Quality of life near the end of life: the relationship between self-rated overall health and the five EQ-5D domains

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Introduction

- Valuation of health states varies between individuals according to various factors and over time with aging.¹ ² ³
- Patient’s experienced assessment of their well-being may be a more appropriate measure of quality of life.⁴
- As patients near the end of life (EoL) HRQoL measures (such as the EQ-5D) may not adequately capture domains of importance.⁵
- Longitudinal, questionnaire based data, collected in the Dutch Bone Metastasis Study (DBMS) is used.⁶
- We aim to investigate the relationship between the measured domains of the EQ-5D and patient’s self-rated overall health with proximity to death.

Methods

- EQ-5D questionnaires completed by 849 patients in the DBMS were used. Questionnaires were at baseline, weekly (for 12 weeks) and subsequently monthly for up to two years.
- The number of completed questionnaires ranged from 1 to 35 (median 11). 23.5% of individuals returned less than 5 questionnaires.
- The fitted model was as follows:

\[ EVAS_{it} = \alpha + \beta_1 Mobility_{it} + \beta_2 Self-care_{it} + \beta_3 Activity_{it} + \beta_4 Pain_{it} + \beta_5 Anxiety_{it} + \gamma TTD_{it} + \delta_1 Mobility_{it} \times TTD_{it} + \delta_2 Self-care_{it} \times TTD_{it} + \delta_3 Activity_{it} \times TTD_{it} + \delta_4 Pain_{it} \times TTD_{it} + \delta_5 Anxiety_{it} \times TTD_{it} + c_i + \mu_t \]

- A generalised least squares, fixed effects model was used guided by the Hausman test (p<0.001).
- Time to death was incorporated using a restricted cubic spline with 4 knots placed at 1, 6, 27 and 77 weeks.
- Robustness checks assessed the consequences of heterogeneity and unbalanced panels.

Results

- Median survival was 18.9 weeks (95% CI 16.9-20.3 weeks).
- Mean EQ-VAS was 45.9 (SD 23.8).
- EQ-VAS varied with proximity to the Eol, from 53.4 (SD 22.7) 24-52 weeks from death to 33.1 (SD 22.7) in the final six weeks of life.
- Missingness increased with proximity to the Eol, from 8.67% more than two years from the Eol up to 56% in the last 6 weeks of life. No difference was observed between domains in relation to missingness (table 1).
- TTD remains a significant independent predictor of EQ-VAS.
- The pain/discomfort domain is associated with the largest decrement in the EQ-VAS, with mobility the smallest (table 2).
- The deterioration in EQ-VAS with proximity to death accelerates markedly in the final months of life (figure 1).

Conclusions

- The relationship between the EQ-5D domains and overall self-rated health changes with proximity to death; as patients near the EoL their overall self-rated health falls independently of the EQ-5D domains.
- This finding reinforces the view that the EQ-VAS captures a broader construct of health than that captured by the EQ-5D domains.
- Not only is the global relationship between the EQ-VAS and the domains not constant with proximity to death but in addition within domains the relationship between levels varies. Most markedly, the overall self-rated health (EQ-VAS) associated with no problems in the pain and usual activities domains drops, relative to the other levels, in the final months of life.
- These findings call into question the use of a single societal value set irrespective of proximity to the Eol, particularly given the documented challenges of reference dependency.
- Given the clear change in self-rated overall health with proximity to death there is a now a need to assess the extent to which the valuation of these health states varies over this period.

References


Table 1: EQ-5D levels of varying time to death

<table>
<thead>
<tr>
<th>Time to Death</th>
<th>Mobility</th>
<th>Self-care</th>
<th>Activity</th>
<th>Pain</th>
<th>Anxiety</th>
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<td>3</td>
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<td>5</td>
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<td>25-52 wks</td>
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<td>3</td>
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<tr>
<td>53-124 wks</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
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<td>125-276 wks</td>
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<td>2</td>
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Table 2: EQ-5D domain levels of varying proximity to death

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Figure 1: Predicted average EQ-VAS in the first 2 years of life with differing domain levels and varying time to death.