Validation and Responsiveness of the Low Vision Independence Measure (LVIM)

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PURPOSE:
Visually impaired individuals have decreased participation in activities but rehabilitation can help. The focus of rehabilitation is to increase independence in activities and valid assessments are needed to measure rehabilitation outcomes. A number of vision function questionnaires have been developed to measure vision rehabilitation outcomes, but few accommodate usual practice by occupational therapists whereas the Low Vision Independence Measure (LVIM) does. There are two purposes to this study. First, the author sought to evaluate measurement validity of the LVIM. Second, the author aimed to determine the responsiveness of the LVIM to low vision rehabilitation.

METHODS:
An observational quantitative design was used. To evaluate measurement validity, LVIM responses from 39 participants were collected at baseline. To determine responsiveness of the LVIM, baseline LVIM responses were collected from 33 participants, usual care was provided by an occupational therapist, and LVIM posttest data were collected at discharge.

RESULTS:
Rasch analysis of participant responses indicates that the 4 response categories conform to the expectations of the Rasch model well with thresholds increasing in an ordered manner ***(See Figure 1).***

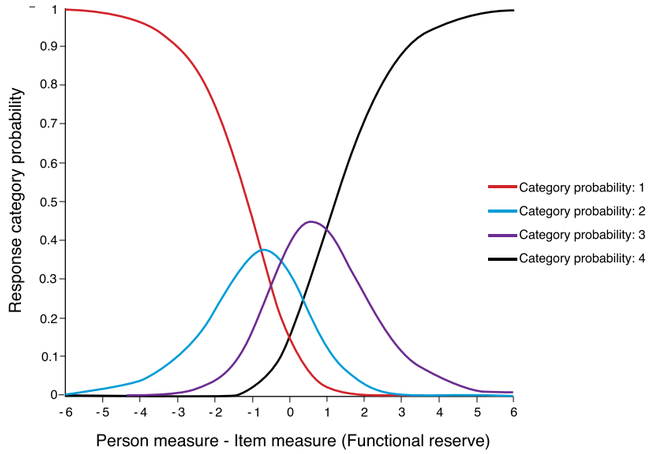

Figure 1. Category Probability Curve

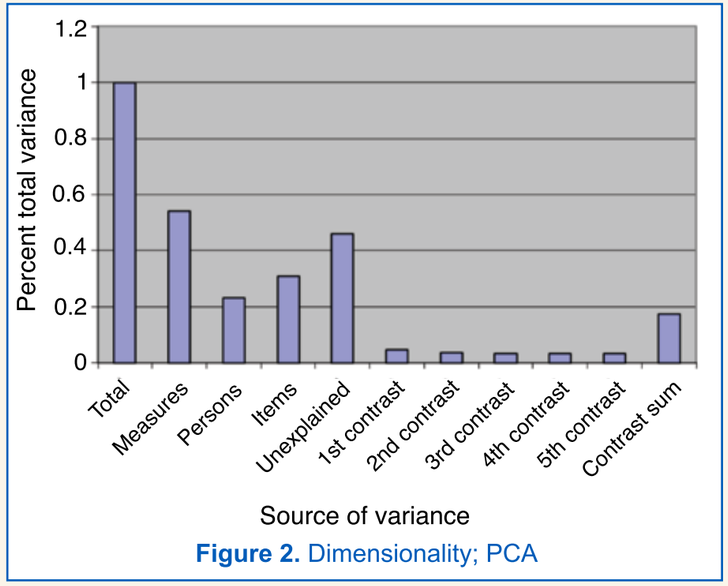

Figure 2. Dimensionality; PCA

The LVIM is well-targeted with a good spread of items. Person measure reliability = .92 and item measure reliability = .90. Fit statistics indicate person and item mean square residuals are distributed as expected. These results conform to measurement model expectations and LVIM items are vision dependent. In addition, fit statistics and principle component analysis (PCA) were used to assess unidimensionality ***(See Figure 2).***

Measure of rehabilitation outcomes yielded change scores with a mean of 0.27 and a standard deviation of 0.28. Improvement from rehabilitation of participants was significant (P <0.001 for paired-comparison t-test). The effect size was 0.77 with effect sizes of 0.80 or greater considered large.

CONCLUSIONS:
The LVIM has measurement validity and is responsive to low vision rehabilitation by occupational therapists. Future research should focus on targeting LVIM items for the patient population and on determining the effect size of low vision rehabilitation for the eight LVIM subscales.

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Theresa Smith, PhD, is an occupational therapist, a certified low vision therapist, and an Assistant Professor. She has experience in evaluation and rehabilitation of patients with low vision to increase their ADL and IADL independence. Dr. Smith also has experience with research on how individuals adapt to low vision and increase their independence in ADL and IADL. In addition, she has developed a low vision function assessment (Low Vision Independence Measure), refined it, and established preliminary psychometrics for the assessment. Dr. Smith has presented her research at the state, national and international levels and is published in a number of peer reviewed journals.

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