

# Psychometric properties of the EQ-5D-5L in patients living with Post COVID-19 Condition

**Authors:** Marcela M. Suazo Guevara <sup>1</sup>, Dorte O. Klein <sup>1</sup>, Juanita A. Haagsma <sup>2</sup>, Sander M.J. van Kuijk <sup>1</sup> on behalf of the Long CORFU research group

## Introduction

**Post COVID-19 condition (PCC)** affects 10-30% of people who have recovered from an acute phase of COVID-19. Key symptoms are fatigue, shortness of breath and cognitive dysfunction. Typically, PCC symptoms vary in intensity over time. The EQ-5D-5L is commonly used to assess health-related quality of life (HRQoL) in PCC patients. However, evidence on the psychometric properties and responsiveness to change of the EQ-5D-5L in PCC patients is limited.

## Objective

The aim of this study was to assess distributional characteristics, divergent validity, convergent validity, known group validity, explanatory power and responsiveness of the EQ-5D-5L, in long-term HRQoL assessments in PCC patients.

## Methods

- Participants from multiple Dutch cohorts of COVID-19 survivors were followed two and three years after acute illness.
- Questionnaires at both follow-up moments included assessments on:

13 PCC-related symptoms +  
EQ-5D-5L and the EQ Visual Analogue Scale +  
Global Rating of Change (GRC) of general health

- Inclusion criteria: PCC was defined as having at least one symptom with a severity rated three or higher (5 level Likert scale) and that it did not exist before (or that got worse after) acute COVID-19.

## Results

### Convergent validity

A moderately strong correlation (-0.67; 95% CI -0.74, -0.59) was found between the EQ-5D-5L LSS and EQ VAS.

### Distributional characteristics

- Ceiling effect: 7.2% of participants
- Floor effect: 0.0%
- 115 health profiles (3.7% of all possible profiles)

**Total:**  
**237 participants with PCC**

- 87% hospitalized
- 36% women

### Known group validity

- Median (Q<sub>1</sub>, Q<sub>3</sub>) EQ-5D utility score, per symptom severity group:
- Low: of 0.82 (0.74, 0.89)
- Medium: 0.77 (0.70, 0.84)
- High: 0.59 (0.41, 0.72), (p= <.001).

### Responsiveness

- Poor correlations between:
- Changes of EQ-5D-5L LSS and GRC general health status
  - Changes of EQ-5D-5L LSS and changes in symptom severity

### Divergent validity

Figure 1.

### Explanatory power

Usual activities and mobility together explained 39.0% of EQ-VAS variance.  
Other dimensions did not significantly improve contribution.

### Conclusions

- Findings indicate promising psychometric properties of the EQ-5D-5L in individuals with PCC, demonstrating sensitivity in distinguishing variations in health states and symptom severity.
- Responsiveness appears potentially insufficient.
- The EQ-5D-5L may underrepresent health aspects crucial to PCC, emphasizing the potential value of enhancing the instrument with additional health dimensions (bolt-ons).

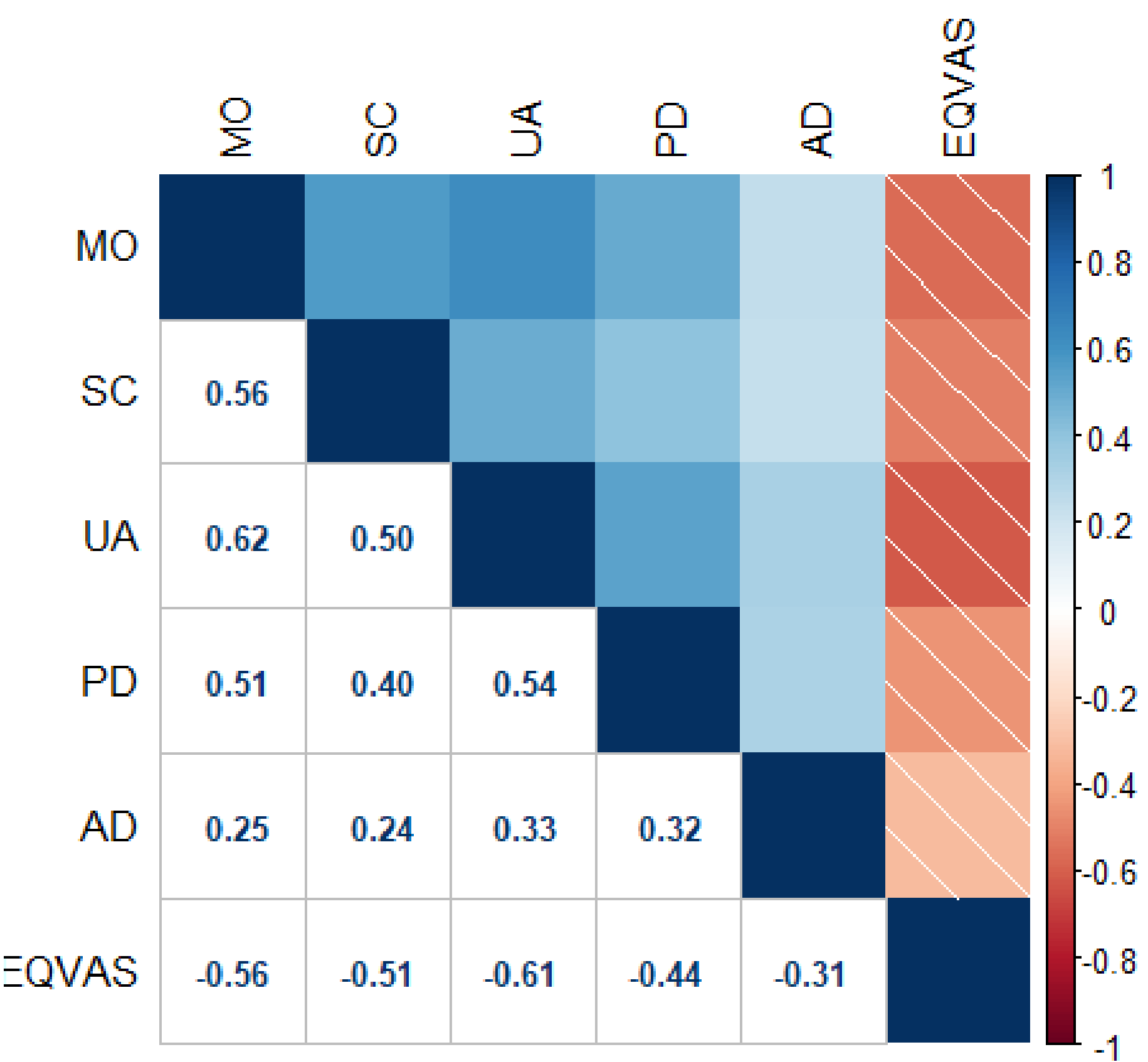


Fig 1. Spearman's correlation coefficients between EQ-5D-5L dimensions