

# An analysis of the construct validity and responsiveness of the ICECAP-SCM capability wellbeing measure in a palliative care hospice setting

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## Background

Broader measurement of quality of life beyond health-related quality of life may be needed to fully capture the outcomes of interventions in end-of-life care settings. Capability wellbeing-based measures are increasingly being used in economic evaluations in health and care. One such measure, the ICECAP – Supportive Care Measure (ICECAP-SCM), was developed to capture what matters most to palliative care patients. Before the ICECAP-SCM can be used to inform healthcare decision making, it is necessary to determine if it measures outcomes reliably in the settings it is intended for. Previous use has demonstrated its face validity and feasibility in hospice care, however other psychometric properties have not yet been assessed.

## Aims

To explore whether the ICECAP-SCM measures the constructs it intends to (**construct validity**) and changes in those constructs over time (**responsiveness**) in hospice inpatient and outpatient settings.

## Methods

Data collated from two studies<sup>1</sup> (1. An evaluation of palliative care day services and 2. A study of constipation management) undertaken in the same hospice organization across three hospices in the UK. An analysis of the **construct validity** of the ICECAP-SCM was performed which assessed:

1. Spearman correlations between its domains and the domains of other quality of life and wellbeing measures used in the studies.
2. Pearson correlations between its summary score and the other measures' domains.
3. Pearson correlations between its summary score and the summary scores of the other measures.

The **responsiveness** of the ICECAP-SCM was explored using anchor-based methodologies to assess whether changes in the ICECAP-SCM corresponded to changes in the MQOL-E using paired t-tests.

## Results - Construct Validity

Correlation coefficients for ICECAP-SCM attributes and score with the other measures' domains. n=68

		ICECAP-SCM							
		Choice	Love and affection	Physical suffering	Emotional suffering	Dignity	Being supported	Preparation	Summary score
<b>EQ-5D-5L</b>	Mobility	-0.03	0.08	-0.08	0.12	-0.13	0.00	-0.14	-0.05
	Self-care	-0.12	0.13	-0.11	-0.03	-0.23	0.05	-0.02	-0.10
	Usual activities	0.00	0.18	-0.16	-0.18	-0.15	0.11	-0.17	-0.17
	Pain/discomfort	0.00	-0.08	-0.24	-0.07	-0.28	-0.19	-0.13	-0.31*
	Anxiety/depression	-0.15	0.08	-0.06	-0.74**	-0.41*	-0.30*	-0.18	-0.56**
<b>MQOL-E</b>	Physical	0.13	-0.20	0.47*	0.36*	0.31*	0.07	0.29	0.53**
	Psychological	0.25	-0.13	0.11	0.74**	0.28	0.23	0.07	0.50*
	Existential	0.13	0.14	0.31*	0.43*	0.14	0.33*	0.28	0.58**
	Social	0.26	0.07	0.22	0.39*	0.25	0.36*	0.12	0.53**
	Burden	0.18	-0.05	0.12	0.52**	0.18	0.15	0.17	0.41*
	Environment	0.12	0.25	0.09	0.17	0.07	0.28	0.27	0.24
	Cognition	0.05	-0.01	0.22	0.47*	0.32*	0.39*	0.17	0.58**
	Healthcare	0.14	0.01	-0.11	0.31*	-0.01	0.33*	0.23	0.24
<b>PHQ-2</b>	Little interest or pleasure in doing things	-0.31*	0.01	-0.22	-0.30*	-0.27	-0.38*	-0.13	-0.46*
	Feeling down, depressed or hopeless	-0.27	0.09	-0.09	-0.59**	-0.17	-0.23	-0.06	-0.41*
<b>POS-S</b>	Pain	0.06	0.11	-0.31*	-0.26	-0.21	0.00	0.09	-0.24
	Shortness of breath	-0.12	0.17	-0.31*	-0.28	-0.23	-0.13	-0.44*	-0.44*
	Weakness or lack of energy	0.10	0.10	-0.51**	-0.37*	-0.21	-0.04	-0.31*	-0.48*
	Nausea	0.23	-0.12	0.00	-0.25	-0.28	-0.18	0.10	-0.21
	Vomiting	0.11	0.01	0.02	-0.15	-0.25	-0.30*	-0.03	-0.28
	Poor appetite	0.27	0.07	-0.13	-0.08	-0.25	0.01	0.04	-0.12
	Constipation	0.09	0.03	-0.14	-0.12	-0.16	-0.10	0.17	-0.15
	Mouth problems	-0.09	0.01	-0.15	-0.31*	-0.25	-0.21	-0.13	-0.42*
	Drowsiness	0.11	-0.13	0.03	-0.24	-0.19	-0.22	-0.12	-0.26
Immobility	-0.02	0.18	0.01	-0.18	-0.04	0.11	-0.04	-0.04	

\*\* strong correlation, \* moderate correlation. Attributes on ICECAP-SCM ordered in reverse to EQ-5D, PHQ-2 and POS-S.

Correlation coefficients for the ICECAP-SCM score with the scores of the other measures. n=68

	ICECAP-SCM	EQ-5D-5L	MQOL-E	PHQ-2	POS-S
<b>ICECAP-SCM</b>	1.00				
<b>EQ-5D-5L</b>	0.30*	1.00			
<b>MQOL-E</b>	0.73**	0.18	1.00		
<b>PHQ-2</b>	-0.52**	-0.21	-0.64**	1.00	
<b>POS-S</b>	-0.52**	-0.45*	-0.55**	0.39*	1.00

\*\* strong correlation, \* moderate correlation. Higher scores relate to better health states for the ICECAP-SCM, EQ-5D-5L, and MQOL-E and worse health states for the PHQ-2 and POS-S.

## Results - Responsiveness

Responsiveness of the ICECAP-SCM score by MQOL-E anchor change groups. n=36

	Number in group	Mean baseline (SD)	Mean follow-up (SD)	Mean change (SD)	P value
<b>ICECAP-SCM score</b>					
<b>Improved MQOL-E</b>	18	0.60 (0.16)	0.67 (0.17)	0.07 (0.11)	0.01*
<b>Worsened MQOL-E</b>	18	0.71 (0.18)	0.63 (0.18)	-0.08 (0.11)	0.01*

\* Statistically significant difference at the 5 % level using a paired t-test.

## Conclusions

- ICECAP-SCM items and scores were most strongly associated with the MQOL-E.
- Construct validity of the ICECAP-SCM was evidenced by the high levels of correlation between it and other outcome measures designed to measure similar constructs.
- Aside from the *Anxiety/depression* domain, there is little association between the ICECAP-SCM and EQ-5D-5L, suggesting they are capturing distinct aspects of quality of life.
- The ICECAP-SCM showed statistically significant responsiveness to change over time when anchored to changes on the MQOL-E.
- Evidence of the validity of the ICECAP-SCM when used to measure capability in hospice settings and the complementarity of the ICECAP-SCM and EQ-5D-5L to fully capture outcomes in the economic evaluation of interventions in end-of-life care settings.

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