved clinical outcomes.[4-7] Patient satisfaction, while similar in nature to patient experience, is a more subjective and less informative measure[8]; patient satisfaction is expectancy-dependent and therefore does not produce actionable outcomes.[5,9] Psychometrically sound patient experience measures are able to capture distinct features of health care quality that can only be informed by a patient, and they do so in a more objective way.[2,5]

Care is moving from hospital-based to community-based settings as decision-makers seek the most cost-effective methods of delivering care; this is increasingly the case in rehabilitative care.[10,11] Providers and regulators need reliable, affordable, user-friendly tools that allow them to assess and report the quality of

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patients' health care experiences as part of their ongoing audit of service quality. To the best of our knowledge, no psychometrically sound patient experience measurement tool that captures the unique experiences of outpatients across a rehabilitative care system exists.[8]

Following a systematic review of the literature on tested instruments that measure patients' experience of rehabilitative care,[8,12] we developed a self-report measurement tool, the WatLX (the Waterloo Wilfrid Laurier University Rehabilitation Patient Experience Instrument), to assess rehabilitation patients' care experiences. The measure was developed for initial use in outpatient settings, with potential for cross-continuum application. We developed the WatLX in 4 phases. In phase I, over 500 previously identified questions measuring patient experience were analyzed and used to develop a parsimonious 10-question set and an open-ended prompt that represented all 6 previously identified domains of patient experience.[12] This 10-question set formed the basis for the WatLX. Each respondent's total WatLX score is calculated using a nonweighted sum of the 10 items' individual scores (for a possible score of 50 for the 5-point version, and 70 for the 7-point version). During phases II and III, the WatLX underwent construct and face validation with a comprehensive group of stakeholders, including patients and their caregivers, health care providers, and health care decision makers in southwestern Ontario. These results are reported elsewhere[13]; briefly, the results involved an expert consultation session, a card sorting activity,[14] triangulation through a comparison exercise,[15] and cognitive interviewing.[16] Phase IV involved psychometric testing of internal consistency, construct validity and test-retest reliability, and feasibility testing, and is described in this report.

Methods

Using a cross-sectional design, we field-tested the WatLX and conducted 2 phases of psychometric testing. Phase I was conducted in 2 outpatient clinics in southwestern Ontario, where we investigated feasibility, internal consistency, construct validity, test-retest reliability and survey scaling. Phase II was conducted in partnership with a large multi-organization rehabilitative care collaborative, and examined feasibility, internal consistency, and construct validity in wider implementation with a larger and more diverse sample.

Phase I: Reliability and Validity

To explore a possible ceiling effect, and investigate potential improvements to psychometric properties, we tested the WatLX using both a 5-point and 7-point Likert scale ranging from *Entirely Disagree* to *Entirely Agree*.[17] The reliability and validity of both versions of the WatLX were calculated using the same measures and compared. The first phase of this validation took place within 2 outpatient rehabilitation clinics: 1 clinic focused on cardiac rehabilitative care (5-point: n=64; 7-point: n=49), and the other, an in-hospital outpatient rehabilitative ambulatory care clinic, treated patients recovering from stroke, neurologic, pulmonary, speech, and musculoskeletal conditions (5-point n=23; 7-point n=26).

Paper surveys were distributed and participating sites established a secure location or container for collecting completed surveys that was easily accessible to patients. Before implementation, the research group conducted webinars and in-person training sessions to educate staff on the study objectives, the development of the tool, and the protocol for distributing the tool to patients, including eligibility criteria and data collection procedures. During the initial pilot testing, researchers held 3 meetings with participating health care providers to discuss workflow, perceived ease of use, and perceived usefulness, and to collect feedback on ways to adapt the data collection process to workflows in rehabilitation clinics.

Participants included in the study met the following criteria: ≥18 years of age, currently receiving care in the participating rehab clinic, and within 2 weeks of expected date of discharge. Exclusion criteria included inability to read or comprehend English and cognitive impairment. After consultation with a subject matter expert about the assessment of cognitive impairment, patients were eligible to participate if staff could answer *yes* to the following questions: (1) Can this person read or hear written material on his or her own? (2) Is this person able to comprehend the written material on his or her own? If the staff could answer *yes* to the questions but the respective clients required assistance transcribing their responses, clients nevertheless remained eligible and could use an assistant. An assistant was identified as anyone who was not an owner, employee, or volunteer at a participating clinic. Assistants transcribed the responses of the patient and did not act as proxies.

Staff identified all patients (or their assistants) who met the eligibility criteria, and provided the patients (or their assistants) with a survey package. Patients completed the survey in the clinic before discharge, sealed the survey in the provided envelope, and deposited the envelope in the collection drop box. If a patient chose not to participate, they placed the uncompleted survey in the collection drop box.

The reliability of the instrument, its ability to consistently measure attributes, and how well these attributes fit together conceptually, was first measured using Cronbach's alpha coefficient to determine its internal consistency. Test-retest reliability refers to the ability of a measurement instrument to reproduce results over 2 or more occasions (assuming underlying conditions have not changed).[18] The WatLX was administered to the same sample on 2 occasions to assess the stability of the patients' reported experiences over time, using this measure. There are no clear guidelines on the optimal time between tests.[19,20] Shorter time periods are associated with less random variability and more favorable estimates of responsiveness.[21] Streiner[22] recommends retests no earlier than 2 weeks for instruments that are shorter in nature, like the WatLX, to avoid recall bias. The time between data points for this study was thus set at about 2 weeks as a target, with actual retest periods ranging between 10 and 24 days.[23] All participants were asked to participate, and all who consented to participate were contacted for the retest assessment. The follow-up survey was administered to patients over the telephone by a researcher trained in the study protocol. Field notes were taken during the follow-up phone call to provide contextual information. An intraclass correlation coefficient (ICC) was calculated to assess test-retest reliability; the 2-way mixed effects model, absolute agreement, single measurement convention[24] was used throughout.

List of abbreviations:

CI **confidence interval**
ICC **intraclass correlation coefficient**