Assessing outcomes for cost-utility analysis in mental health interventions: Comparison of the multi-attribute utility instrument EQ-5D with the mental health specific outcome measure GHQ12

Marie Lindkvist, Umeå University, Sweden
Inna Feldman, Uppsala University, Sweden
Correspondence to: inna.feldman@kbh.uu.se

CONCLUSIONS

• The adoption of a mapping approach from a non-preference based instrument to obtain health state utilities served as a second best alternative facilitating cost-utility analyses.

• The algorithms developed in this study can be used to determine cost-effectiveness of services or interventions that use GHQ12 as a primary outcome where utility measures are not collected.

BACKGROUND

Many intervention based studies aiming to improve mental health do not include a multi-attribute utility instrument (MAUI) that produces quality-adjusted life-years (QALYs), and it limits the applicability of health economic analyses.

METHODS

Study population
The study is based on a postal survey questionnaire sent to a random sample of men and women in four counties in central part of Sweden, aged 16 -84 years in 2012. There were 32,500 respondents. The survey included both GHQ12 and EQ-5D-3L instruments.

GHQ-12
- a screening instrument to measure the probability of psychiatric illnesses.
12 items: recent symptoms, feelings or behaviors, answered on a four-category Likert scale. Categories 1 & 2 =0, Categories 3 & 4 =1. Values from 12 items are added together to get an overall score.
Probable psychiatric case: score >=3

EQ-5D-3L
A standard version of the EQ-5D-3L questionnaire (Rabin & de Charro, 2001)

SRH
Self-rated health (SRH) was measured by the question: ‘How do you rate your general health?’ with the options ‘very good’, ‘good’, ‘neither good nor poor’, ‘poor’ and ‘very poor’.

Two value sets:
• EQ-5D UK (hypothetical, Dollan, 1997)
• EQ-5D Swedish (experience-based, Burstöm et al, 2014)

Algorithm
Two OLS models were used to estimate EQ-5D health states values using GHQ-12 as exposure, using the respondents of two counties (n=17,000). The algorithms were applied to the respondents from two other counties, (n=15,500) to check the predictive capacity of the models.

RESULTS

Testing of the models on another dataset (n=15,000)

<table>
<thead>
<tr>
<th></th>
<th>EQ-5D UK</th>
<th>EQ-5D SW</th>
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</thead>
<tbody>
<tr>
<td><strong>Mean (SD)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>0.811 (0.22)</td>
<td>0.908 (0.09)</td>
</tr>
<tr>
<td>Predicted</td>
<td>0.628 (0.14)</td>
<td>0.919 (0.08)</td>
</tr>
<tr>
<td><strong>Mean absolute error</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>0.177 (0.12)</td>
<td>0.041 (0.05)</td>
</tr>
<tr>
<td>Predicted</td>
<td>0.144 (0.14)</td>
<td>0.045 (0.05)</td>
</tr>
<tr>
<td><strong>Mean relative absolute error</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>0.65 (p=0.000)</td>
<td>0.69 (p=0.000)</td>
</tr>
</tbody>
</table>

Final models

Model EQ-5D-UK:
1.002-0.001*Age-0.022*(Sex=Woman)-0.070*(SRH=Good)-0.188*(SRH=Neither nor)-0.420*(SRH=Bad)-0.646*(SRH=Very bad)-0.018*GHQ

Model EQ-5D-SW:
0.974-0.0002*Age-0.008*(Sex=Woman)-0.019*(SRH=Good)-0.070*(SRH=Neither nor)-0.173*(SRH=Bad)-0.254*(SRH=Very bad)-0.009*GHQ

No important interaction effect was detected between the variables.

Fig. 1. Predicted and observed EQ-5D values in relation till GHQ12 - score.