WHODAS 2.0 in Community Rehabilitation
A Qualitative Exploration and Construct Validity of a Generic Disability Measure

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Introduction and Purpose
The World Health Organization Disability Assessment Schedule
WHODAS 2.0[2,3] is a generic, patient-reported outcome measure (PROM) based on the World Health Organization International Classification of Functioning, Disability and Health[1]. In this study, we explored the validity of WHODAS 2.0 as a routine PROM for community rehabilitation services in the United Kingdom (UK).

WHODAS 2.0 consists of 36 items, grouped in six domains: cognition, mobility, self-care, getting along with peers, life activities (household and work), and participation in society[4]. Respondents rate the level of difficulty they experience with each item due to their health conditions and taking into account personal assistance and aids available to them. WHODAS 2.0 thereby incorporates social and environmental aspects of disability, portraying an inclusive approach to a strictly medical view of disability. This was considered relevant in the context of community rehabilitation, which can address social and environmental factors, for example through caregiver training or through the provision of aids.

Guidance on the validation of PROMs emphasizes the importance of qualitative evidence for a measure’s content and construct validity in the particular context of measurement[5]. We found insufficient qualitative evidence for the validity of WHODAS 2.0 as a routine PROM in community rehabilitation in published literature. The purpose of the study was to generate such evidence.

Methods
The study was set in a community rehabilitation service (CRS) in London, UK. Hosted by the National Health Service (NHS), this CRS provides multidisciplinary goal-oriented rehabilitation for adults with heterogeneous medical background. The service offers physiotherapy, occupational therapy, speech and language therapy and clinical psychology. Rehabilitation interventions can include exercise therapy, mobilization, training, activities of daily living (ADL) training, provision of aids and environmental adaptations, caregiver training and communication training.

We combined a phenomenological approach with grounded theory and content analysis[6,7]. A convenience sample of 15 CRS service users (aged 18-93) was recruited in the spring of 2011. At participating respondents gave written informed consent. Semi-structured interviews explored participants’ difficulties in life expectancy from community rehabilitation and views on disability. This was followed by the interviewer-administered WHODAS 2.0. Interview recordings were transcribed and coded. The coding of selected transcripts was reviewed by a peer.

To explore content validity, we conducted a content analysis. Interviewees’ accounts of difficulties in life and expectations from community rehabilitation were compared against and mapped onto WHODAS 2.0 items. To investigate construct validity, we used grounded theory analysis to discover the conceptualization of disability within the sample. We then compared this with the construct of disability underlying WHODAS 2.0, IC-F.

Results
The sample consisted of 15 adults (aged 54 to 93; eight women - F1 to F8, two men - M1 and M2), who varied with respect to ethnicity, socio-economic status, medical background (neurological, orthopaedic, multiple co-morbidities) and severity of disability. Not represented were younger age groups and individuals who have lived with a disability from a young age.

Most of the interviewees’ accounts of difficulties in life and expectations from community rehabilitation corresponded literally with WHODAS 2.0 content. A number of accounts (mostly medical complaints and environmental issues) could not be mapped onto WHODAS 2.0 content. This constitutes a limitation in the analysis method. Arguably, only the individual respondent could interpret how these accounts relate to WHODAS 2.0 content.

Participants conceptualized disability mainly according to the medical model, which interprets disability as a consequence of health conditions. Participants F5, an elderly woman with multiple co-morbidities and M2 who suffered a recent injury, put: ‘Is health is the problem’ interviewees tended to compare themselves to a perceived majority norm or perceived pre-morbid norm. For example, participants F5, an elderly woman recovering from hip surgery, commented that before her operation she had been ‘just a person’, while after the operation she had difficulty in performing basic activities of daily living. This view of disability, combined with ambiguous wording of the WHODAS 2.0 questionnaire, caused uncertainty in relation to social and environmental aspects of disability. Examples are given in Figure 1. As per the WHODAS 2.0 manual[8], the interviewer guided participants to take into account personal assistance and assistive devices available to them. The interviewee accounts. Figure 2 gives an example of WHODAS 2.0 scores before and after the interviewee’s prompts.

Discussion and Conclusion
Acknowledging several limitations to the study, some relevant groups were not represented in the sample. The study lacked respondent validation, and peer debriefing was limited.

The findings support the construct validity of WHODAS 2.0 as a generic measure of disability. However, two problems relating to the measure’s construct validity became apparent: ambiguity inherent to the underlying construct of disability, and reliance on the interviewer to resolve this ambiguity.

Rehabilitation interventions at social and environmental level can constitute a central component in community rehabilitation. Ambiguity in respect to these aspects in WHODAS 2.0 may cause inaccurate scores and misrepresentation of a community rehabilitation service’s effectiveness. Also, ambiguity in interpreting questions may invalidate the instrument for comparison between individuals.

Consequently, we recommend caution when applying WHODAS 2.0 as an outcome measure in community rehabilitation and where social and environmental aspects of disability are considered important. Further qualitative exploration of the measure’s validity may be warranted.

Figure 1 - Participants’ comments Illustrating ambiguity in relation to social and environmental aspects of disability in WHODAS 2.0

Figure 2 - WHODAS 2.0 overall score and domain scores for participant F8. Potential scores range from zero (no disability) to 100 (maximum disability). Due to a recent spinal cord condition, this elderly lady used a wheelchair to mobilise and relied on personal assistance for activities. She initially rated herself without considering assistive equipment and personal assistance available to her. After the interviewer explained that assistive equipment and personal assistance should be taken into account, she lowered her ratings for three questions by one to two each, which resulted in the score difference illustrated above. Ambiguity in interpreting questionnaire items introduced variability to scores.