

OBJECTIVES

Drug developments have seen dramatic improvements in HIV survival rates and an increasing need for patient-reported outcome data on symptoms associated with HIV and current treatments to help choose between treatment options. This poster reports on the psychometric evaluation of a new symptom measure designed for individuals living with HIV, the HIVSRQ.

METHOD

The study employed a survey design, with participants (Table 1) recruited from the UK and the US via the internet by Opinion Health. Participants chose to complete and return the questionnaire individually (via post) or with a researcher (via telephone).

Table 1: Participant Details

Country	Age					Gender		Years since Diagnosis			
	N	Mean	SD	Min	Max	Male	Female	Mean	SD	Min	Max
UK	128	47	9.1	25	72	99	29	12	8.3	1	30
US	127	51	11.68	25	78	104	20	19	9.4	0	36

Prior to analysis the HIVSRQ included 64 items selected from an existing –SRQ item bank or drafted in consultation with HIV specialists and people living with HIV following literature review. The HIVSRQ used a questionnaire template developed during design of symptom measures for other conditions.^{e.g. 1, 2} Each item asks if a particular symptom has been experienced in recent weeks and if 'yes', is rated for how much this symptom has bothered the respondent on a scale of 1 (*not at all*) to 4 (*a lot*).

RESULTS

Table 2: HIVSRQ Forced One Factor Exploratory Factor Analysis

Item N	Symptom	Factor Loadings	Cronbach's Alpha if Item Deleted
28	Muscle Weakness	0.694	0.932
6	Tired	0.683	0.932
11	Generally Unwell	0.672	0.932
29	Muscle Pain	0.669	0.932
41	Thinking/Remembering	0.649	0.932
35	Depression	0.627	0.932
37	Emotional	0.617	0.932
42	Unsteady/Uncoordinated	0.606	0.933
8	Nausea	0.579	0.933
32	Joint Pain	0.574	0.933
3	Breathing Problems	0.572	0.933
36	Anxiety	0.567	0.933
43	Dizzy	0.561	0.933
33	Tingling/Numbness	0.552	0.933
24	Headaches	0.538	0.933
16	Bloated	0.536	0.933
19	Dry Mouth	0.536	0.933
57	Sleep Problems	0.526	0.933
38	Irritable/Angry	0.518	0.933
2	Palpitations	0.506	0.934
58	Excessively Sleepy	0.492	0.934
34	Decreased Touch	0.487	0.934
1	Chest Pain Bother	0.482	0.934
52	Night Sweats	0.477	0.934
62	Poor Appetite	0.477	0.934
56	Abnormal Dreams	0.474	0.934
59	Strange Taste	0.467	0.934
12	Abdominal Pain	0.466	0.934
46	Avoid Sex	0.457	0.934
50	Dry Skin	0.455	0.934
45	Lost Interest in Sex	0.450	0.934
5	Thirsty	0.437	0.934
31	Back Pain	0.433	0.934
47	Sexually Aroused	0.431	0.934
7	Feverish	0.429	0.934
60	Discoloured Urine	0.418	0.934
51	Itching	0.408	0.934
63	Lipodystrophy	0.401	0.935

Variance = 28.17
Alpha = 0.935

SINGLE SCALE: In order to provide the broadest possible single indicator of symptom burden a forced one-factor exploratory factor analysis (EFA) was run. In each run the single weakest item was removed and the analysis re-run until the scale included only items with acceptable loadings. The HIVSRQ one-factor scale has a strong and reliable structure. It includes 38 of the 64 items (see Table 2). The 38 items explained 28% of the variance in symptom scores. The lowest item loaded at 0.401 (lipodystrophy). There are 5 very good items, 9 good items, and 17 fair items Factor-loading strength was guided by that suggested by Comrey and Lee (1992):³ fair (0.45), good (0.55), very good (0.63), excellent (0.71).

REFERENCES

- McMillan, C., Bradley, C., Razvi, S. & Weaver, J. (2008). Evaluation of new measures of the impact of hypothyroidism on quality of life and symptoms: the ThyDQoL and ThySRQ. *Value in Health* 11(2), 285-294.
- Peach, G., Romaine, J., Wilson, A., Holt, P.J.E., Thompson, M.M., Hinchliffe, R.J. & Bradley, C. (2016) Design of new patient-reported outcome measures to assess QoL, symptoms and treatment satisfaction in patients with abdominal aortic aneurysms. *British Journal of Surgery*, 103:1003-11.
- Comrey, A.L. & Lee, H.B. (1992). *A first course in factor analysis*. Hillsdale, NJ: Lawrence Erlbaum

ENQUIRIES

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Information on these and other questionnaires: Visit www.healthpsychologyresearch.com
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RESULTS

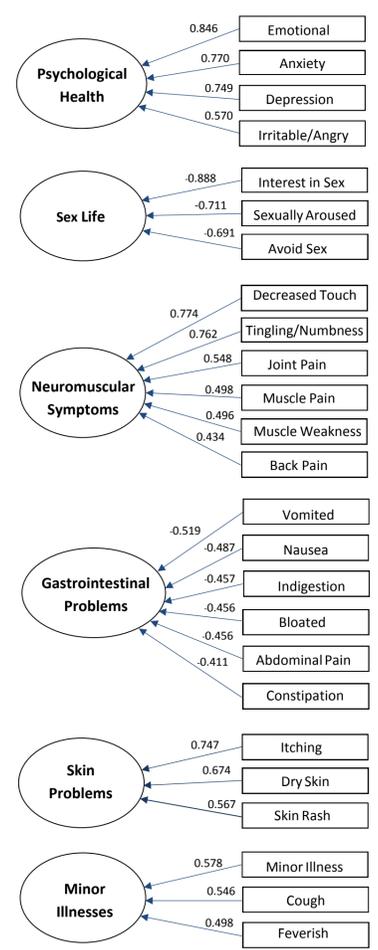


Figure 1: HIVSRQ Six Factor EFA

EXPLORATORY FACTOR ANALYSIS (EFA): Questionnaire structure was further examined in two stages. The number of factors to extract was determined using principal components analyses. Eigenvalues were inspected, however components were considered for retention based primarily on Parallel Analysis and examination of the Scree Plot. Once components had been identified, a fixed factor EFA using Principal Axis Factoring (PAF: factor extraction method recommended for non-normal data) with a Direct Oblimin rotation was used to reveal the factor structure. Examination of the factor loadings was based on identifying the 'cleanest' factor structure: item loadings >0.40, no/few cross-loadings (> 0.32 on one or more factors), and no factors with fewer than three items. EFA revealed a clean six-factor structure comprising 25 items, all loading >0.4 and explaining 50% variance in the data. The six factors were psychological health, sex life, neuromuscular symptoms, gastrointestinal symptoms, skin problems and minor illness (Figure 1).

Table 3: Internal Consistency Reliability

Item N	Symptom	Cronbach's Alpha if Item Deleted					
		Psychological Health	Sex Life	Neuro-muscular Symptoms	Gastro-intestinal Symptoms	Skin Problems	Minor Illnesses
35	Depression	0.798					
36	Anxiety	0.801					
37	Emotional	0.763					
38	Irritable/Angry	0.850					
45	Lost Interest in Sex		0.666				
46	Avoid Sex		0.780				
47	Sexually Aroused		0.802				
34	Decreased Touch			0.815			
33	Tingling/Numbness			0.811			
32	Joint Pain			0.808			
29	Muscle Pain			0.797			
28	Muscle Weakness			0.799			
31	Back Pain			0.835			
8	Nausea				0.696		
9	Vomited				0.708		
12	Abdominal Pain				0.702		
13	Indigestion				0.748		
15	Constipation				0.717		
16	Bloated				0.707		
50	Dry Skin					0.620	
51	Itching					0.600	
54	Skin Rash					0.684	
4	Cough						0.578
7	Feverish						0.596
25	Minor Illnesses						0.523
Subscale Alpha		0.846	0.819	0.838	0.727	0.727	0.664

As shown in Table 3 internal consistency reliabilities for the HIVSRQ subscales ranged from acceptable to strong. Of the 20 items not included in subscales, 6 were experienced by < 10% of participants but, those, 3 received high bother ratings. All 20 items were retained as stand-alone items.

Table 4: HIVSRQ Test-Retest Reliability Analyses using Intraclass Correlations

Subscale	N	ICC	CI		p
			Lower	Upper	
Psychological Health	25	0.750	0.510	0.881	<0.001
Sex Life	25	0.815	0.612	0.917	<0.001
Neuromuscular Symptoms	25	0.759	0.526	0.886	<0.001
Gastrointestinal Symptoms	25	0.743	0.499	0.878	<0.001
Skin Problems	25	0.864	0.715	0.938	<0.001
Minor Illnesses	25	0.459	0.086	0.719	0.009
One Factor	23	0.818	0.618	0.919	<0.001

ICC classification: excellent (≥ 0.81), good (0.61 – 0.80), moderate (0.41 – 0.60), poor (≤ 0.40)

Forty-eight participants completed a retest pack 4 weeks after the original questionnaire. Of these, 25 reported that there had been 'no change' in their health or medications during this period. As shown in Table 4 the intra-class correlation coefficients demonstrate that the HIVSRQ has strong test-retest reliability.

CONCLUSIONS

The HIVSRQ is both comprehensive and quick to complete. It has sound psychometric properties, is suitable for use in clinical trials, other research and in routine clinical practice to evaluate key symptoms and help clinicians understand patients' experiences.