Reliability, Validity, and Clinical Utility of a Self-reported Screening Tool in Prediction of Fall Incidence in Older Adults

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Introduction

- Increased concern over fall in older people related to environment
- A lack of culturally specific functional-oriented assessments or interventions
- Need for a proper screening tool for prioritization
**Methods**

**Development of the Chinese version of HomeFAST-SR**
- Translation & Evaluation of relevance

**Recruitment of subjects**
- Purposeful sampling

**Study phase 1: Field testing of the Chinese version of HomeFAST-SR**
- Assessment of the linguistic validity

**Study phase 2: Inter-rater and test-retest reliability testing**
1. Among 50 older people
2. Between 5 health professionals and older people

**Study phase 3: Factor analysis and validity of the Chinese HomeFAST-SR**
- Categorical Principal Components Analysis (CatPCA)
- Number of home hazards identified and subjects’ admission as a result of falls in the six-month follow-up

**Study phase 4: Sensitivity and specificity of the Chinese HomeFAST-SR**
Results

Study phase 1: Field testing of the Chinese version of HomeFAST-SR
- Inter-rater reliability testing using kappa scores (kappa scores = 0.62)

Study phase 2: Inter-rater and test-retest reliability testing
1. Among 50 older people
   - Excellent interrater reliability (ICC = .89, with 95% CI: 0.84-.93).
   - Good test-retest reliability with an ICC of .88 (with individual item ICC ranging from .86 to .95 (95% CI: .90 -.94))
   - Good to excellent internal consistency with Cronbach’s alpha = 0.94.

2. Between 5 health professionals and older people
   - Good inter-rater reliability (ICC = .85, with 95% CI: .81-.94),
   - Good test-retest reliability with an ICC of .84 (with individual item ICC ranging from .81 to .92 (95% CI: .79-.94))
   - Good to excellent internal consistency with Cronbach’s alpha = 0.92.

Study phase 3: Factor analysis and validity of the Chinese HomeFAST-SR
- “Home Environment and Furniture” and “Capability in Activities of Daily Living” and “Use of Devices.
- The internal consistency of these three individual factors : the Cronbach’s alpha was .96, .94, .89, and .94

Study phase 4: Sensitivity and specificity of the Chinese HomeFAST-SR
- A score of more than seven hazards was associated with prediction of unplanned admissions to hospital due to a fall at home at six-months with sensitivity of 83.3% and specificity of 80.0%
Discussion & Conclusion

Future study

- Development of a more detailed instruction manual
- Development of electronic version
- More research to validate decisions made on the number of factors to retain in the assessments
- Further development of a pictorial version for illiterate older adults

Conclusion

- The Chinese version of HomeFAST-SR is shown to be a reliable tool to measure home hazards
- Earlier detection through proper screening can minimize the chance of falls and other injuries
Thank you