

# HeartQoL Validation in Patients with Heart Failure Due to Ischemic Heart Disease

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## BACKGROUND

Patient-reported outcome measures are increasingly used in clinical trials to evaluate quality of care. Health-related quality of life is an example of a patient-reported outcome measure. The English version of the heart disease-specific HeartQoL, with a physical and an emotional domain and a global score, health-related quality of life questionnaire has previously been validated in patients with heart disease.

## OBJECTIVE /PURPOSE

The purpose of this study was to validate the English version of the HeartQoL in patients with heart failure due to ischemic heart disease.

## METHODS

Patients with heart failure due to ischemic heart disease meeting clinical eligibility criteria and being treated at Aurora St. Luke's Medical Center completed a sociodemographic questionnaire, the HeartQoL, the Short-Form 36 Health Survey, and the Hospital Anxiety and Depression Scale (HADS).

- The following key psychometric properties of the HeartQoL were assessed:
- Discriminative validity
  - Internal consistency reliability
  - Convergent validity
  - Factor structure
  - Model structure

Tests performed: Two sample t test, Analysis of variance (ANOVA), Factor analysis and Mokken scale analysis

Analysis was done using SAS version 9.4 (SAS Institute Inc., Cary, NC, USA) and R package (mokken v2.8.10)

## RESULTS

- A total of 83 patients with ischemic heart failure completed the questionnaires
- Baseline characteristics: (mean age, 65.8 ± 11.4 years; 30.1% female; New York Heart Association (NYHA) functional class II= 44.6%, III= 47.0%, IV= 8.4%), 63.9% SOB, 22.9% anxiety, 24.1% depression, and SF-36 Health status: improved 27.7%, no change 32.5%, and deteriorated 39.8%.

Table 1: Discriminative Validity			
Difference in Heart QoL domain score [p-value]			
	Global	Physical	Emotional
NYHA Class: II / III / IV	<0.001	<0.001	<0.001
SOB: Yes / No	<0.001	<0.001	<0.001
Anxiety: Yes / No	<0.001	<0.001	<0.001
Depression: Yes / No	<0.001	<0.001	<0.001
SF-36 Health status:			
Improve / Same / Worse	0.02	0.03	0.05

Table 2: Internal Consistency Reliability			
	Heart QoL domain		
	Global	Physical	Emotional
Cronbach's Alpha ( α )	0.92	0.91	0.89
[ α ≥ 0.90 = excellent; 0.8 – 0.89 = good]			

## CONCLUSIONS

The English HeartQoL questionnaire demonstrated satisfactory key psychometric properties of validity and reliability in this heart failure population.

This study adds support for the HeartQoL as a core heart-specific health-related quality of life questionnaire in a broad group of patients with heart disease.

- Exploratory factor and Mokken Scale analysis both supported the bi-dimensional physical and emotional factor structure of HeartQoL.
- Internal consistency reliability with Cronbach's α was excellent (global α = 0.92, physical α = 0.91) or good (emotional α = 0.89).
- Both convergent validity between similar HeartQoL and SF-36 subscales(r ≥0.75) and discriminative validity with all 18 a priori hypotheses (NYHA, shortness of breath, HADS anxiety and depression, physical activity, and SF-36 health transition) were confirmed.

Table 3: Convergent Validity [ r ]		
	Heart QoL domain	
	Physical	Emotional
SF-36		
Physical	0.79	0.67
Emotional	0.51	0.75
[confirmed with r ≥ 0.70]		

Table 4: Model Structure		
	HeartQoL domain	
	Physical	Emotional
Exploratory Factor Analysis		
Loadings on 14 items	0.39 to 0.80	0.72 to 0.80
[>0.50 = strong]		
Mokken Scale Analysis		
H-value on 14 items	0.43 to 0.63	0.47 to 0.53
[>0.50 = strong]		