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ORIGINAL RESEARCH

Development of Self-Report Measures of Social Attitudes That Act As Environmental Barriers and Facilitators for People With Disabilities

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Abstract

Objective: To describe the development of new self-report measures of social attitudes that act as environmental facilitators or barriers to the participation of people with disabilities in society.

Design: A mixed-methods approach included a literature review; item classification, selection, and writing; cognitive interviews and field testing of participants with spinal cord injury (SCI), traumatic brain injury (TBI), or stroke; and rating scale analysis to evaluate initial psychometric properties.

Setting: General community.

Participants: Individuals with SCI, TBI, or stroke participated in cognitive interviews (n=9); community residents with those same conditions participated in field testing (n=305).

Interventions: None.

Main Outcome Measure: Self-report item pool of social attitudes that act as facilitators or barriers to people with disabilities participating in society.

Results: An interdisciplinary team of experts classified 710 existing social environment items into content areas and wrote 32 new items. Additional qualitative item review included item refinement and winnowing of the pool prior to cognitive interviews and field testing of 82 items. Field test data indicated that the pool satisfies a 1-parameter item response theory measurement model and would be appropriate for development into a calibrated item bank.

Conclusions: Our qualitative item review process supported a social environment conceptual framework that includes both social support and social attitudes. We developed a new social attitudes self-report item pool. Calibration testing of that pool is underway with a larger sample to develop a social attitudes item bank for persons with disabilities.

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Transactional models, which combine biomedical and social perspectives, conceptualize disability and its relation to adaptation as products of person-environment interactions that restrict or support individuals' participation in society.[1-5] It is therefore imperative to accurately define and measure aspects of the environment that impact participation. The World Health Organization's *International Classification of Functioning, Disability and Health* (ICF)[6] is the first widely accepted classification schema that includes contextual components, both personal and environmental factors (EFs), that are relevant to people with disabilities. The ICF includes EFs across 5 categories (products and technology; natural environment; services, systems, and policies; support and relations; attitudes) that can range in influence from acting as complete barriers to complete facilitators. The latter 2 categories include individuals' social environments and their influences on participation across various life domains.

Improved assessment of social EFs is particularly important from the perspectives of disability rights and the social model of disability, which emphasizes the impact that social and attitudinal factors can have on people's participation choices and opportunities.[3,7] Social attitudinal factors can range from barriers (eg, stigma, discrimination) to facilitators (eg, social inclusion, integration).[8-10] Research from diverse fields, including education, employment, and health care, indicates that societal and individual attitudes about people with disabilities have a profound impact on their participation experiences.[11,12] Indeed, although the public may verbalize positive attitudes about disability, many individuals hold deep-seated negative feelings toward people with disabilities that may be manifested as prejudice and subsequent oppression.[13] Therefore, it is important to measure how others' attitudes about disability are experienced by people with disabilities.

Unfortunately, many measures include objective environmental descriptions rather than the lived social experiences and perspectives of people with disabilities, do not address the full spectrum of the social environment, are specific to 1 disability group, or are multidimensional measures of various EFs without providing a comprehensive assessment of the social environment.[12,14,15] For example, the Craig Hospital Inventory of Environmental Factors includes only 3 attitude items as part of a 25-item global assessment of EFs.[16]

To address these measurement gaps, we developed a social environment framework (consisting of social support and social attitudes components), evaluated social support measures for applicability to disability populations, and created a new social attitudes item pool that assesses self-reported experiences across disability populations. This work was accomplished as part of a larger study aimed at developing a comprehensive set of self-report EF measures, including item banks, for use with people with spinal cord injury (SCI), traumatic brain injury (TBI), or stroke.[15] An item bank is a set of items that are representative of the spectrum of a common trait (eg, social attitudes) and are calibrated on the same measurement scale using item response theory or Rasch model approaches, therefore simplifying scoring and interpretation.[17-20] An advantage of item banking is that it allows for brief but comprehensive assessment. This article examines how well the social EF items fit the Rasch model, which is a necessary preliminary step to creating item banks.

List of abbreviations:

EF	**environmental factor**
ICF	***International Classification of Functioning, Disability and Health***
PROMIS	**Patient Reported Outcomes Measurement Information System**
SCI	**spinal cord injury**
TBI	**traumatic brain injury**

Methods

The parent project[15] developed an overarching EF conceptual framework that includes 6 domains: assistive technology; built and natural environment; social environment; services, systems, and policies; access to information and technology; and economic quality of life. The efforts of the social environment workgroup, including a multistep qualitative item review process and field test, are subsequently described. We obtained institutional review board approval for this project.

Item selection and classification

The parent study yielded an extensive item library informed by a literature review of existing EF measures and thematic analysis of qualitative focus groups of 201 people with disabilities.[15,21] An interdisciplinary expert panel then completed domain identification so that all candidate items were assigned to domains within the conceptual framework.[15] The social environment workgroup, consisting of psychologists, occupational therapists, and disability and health outcomes researchers, assigned items to conceptual groups informed by both theory and item content. The workgroup then examined the items for redundancy, content coverage, and representativeness; doing so allowed for both the writing of new items to fill content gaps and winnowing down of the pool to a representative set of items. The workgroup achieved consensus on all decisions and used procedures that are in accordance with the qualitative item review protocols used in the parent study and established by the Patient Reported Outcomes Measurement Information System (PROMIS) initiative.[15,22]

Cognitive interviews and item revision

After generating the item pool, we conducted cognitive interviews with participants with SCI, TBI, or stroke to assess the items' comprehensibility and relevance. As described in detail elsewhere, we used a process similar to the one developed in the PROMIS but with disability accommodations provided as needed (eg, items read aloud, repeated, explained).[15,22] During the cognitive interviews, each participant completed a subset of 30 to 50 social items followed by an interview focused on understanding key concepts (eg, society) and selection of responses. Participants were asked to explain each question in their own words and describe how they arrived at their answer. A minimum of 5 participants responded to each item, and interviewers recorded responses verbatim for analysis.

The social environment workgroup then reviewed responses to determine which items were problematic (eg, ambiguous, confusing) and proposed ways to revise them. The larger interdisciplinary research team reviewed the workgroup's recommendations; refinements were proposed until consensus was reached. Revised items underwent a second round of cognitive interviewing using the same procedures and a subset of the same sample. Final item pool revisions were informed by a reading-level analysis (using the Flesch-Kincaid tool and Lexile Framework)[23,24] to reduce literacy