

Prior Y, Tennant A, Hammond A. Psychometric Testing of the Valued Life Activities Questionnaire in People with Rheumatoid Arthritis in the UK: Rasch Analysis [abstract]. *Arthritis Rheumatol.* 2015; 67 (suppl 10). <http://acrabstracts.org/abstract/psychometric-testing-of-the-valued-life-activities-questionnaire-in-people-with-rheumatoid-arthritis-in-the-uk-rasch-analysis/>. Accessed October 29, 2015

**Background/Purpose:** Developed in the USA, the Valued Life Activities Scale (VLAs) measures participation in daily activities, and the 14 item scale (i.e. short version of VLAs) has been psychometrically tested for use in a population of adults with RA in the USA [1, 2]. We have linguistically and culturally adopted the VLAs using a 33 item scale (i.e. the full scale) for use in the adults with RA in the United Kingdom (UK) using the recommended guidelines for cultural adaptation [3].

**Methods:** We recruited participants through 17 Rheumatology clinics in National Health Service (NHS) Hospitals across the UK. The internal construct validity (unidimensionality) was assessed using (i) Confirmatory Factor Analysis (CFA) (ii) Mokken scaling and (iii) Rasch model (including the stochastic ordering of items, unidimensionality and local independence). The RUMM2030 software was used, utilising the partial credit parameterisation of the Rasch model.

**Results:** Responders (n=340) had a mean age of 62 years (SD 12.1), and average disease duration was 14.4 years (SD 11.7). Of these, 73.8% were women and a third (32.3%) were employed. Just over half (55.9%) were on combination therapy, and 7.4% were on biologic drugs. A CFA failed to support a total score from the 33 items (Chi Square 3552:df 464:p<0.0001; RMSEA 0.066 (90% CI: 0.064-0.068); CFI .985; TLI 0.984); the 25 items (Chi Square 2836:df 275:p<0.0001; RMSEA 0.078(90CI: 0.076-0.081); CFI .987; TLI 0.986; or the 14 item version (Chi Square 1228:df 77:p<0.0001; RMSEA 0.099(90CI: 0.094-0.104). Based on the 25 item version the three domain structure (i.e. Obligatory, Committed and Discretionary activities) of the item set also failed (Chi Square 2693:df 272:p<0.0001; RMSEA 0.076(90CI: 0.074-0.079); CFI .987; TLI 0.986).. Fit of the data from the VLA to the Rasch model is shown in Table 1. The stochastic ordering (fit) and unidimensionality assumptions were not satisfied. The VLAs was characterised by multidimensionality and misfit, which may have been influenced by extensive clusters of residual item correlations. While reliability was high in all cases, this could be expected to be inflated in the presence of local response dependency, as identified through the residual correlation patterns. Unfortunately, out of the 1545 cases collected in this study, only 79 subjects had complete data on the items that comprise the 'activities' (obligatory + committed) and 'participation' (discretionary) domains, due to the 'does not apply to me' response option.

Table 1. Rasch Analysis of Various versions of the scale.

Scale	Chi-Square*	Df	P	Residual item SD	Residual Person SD	PSI/Reliability	Unidimensionality % t-Tests	95% CI
RA-33	315.3	165	<0.001	2.0134	1.0995	0.95	6.67	4.3-9.5
RA-25	214.2	200	0.233	1.5988	1.1197	0.95	10.64	8.3-13.0
RA-14	141.5	112	0.031	1.7771	1.1493	0.92	8.51	6.2-10.9
<b>Ideal</b>			<b>&gt;0.05*</b>	<b>&lt;1.4</b>	<b>&lt;1.4</b>	<b>&gt;0.70</b>	<b>&lt;5.0</b>	<b>LCI &lt;5.0</b>

\*Bonferroni Adjusted (for 33 items fit is >0.001)

**Conclusion:** The UK version of the VLA, across various scales, fails to satisfy classical and modern psychometric standards. The raw score cannot be considered a valid estimate of the persons' ability

within any domain. The 'does not apply to me' response option renders valid scoring impossible in routine settings. It is recommended that the VLA set of items should be reconfigured and considered as a measure of Activities and Participation, consistent with ICF [4] terminology.

**Disclosure:** None.

**References:**

1. Katz et al (2009) Journal of Clinical Epidemiology 62:158-166 [33 item scale]
2. Katz et al (2011) Arthritis Care & Research 63:1664–1671 [Short Form]
3. Beaton et al (2000) Spine (Phila Pa 1976)15;25(24):3186-91.
4. WHO (2001) International Classification of Functioning (ICF) Geneva: Switzerland.