Summary of the key points from the 2016 validation testing of the LEAF-7 questionnaire

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1   Introduction

This is a summary of the main relevant points from the September 2016 validation report from Sheffield Hallam University. It describes the main findings for people and organisations wanting to understand the nature of the validation tests carried out on LEAF-7 and the subsequent results.

The purpose of the research was to test the LEAF-7 questionnaire in the following areas:
1   Face validity
2   Main analyses - The construct validity of the scale, the internal reliability of the items in the scale and the reliability of their psychometric properties
3   Concurrent validity - when correlated the short-form Warwick-Edinburgh Mental Well-being Scale (SWEMWBS)
4   Test-retest reliability - Evaluating the stability of the scale over time.

2   Method

Face validity
The testing was conducted by Age UK Wakefield District staff by reviewing the LEAF-7 questionnaire with small local older persons' groups in Wakefield, Pontefract and Castleford in a guided conversation.

The main analyses
These tests were performed on the assessment scores of 193 clients referred to Age UK Wakefield District for support. These clients were assessed by trained support workers using the LEAF questionnaire during a consultation about their needs and the kinds of support that could be offered to them by Age UK. The internal reliability and factor analyses were conducted using the polychoric correlation matrix rather than the more traditional Pearson correlation matrix. Polychoric correlations are appropriate for variables which are measured on an ordinal scale and for which there is an assumption that the underlying variable itself is continuous. This can reasonably be argued to be the case for all of the items measured in the LEAF. Polychoric correlations were generated using the R statistical package.

Concurrent validity
LEAF and sWEMWBS questionnaires were completed by older adults after an intervention from Age UK to help to improve quality of life. 51 respondents completed both

questionnaires. The Pearson's Product Moment correlation coefficient was used to test the relationship between the two questionnaires.

Test-retest analysis
This was conducted with 29 participants (24 females) recruited from Age UK Wakefield District local groups. Purposive sampling was favoured due to the ethical considerations of collecting data from vulnerable adults who would require intervention between the two data collection points. Participants were asked to complete LEAF at time 1 and again one week later at time 2.

3 Results

Face validity
The responses by the older persons' focus groups in the Wakefield District showed that there was reasonable face validity for the questionnaire.

Main analyses
Overall the analyses suggest that the revised LEAF-7 is a highly internally reliable measure (ordinal Cronbach's Alpha = 0.88). The Cronbach's Alpha analyses suggest that all items contribute to internal reliability of the questionnaire.
The factor analysis supported the unidimensionality of the LEAF by confirming that there was one reliable underlying dimension. The analysis also showed that all items correlated significantly with the underlying factor, with both the value and enjoyment items having the strongest correlations (0.87). The unidimensionality of the questionnaire was confirmed by the Rasch analysis which showed that there were good fitness statistics (non-significant Andersen's likelihood ratio and Martin-Loef tests). All items had acceptable fit statistics.

Concurrent validity
The concurrent validity analysis showed a moderate correlation between the LEAF and the sWEMWBS (0.62). This confirmed that LEAF-7 is behaving as expected in relation to a mental wellbeing measure.

Test-retest reliability
The tests showed LEAF-7 has excellent stability over time (test-retest reliability of 0.92) with very consistent responses being made in the two testing sessions one week apart.

Conclusion
The analyses suggest that the revised LEAF has a high degree of reliability and has generally good psychometric properties. The analyses confirm that the questionnaire is unidimensional, measuring just one underlying quality of life construct, with all items contributing to the measurement of this dimension. All in all, this validation exercise points to the latest version of the LEAF being a well validated and very reliable measure of quality of life in vulnerable older adults.