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# PSYCHOMETRIC EVALUATION OF THREE QUALITY OF LIFE INSTRUMENTS USED TO ASSESS THE OUTCOME OF SURGERY FOR URODYNAMIC STRESS URINARY INCONTINENCE

Hypothesis / aims of study

The aim of the study was to further validate three quality of life (QoL) instruments used to assess the outcome of surgery and to compare their psychometric properties with a view to determining the most appropriate measure for use in future research.

Study design, materials and methods

This work was embedded within a randomised-controlled trial designed to compare laparoscopic and open colposuspension for stress incontinence. The trial recruited 291 women from six centres. The three quality of life instruments were compared, Bristol Female Lower Urinary Tract Symptom Questionnaire (BFLUTS), Kings Health Questionnaire (KHQ) and symptom severity index and symptom impact index (SSI+SII). To allow construct validation tests to be performed subjects also completed a generic QoL instrument (SF-36), a standardised sexual function questionnaire and underwent urodynamics and a 1-hour pad test. Subjects completed each investigation at baseline and 6 months. A head to head comparison of the psychometric properties of three QoL instruments was conducted. The psychometric properties evaluated were reliability, validity and responsiveness.

Results

See table 1 below

Interpretation of results

The SSI/SII has a clearly documented scoring system which is probably the most simple of the three QoL instruments to compute. This is partly due to its relative brevity. BFLUTS had no published scoring system therefore three were devised, symptom only, bother only and a weighted score combining symptoms and bother. However none of the scoring systems conferred any significant benefit to the psychometric properties of BFLUTS. The weight score is shown in table 1.

From the analysis of the psychometric properties of the three QoL instruments, the SSI/SII appeared to have the best psychometric profile, as demonstrated in the results in Table 1. It had a good degree of internal consistency (Cronbach's alpha 0.74-0.78). BFLUTS and KHQ both had domains in which the internal consistency was < 0.7. It was shown to behave in the expected manner with regard to construct validity. Out of all the instruments the SSI domain of the SSI/SII was the only domain to correlate with the 1-hour pad test. All domains of the SSI/SII were able to distinguish those who were cured from those not cured and it was responsive to change. Unlike the KHQ, it had no significant ceiling or floor effects. It was the only instrument in which the original structure of the domains was supported by the findings of factor analysis.

Concluding message

This study has assessed comprehensively the psychometric properties of three commonly used QoL instruments, in a population undergoing surgery for urodynamic stress urinary incontinence.

From the psychometric properties of the instruments the SSI/SII appeared to be the most appropriate QoL instrument to assess the outcome of surgery for stress incontinence. However, further research is required to assess the content validity of these instruments before these results can be used to inform the choice of instrument in future surgical trials.

| QoL Scale | C | F | R | Divergent Construct | | Convergent Construct | | | | Known groups Z Scores | | | Respon-siveness | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | % | % | | AGE | Pain SF36 | Pad | SF36 | SSHQ | Q33 | UDS | Pad tests | Q33 | Effect Size | SRM |
| KHQ | | | | | | | | | | | | | | |
| General health | 1 | 19 | NA | 0.05 | 0.36 | 0.04 | -0.8 | 0.32 | 0.23 | *-2.36 | *-1.58 | -4.9 | 0.15 | 0.16 |
| Incontinence impact | 56 | 1 | NA | -0 | 0.13 | 0.22 | -0.2 | 0.18 | 0.5 | -3.59 | -5.25 | -8.8 | 2.09 | 1.46 |
| Role | 17 | 13 | 0.9 | 0.09 | 0.19 | 0.22 | -0.4 | 0.19 | 0.35 | -4.22 | -6.05 | -8.2 | 1.28 | 1.28 |
| Physical | 15 | 3 | 0.5 | 0.05 | 0.17 | 0.21 | -0.4 | 0.19 | 0.41 | -4.31 | -5.75 | -6.9 | 1.85 | 1.66 |
| Social | 4 | 28 | 0.9 | -0 | 0.15 | 0.29 | -0.4 | 0.3 | 0.43 | -3.67 | -6.1 | -8.2 | 0.85 | 0.87 |
| Personal | 17 | 29 | 0.9 | -0 | -0.1 | 0.23 | -0.3 | 0.49 | 0.34 | *-2.06 | *-3.48 | -4.6 | 0.52 | 0.61 |
| Emotional | 9 | 5 | 0.8 | 0.04 | 0.09 | 0.22 | -0.4 | 0.29 | 0.52 | -4.33 | -5.45 | -9.7 | 1.23 | 1.18 |
| Sleep | 5 | 4 | 0.6 | -0.1 | 0.23 | -0 | -0.4 | 0.19 | 0.33 | -2.72 | -3.57 | -6.1 | 0.68 | 0.74 |
| Severity | 7 | 1 | 0.7 | 0.05 | 0.15 | 0.24 | -0.4 | 0.33 | 0.52 | -4.51 | -6.04 | -8.6 | 1.92 | 1.5 |
| BFLUTS weighted | | | | | | | | | | | | | | |
| Symptom | 1 | 0 | 0.9 | -0 | 0.2 | 0.23 | -0.3 | -0.07 | 0.52 | -5.71 | -6.48 | -9.2 | 1.45 | 1.4 |
| Sexual | 1 | 3 | 0.7 | 0.04 | 0.12 | 0.17 | -0.3 | -0.11 | 0.5 | *-2.30 | *-2.88 | -4.7 | 0.58 | 0.58 |
| QoL | 1 | 0 | 0.8 | -0.1 | 0.15 | 0.19 | -0.3 | -0.05 | 0.7 | -5.14 | -5.44 | -10 | 1.95 | 1.71 |
| SSI/SII | | | | | | | | | | | | | | |
| SSI | 1 | 0 | 0.7 | 0.05 | 0.12 | 0.35 | -0.3 | NA | 0.44 | -4.88 | -6.13 | -8.2 | 2.62 | 1.75 |
| SII | 3 | 10 | 0.8 | -0.2 | 0.1 | 0.23 | -0.3 | NA | 0.47 | -4.78 | -5.1 | -8.2 | 1.18 | 1.11 |

Table 1 Psychometric Properties of three QoL instruments

Key:
C= ceiling effects F= floor effects R= reliability (Cronbach's alpha)
SSHQ= Sabbatersberg Sexual Health Questionnaire
Q33= satisfaction anchor question from BFLUTS.
UDS= urodynamic studies. SRM= Standardised response mean
NA= Not applicable
* = not significant

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