

Validity and Reliability of the Wheelchair Satisfaction Questionnaire

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Consequences of Unsatisfactory User-Wheelchair Interface

Functional:

Restricted mobility, denial of social interaction, denial of educational opportunities, denial of ability to execute everyday tasks

Physiological:

Postural instability

Pressure sores and related infections

Injury to limbs

Arms due to requirements of pushing,

Legs and feet due to faulty foot plates, etc.

Emotional:

Isolation and related consequences (e.g., depression)

Loss of social support system



The Process of Questionnaire Development

Step 1 Validity

- **Face validity** is the extent to which a test is subjectively viewed as covering the concept it purports to measure.
 - A test can be said to have face validity if it "looks like" it is going to measure what it is supposed to measure.
- **Content validity** refers to the extent to which a measure represents all facets of a given construct.
 - An element of subjectivity exists in relation to determining content validity, which requires a degree of agreement about what a particular personality trait such as extraversion represents.



The Wheelchair Satisfaction Questionnaire

16 visual analogue-scale questions with school grade anchors and a line for explanatory comments.



Aspects of wheelchair satisfaction divided into three categories:

Explicit aspects (foot supports, casters, etc.)

Appearance

Overall satisfaction

2. Rate the seat back, including cushions and other parts supporting your back, trunk, and head.
From below F (I'm very dissatisfied) to above A (It's perfect for me!)

 | F ————— D ————— C ————— B ————— A | 
POOR EXCELLENT
Comment: _____

Development of the WSQ Validity

Phase 1: March 2018

**Data collected at the 34th Annual ISS:
Established face and content validity.**

**Fifteen adult manual wheelchair users
completed the WSQ and the WSQ-F.**



Development of the WSQ

Validity

- **Results: Changes in wording**
- **Lack of person first language in five questions**
- **Questions 11-15 amended to reflect user's satisfaction with their chair as it interfaces with their ability**

Question	Phase 1 - Canada	
	Mean	SD
Rate the . . .		
Topic of WSQ	6.67	0.62
Format of WSQ	6.33	0.82
Info solicited in header	6.33	0.90
Instruction of WSQ	6.47	0.60
Question 1 of WSQ	5.47	1.73
Question 2 of WSQ	6.27	0.88
Question 3 of WSQ	6.33	0.72
Question 4 of WSQ	6.73	0.59
Question 5 of WSQ	6.67	0.62
Question 6 of WSQ	6.40	0.74
Question 7 of WSQ	6.67	0.62
Question 8 of WSQ	6.73	0.59
Question 9 of WSQ	6.67	0.62
Question 10 of WSQ	6.60	0.63
Question 11 of WSQ	6.60	0.63
Question 12 of WSQ	6.60	0.74
Question 13 of WSQ	6.53	0.74
Question 14 of WSQ	6.60	0.74
Question 15 of WSQ	6.33	1.59
Question 16 of WSQ	6.73	0.59
Rate WSQ overall	6.47	0.64

Development of the WSQ Validity

Phase 2: May 2018

**Data collected at the Joytown Secondary
School in Thika, Kenya**

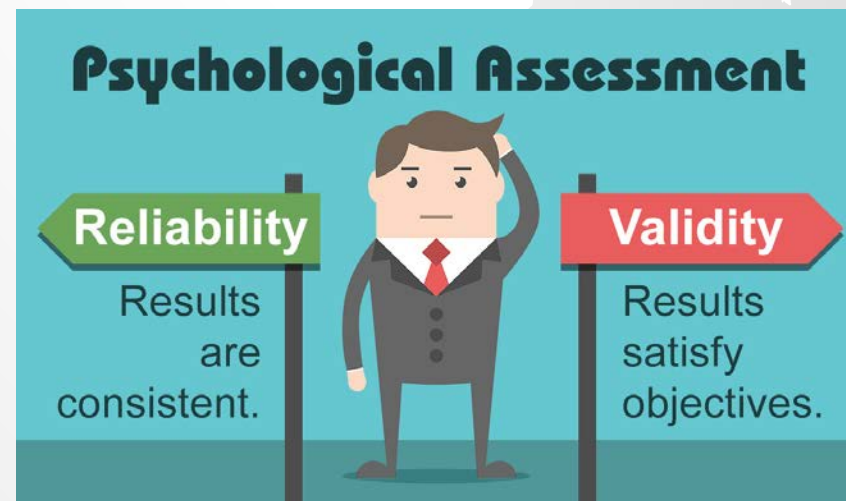
Fifteen secondary school students (eight males and seven females), who were manual wheelchair users completed the WSQ and the WSQ-F. Each participant had to have been in their current chair for at least six months.

Questions	Phase 2 - Kenya	
	Mean	SD
Rate the . . .		
Topic of WSQ	6.40	1.36
Format of WSQ	6.53	0.81
Info solicited in header	6.20	1.11
Instruction of WSQ	6.60	1.25
Question 1 of WSQ	6.80	0.54
Question 2 of WSQ	6.87	0.34
Question 3 of WSQ	6.67	1.01
Question 4 of WSQ	7.00	0.00
Question 5 of WSQ	6.47	1.31
Question 6 of WSQ	6.47	1.50
Question 7 of WSQ	6.80	0.54
Question 8 of WSQ	6.87	0.34
Question 9 of WSQ	6.87	0.34
Question 10 of WSQ	6.93	0.25
Question 11 of WSQ	6.80	0.54
Question 12 of WSQ	6.67	1.25
Question 13 of WSQ	6.93	0.25
Question 14 of WSQ	6.87	0.34
Question 15 of WSQ	6.87	0.50
Question 16 of WSQ	6.80	0.40
Rate WSQ overall	7.00	0.00

The Process of Questionnaire Development

Step 2 Reliability

- **Test-Retest Reliability** is the closeness of the agreement between the results of successive measurements of the same measure and carried out under the same conditions of measurement.
 - In other words, the measurements are taken by a single person or instrument on the same item, under the same conditions, and in a short period of time.



Development of the WSQ Reliability

- **Purpose:** Investigate the test re-test reliability of the WSQ.
- **Hypothesis:** Field testing in Kenya would demonstrate that the WSQ has test-retest reliability.



Reliability of the WSQ

Experimental design: Test-retest with seven days between administrations

$N = 63$

Materials: Hard copy of the WSQ and a pen

Participants:

Students at Joytown School, Thika, Kenya;

Ranged in age from 13-24, 34 female, 39 male

Criteria for participation:

Full-time user of manual-push wheelchair

User of chair for at least six months



Results

Interclass Correlation Coefficient: $r(63) = .863, p = .0001$



Discussion

Hypothesis supported: The WSQ does have test-retest reliability

User-informed

Provides quantitative and qualitative data

Applications:

Manufacturers: User feedback on parts and function

Therapists: Highlights specific issues to address

Providers: Optimal suitability for individuals

Individuals are given a voice in their own wheelchair provision



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to access the WSQ online go to
www.letu.edu/wheels