Continence Outcomes Measures Dissemination Strategy: Final Report

Centre for Health Service Development

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1 Introduction

1.1 Background and Context

A Continence Outcomes Measurement Suite Project (COMS) was commissioned by the Australian Government Department of Health and Ageing, National Continence Management Strategy Research Program with the goal of recommending a suite of continence outcome measures to be used by clinicians and researchers in Australia. This project was finalised in early 2006 (Thomas et al., 2006). Recommendations from this report led to a related project Measuring Incontinence in Australia (Hawthorne, 2006). Measuring Incontinence in Australia (2006) assessed a number of the recommended measures (Urogenital Distress Inventory 6, Incontinence Severity Index, and the Wexner Faecal Continence Grading Scale) by including them in the autumn 2004 South Australian Health Omnibus Survey (Harrison Health Research, 2004), which was a community population survey. The Hawthorne (2006) study provided Australian prevalence estimates for both faecal and urinary incontinence based on this community survey data.

For urinary incontinence, the results suggested that the preferred urinary incontinence measure was the Incontinence Severity Index (ISI). It was found to possess superior measurement properties in comparison with the Urogenital Distress Inventory (UDI-6). As the UDI-6 measures the impact of urinary incontinence on peoples’ lives rather than incontinence per se, and may contain items that may be endorsed by those without urinary incontinence, the UDI-6 may overstate incontinence prevalence and the impact of this on peoples’ lives (defined as their health status and their quality of life). Given its poor psychometric properties, there was a prima facie case for major revision of the UDI-6. Although the ISI was the preferred measure, because it violated the assumptions of classic psychometric theory relating to scale stability as it contains only two items, further research into its properties was also recommended.

Regarding the measurement of faecal incontinence, as Hawthorne (2006) indicated, the current definition of faecal incontinence by the International Continence Society excludes flatus, yet this is included in the Wexner Faecal Continence Grading System (Wexner FCGS). In addition to this definitional inconsistency, the evidence from Hawthorne (2006) and AIHW (2006) suggested that the inclusion of the flatus item led to overestimates of faecal incontinence prevalence. It was recommended that further work on the Wexner FCGS be undertaken to remove the flatus item and to improve the measurement properties of this scale.

A main purpose of the Refining Continence Measurement Tools project (Sansoni et al., 2006) was to undertake further analysis of the SAHOS dataset to refine these urinary and faecal incontinence measures to provide better instruments for the assessment of incontinence in Australia. The psychometric properties of the scales and items were initially examined using Classical Test Theory approaches. This included examination of item descriptive statistics, item endorsement and discrimination, item-total correlations, internal consistency reliability and exploratory factor analysis. Modern Test Theory approaches such as Item Response Theory (IRT) were also used to examine item properties. IRT is used to find the model with the best fit to the data and is a process commonly used to shorten scales. Two new scales were developed: the Revised Urinary Incontinence Scale (RUIS) and the Revised Faecal Incontinence Scale (RFIS) and these are presented in Appendix 4.1.1 and 4.1.3. A major aim of the current project was to disseminate information about these tools at relevant conferences in order to facilitate their adoption by continence practitioners and researchers throughout Australia.

As part of the National Continence Management Strategy, Hawthorne (2006b) reviewed patient satisfaction measures and recommended that:

(a) An investigation into a single patient satisfaction item for use by clinicians wishing to make an “on-the-spot” assessment be undertaken,
(b) A short incontinence specific measure be developed based on revisions to the GUTSS instrument, and
(c) A short generic instrument also be developed.

In 2006 a related project *Measuring Patient Satisfaction with Incontinence Treatment* (Hawthorne et al., 2006) was conducted. A sample of women (N = 178) who had treatment (physiotherapy or surgery) for urinary incontinence 6-12 months before recruitment participated in this study. These participants were given a number of patient satisfaction and urinary incontinence questionnaires to complete following treatment and they were also asked to complete the incontinence tools retrospectively concerning how they felt prior to the commencement of their treatment. This enabled an analysis of the patient satisfaction measures in relation to incontinence status before and after treatment. The four patient satisfaction measures used in the study were the:

- Client Satisfaction Questionnaire (CSQ-18)
- Consultation Satisfaction Questionnaire (Consult SQ – 18 items)
- Genito-Urinary Treatment Satisfaction Scale (GUTTS – 10 items)
- Patient Satisfaction Inventory (PSI – 23 items)

A model of patient satisfaction based on the work of Donabedian (1988) was used. This postulates that satisfaction is defined as the patient's judgement on the quality of care, particularly the interpersonal relationships with clinicians and other care providers. The seven dimensions contributing to this model that were identified from the literature by Hawthorne (2006b) were used as the conceptual framework against which the patient satisfaction measures were reviewed. The items from all patient satisfaction measures were pooled for data analysis. Partial credit item response theory was used for item examination and Mokken analysis was used for item fit and scale analysis. Iterative analyses of these items were used until the best fitting model was achieved, consistent with the seven theoretical areas of patient satisfaction.

The best seven items formed a new scale – the Short Assessment of Patient Satisfaction (SAPS). Data analysis indicated the new scale had excellent coverage of patient satisfaction theory areas and that it was a strong unidimensional scale with consistent relationships between its items. The SAPS was more sensitive than the other generic measures to treatment type and treatment outcomes and it was more sensitive than any instrument to the pooled patient satisfaction indicator. Given the excellent properties of this scale it was considered important to present information at conferences about this new scale to facilitate its implementation in clinical practice and the evaluation of continence treatments.

### 1.2 Continence Outcomes Dissemination Project: Method

The aim of the Continence Outcomes Measurement Suite (COMS) Dissemination Project is to increase understanding and awareness of these continence outcomes measures and to assist clinicians and health care workers to utilise incontinence instruments.

The specific activities to be carried out were:

- Submit papers and posters, and develop and deliver presentations/posters at the International Continence Society (ICS) Conference held in Rotterdam in August 2007, on topics including:
  - Faecal incontinence assessment instruments for clinical practice, and epidemiological and outcomes research;
  - Measuring patient satisfaction with continence treatment; and
  - Self-report measures for urinary incontinence
- Submit papers and develop and deliver presentations at the Continence Foundation of Australia Conference held at Surfer’s Paradise in October 2007, on topics including:
Continence outcomes projects sponsored by the Commonwealth under the National Continence Management Strategy; and
- Outcomes measures for continence conditions in clinical practice and research settings
- Submit three abstracts and deliver presentations/posters at the Australian Association of Gerontology Conference in Adelaide in November 2007, on topics including:
  - Measuring faecal incontinence in Australia;
  - Measuring patient satisfaction with urinary incontinence treatment; and
  - A short reliable measure for urinary incontinence
- Document feedback received following all presentations, including the impact this feedback may have on future work in this area.

The project commenced in July. A progress briefing meeting was held on 16 November 2001 between Janet Sansoni (UOW) and Gerda Caunt and Sandra van Aalst of the Continence Section of Department of Health and Ageing. The meeting was held to report on activities undertaken to that date by the Continence Outcomes Dissemination Strategy.

The final report on these activities is outlined below.

2 Dissemination Activities

2.1 International Continence Society Conference, Rotterdam (August)

At the AGM of the ICS Conference in Rotterdam, Netherlands it was stated that 679 abstracts were submitted for ICS 2007. Of these 26 were selected for longer presentations including keynote addresses, 89 were selected for shorter presentations with a poster and 110 were selected as poster only. Thus only 225 out of 679 abstracts were accepted by this conference. The faecal incontinence and patient satisfaction abstracts were selected for presentation with a poster and the urinary incontinence abstract was selected as poster only.

Approximately 500 participants were in attendance for the two short presentations (faecal, patient satisfaction). The issue of flatus, and how best to measure it, was raised. There was Canadian interest in the faecal study and the data issues concerned with including flatus items in community/prevalence surveys.

There was a good response to the three posters: all CDs (~20) and the 1 page copies of the abstracts (~100) were taken. There was discussion held with a number of conference participants at the conference stand. It was noted that psychometric theory and scale development and validation is a relatively new area for some continence specialists, however, the time limits imposed on presentations at the ICS limits the extent to which one can explain this methodology in detail.

Although such material would form a good workshop which would provide more opportunities for participants to learn about these issues, the competition for workshop spaces at this ICS meant this opportunity could not be provided on this occasion. It may be worth considering a modified workshop proposal for the next ICS conference in Egypt – with a broader focus being more on how you select, evaluate and assess the tools for continence assessment. Certainly this style of workshop has been successfully offered in Australia.

The two presentations have been printed as peer reviewed journal articles in Neurology and Urodynamic. Their citations are:


The urinary poster citation is:


The outcomes of this activity appear to have been achieved. Given the statistics outlined above, which indicate the competition for getting papers accepted at ICS, that 2 papers were accepted for oral presentation and a third paper accepted as a poster is an indication of the success of the activity.

There were no particular difficulties encountered in preparing or presenting the continence research and the response to our work at the conference was positive. This work, and its international relevance, could be extended by the production and submission of this work to additional international peer reviewed journals.

### 2.2 Continence Foundation of Australia Conference, Surfers Paradise (October)

A plenary presentation which provided an overview of outcomes measurement projects sponsored by the NCMS was presented. A workshop was also presented. Approximately 60-70 participants attended the workshop. Informal feedback from these activities indicated the material was well received.

There was a lot of interest in the CDs which contained electronic copies of the outcome measures reports and a total of 55 CDs have been taken or requested. Due to the popularity of these presentations, the Continence Foundation of Australia has requested permission to place the PowerPoint presentations on their website and this has been agreed.

Some further analysis of the SAHOS and Patient Satisfaction datasets was undertaken to reflect further on the validation of the revised incontinence tools. This data indicates these tools are likely to be very sensitive to changes in incontinence status and very responsive to treatment effect which is highly desirable in outcome measures. However, as some of these findings are based on retrospective data a prospective clinical trial will be required to further validate these measures.

The presentation citations are as follows:


The aims and outcomes for these activities appear to have been achieved.
The only difficulties encountered were that Assoc Prof Graeme Hawthorne was not able to present in this workshop as had originally been intended – as he would be based overseas for 6 months. He was replaced by Emily Sansoni from the research team who undertook the presentation on faecal incontinence, with Nick Marosszeky undertaking the presentation of the patient satisfaction material that would have been presented by Graeme Hawthorne had he been available.

The room ‘set up’ for the workshop (formal lecture style set up) was not really appropriate for a workshop style presentation. Despite this some good discussion and feedback was facilitated. Participants agreed there was a need to develop an improved flatus item for the Revised Faecal Incontinence Scale. This is an issue that could be addressed in future work that may be undertaken to further validate the revised incontinence measurement tools.

2.3  Australian Association of Gerontology Conference, Adelaide (November)

A short presentation highlighting our work in developing the Revised Urinary Incontinence Scale (RUIS) was conducted by Nick Marosszeky (Session #8D, National Continence Management Strategy: November 22, 2007) at the Australian Association of Gerontology Conference. Two posters on measuring faecal incontinence and patient satisfaction with urinary incontinence treatment were also displayed at all session breaks across the three days of the conference (21-23 November 2007).

The audience for the short presentation on the RUIS contained about 20 delegates with a professional interest in the area of incontinence. Feedback was positive, with questions about the sensitivity to change data from the RUIS and how to further promote this and other continence assessment work in the aged care sector. In terms of the poster displays, there was some interest in our work, however we feel that the peer reviewed journal abstracts on this research (refer below) will also have an important additional dissemination impact.

The two posters and the conference presentation have been printed as peer reviewed abstracts in the Australasian Journal on Ageing. The citations are:


2.4  National Healthcare Journal (July)

There has been a good response to this article with a number of requests (~ 20) for the revised instruments. A number of nursing home / aged care hostels and community care organisations have requested copies of the instruments. The citation of this article is:


2.5  Other Activities

Although not part of this contract, Assoc Prof Graeme Hawthorne also presented a paper on Patient Satisfaction with Treatment for Incontinence at the European Isoqol Conference in
Budapest in late June. This can only increase international awareness of the SAPS scale. The citation for this paper is below:


There was also liaison with Patricia Newman concerning the incorporation of the revised incontinence tools in an outcomes calculator for clinicians that has been developed in South Australia.

3 Conclusions

The aims and outcomes of each of the project components completed to date have been achieved. As indicated above, some minor difficulties have been encountered but these difficulties were easily overcome and did not impinge upon the success of these activities. To facilitate further adoption of the revised incontinence tools in clinical and research settings it would be desirable if further validation research could be undertaken on the revised tools. Once further validation data is available it would be useful to present the findings at the ICS and CFA conferences and to publish the findings in relevant peer reviewed journals.

References


4 Appendices

4.1 Revised Incontinence and Patient Satisfaction Tools and Instructions

4.1.1 Revised Urinary Incontinence Scale (RUIS)

Do you experience and if so how much are you bothered by:

- Urine leakage related to the feeling of urgency
  - Not at all (0)
  - Slightly (1)
  - Moderately (2)
  - Greatly (3)

- Urine leakage related to physical activity, coughing or sneezing
  - Not at all (0)
  - Slightly (1)
  - Moderately (2)
  - Greatly (3)

- Small amounts of urine leakage (drops)
  - Not at all (0)
  - Slightly (1)
  - Moderately (2)
  - Greatly (3)

How often do you experience urine leakage?
- Never (0)
- Less than once a month (1)
- A few times a month (2)
- A few times a week (3)
- Every day and/or night (4)

How much urine do you lose each time?
- None (0)
- Drops (1)
- Small splashes (2)
- More (3)

References:


4.1.2 Revised Urinary Incontinence Scale Scoring Instructions

People respond to the Revised Urinary Incontinence Scale (RUIS) questions by selecting one particular response option from the set of standard response options for each question. These response options can then be scored by using the numbers presented in brackets to the right of each response option. The RUIS total score is then calculated by adding up a person’s score for each question. Adding the score for each of the five questions results in a possible score range of 0 - 16. At this stage, there is no data about grouping people into valid clinical categories representing different severity levels of incontinence (e.g. mild, moderate, or severe); however, further clinical research is being undertaken to provide this information.

This scale includes both questions from the Incontinence Severity Index (ISI; Sandvik, Seim, Vanvik, and Hunskaar, 2000) and therefore an ISI score can also be calculated. This is done by multiplying the scores from questions 4 and 5, resulting in a score range from 0 to 12, where a 0 score represents no incontinence. Scores from 1 to 12 are grouped into the following four severity levels:

- 1 - 2 = slight
- 3 - 6 = moderate
- 8 - 9 = severe
- 12 = very severe

Finally, users should check that each question has a response option selected in order to avoid any missing data. This is because missing data can not be adjusted for in short scales like the RUIS.

Reference:
4.1.3 Revised Faecal Incontinence Scale (RFIS)

Do you leak, have accidents or lose control with solid stool?
- Never (0)
- Rarely, i.e. less than once in the past four weeks (1)
- Sometimes, i.e. less than once a week, but more than once in the past four weeks (2)
- Often or usually, i.e. less than once a day but more than once a week (3)
- Always, i.e. more than once a day or whenever you have a bowel movement (4)

Do you leak, have accidents or lose control with liquid stool?
- Never (0)
- Rarely, i.e. less than once in the past four weeks (1)
- Sometimes, i.e. less than once a week, but more than once in the past four weeks (2)
- Often or usually, i.e. less than once a day but more than once a week (3)
- Always, i.e. more than once a day or whenever you have a bowel movement (4)

Do you leak stool if you don’t get to the toilet in time?
- Never (0)
- Rarely, i.e. less than once in the past four weeks (1)
- Sometimes, i.e. less than once a week, but more than once in the past four weeks (2)
- Often or usually, i.e. less than once a day but more than once a week (3)
- Always, i.e. more than once a day or whenever you have a bowel movement (4)

Does stool leak so that you have to change your underwear?
- Never (0)
- Rarely, i.e. less than once in the past four weeks (1)
- Sometimes, i.e. less than once a week, but more than once in the past four weeks (2)
- Often or usually, i.e. less than once a day but more than once a week (3)
- Always, i.e. more than once a day or whenever you have a bowel movement (4)

Does bowel or stool leakage cause you to alter your lifestyle?
- Never (0)
- Rarely, i.e. less than once in the past four weeks (1)
- Sometimes, i.e. less than once a week, but more than once in the past four weeks (2)
- Often or usually, i.e. less than once a day but more than once a week (3)
- Always, i.e. more than once a day or whenever you have a bowel movement (4)

References:
4.1.4 Revised Faecal Incontinence Scale Scoring Instructions

People respond to the Revised Faecal Incontinence Scale (RFIS) questions by selecting one particular response option from the set of standard response options for each question. These response options can then be scored by using the numbers presented in brackets to the right of each response option. The RFIS total score is then calculated by adding up a person’s score for each question. Adding the score for each of the five questions results in a possible score range of 0 - 20. At this stage, there is no data about grouping people into valid clinical categories representing different severity levels of incontinence (e.g. mild, moderate, or severe); however, further clinical research is being undertaken to provide this information.

Finally, users should check that each question has a response option selected in order to avoid any missing data. This is because missing data can not be adjusted for in short scales like the RFIS.
4.1.5 Short Assessment of Patient Satisfaction (SAPS) with Instructions

Instructions: After reading each question, circle the answer that best describes your situation. We know that sometimes answers may not describe you exactly, so please pick the answer that most closely describes you.

When you have finished, please check that you have answered all questions.

<table>
<thead>
<tr>
<th>Q1. How happy are you with the effect of your treatment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very happy ............................................... 0</td>
</tr>
<tr>
<td>Happy .......................................................... 1</td>
</tr>
<tr>
<td>Neither happy nor unhappy .................................. 2</td>
</tr>
<tr>
<td>Unhappy ....................................................... 3</td>
</tr>
<tr>
<td>Very unhappy .................................................. 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2. How satisfied are you with the explanations the {doctor/other health professional} has given you about the results of your treatment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very dissatisfied .......................................................... 0</td>
</tr>
<tr>
<td>Dissatisfied ............................................................. 1</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied .................................... 2</td>
</tr>
<tr>
<td>Satisfied ............................................................. 3</td>
</tr>
<tr>
<td>Very satisfied .......................................................... 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q3. The {doctor/other health professional} was very careful to check everything when examining you.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree .......................................................... 0</td>
</tr>
<tr>
<td>Agree ................................................................. 1</td>
</tr>
<tr>
<td>Not sure ............................................................ 2</td>
</tr>
<tr>
<td>Disagree ............................................................. 3</td>
</tr>
<tr>
<td>Strongly disagree .................................................. 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4. How satisfied were you with the choices you had in decisions affecting your health care?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very dissatisfied .................................................. 0</td>
</tr>
<tr>
<td>Dissatisfied .......................................................... 1</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied ......................... 2</td>
</tr>
<tr>
<td>Satisfied ............................................................. 3</td>
</tr>
<tr>
<td>Very satisfied ........................................................ 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q5. How much of the time did you feel respected by the {doctor/other health professional}?</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of the time ...................................................... 0</td>
</tr>
<tr>
<td>Most of the time .................................................... 1</td>
</tr>
<tr>
<td>About half the time ............................................... 2</td>
</tr>
<tr>
<td>Some of the time ................................................... 3</td>
</tr>
<tr>
<td>None of the time .................................................... 4</td>
</tr>
</tbody>
</table>
Q6. The time you had with the {doctor/other health professional} was not long enough.

Strongly agree..............................................0
Agree.............................................................1
Not sure ..........................................................2
Disagree..........................................................3
Strongly disagree .............................................4

Q7. Are you happy with the care you received in the {hospital/clinic}?  

Very happy......................................................0
Happy..............................................................1
Neither happy nor unhappy. .........................2
Unhappy..........................................................3
Very unhappy..................................................4

Scoring the SAPS:
1. Reverse the scores for #1, #3, #5, #7
2. Sum all scores. The score range is from 0 (extremely dissatisfied) to 28 (extremely satisfied)

Reference:
4.2 International Continence Society Conference Posters

Measuring Patient Satisfaction with Continence Treatment

**Study aims**
- Comparison of four patient satisfaction instruments:
  - CSQ-18 (Client Satisfaction Questionnaire; 18 items)
  - Consult SQ (Consultation Satisfaction Questionnaire; 18 items)
  - Genito-Urinary Treatment Satisfaction Scale (GUTTSS; 10 items)
  - PSI (Patient Satisfaction Inventory; 23 items)

**Introduction**
1. Incontinence affects >30% of females and >10% of males.
2. Treatment outcomes are symptom relief, improved quality of life.
3. Another outcome is satisfaction with health care.
   - Improving care will correlate with better health outcomes.
   - Patients’ rights require them to feel comfortable and informed.
   - Patient views play a higher priority in multidisciplinary decision-making.
   - Patient input helps improve health care delivery.

**Review of the patient satisfaction literature**
1. Most studies used a single-item measure.
2. Only 1 incontinence-specific measure.
   - The Genito-Urinary Treatment Satisfaction Scale (GUTTSS).
3. Over 50% of papers fail to report any psychometric properties.
4. 80% of respondents report being ‘satisfied’; how to interpret this?

**Theories of patient satisfaction**
- Patient satisfaction suggest 8 core areas:
  - Access to health services, the treatment environment.
  - Provider of health information.
  - Relationships with health care providers.
  - Participation in making health care decisions.
  - The technical quality of care.
  - Treatment effectiveness (patients in the day-to-day life of the patient).
  - Overall satisfaction.

Dissatisfaction occurs where there are multiple transgressions or areas where there is a catastrophic failure in one area.

**Methods**
- Random sample of physiotherapy and surgery patients.
- Females, >45 in previous 12 months.
- Patients sampled from St George Hospital (Sydney) and Royal Women’s Hospital (Melbourne).

**Questionnaire**:
- Incontinence Severity Index and Urgent Distress Inventory-6 post-treatment (in) and retrospective to before treatment (inh), then test difference between (inh) and (inh).
- Patient satisfaction (CSQ-18, Consult SQ, GUTTSS, PSI).

**Participants**
- Participation rate = 44% (N = 154).
- Treatment: Physiotherapy (27%), Surgery (40%), Both (33%)
- Treatment: Improved (62%), No change (12%), Worse (6%)

**Results 1: Comparison of Instruments**

<table>
<thead>
<tr>
<th></th>
<th>Consult SQ</th>
<th>CSQ-18</th>
<th>GUTTSS</th>
<th>PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage &amp; intensity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy &amp; feasibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationships</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Technical skill</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction general</td>
<td></td>
<td></td>
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</tbody>
</table>

**Psychometric properties**

<table>
<thead>
<tr>
<th>Proportion correctly paired</th>
<th>Consult SQ</th>
<th>CSQ-18</th>
<th>GUTTSS</th>
<th>PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yogurt (2g)</td>
<td>0.60</td>
<td>0.75</td>
<td>0.66</td>
<td>0.45</td>
</tr>
<tr>
<td>Yogurt (4g)</td>
<td>0.56</td>
<td>0.75</td>
<td>0.66</td>
<td>0.45</td>
</tr>
<tr>
<td>Yogurt (6g)</td>
<td>0.50</td>
<td>0.75</td>
<td>0.66</td>
<td>0.45</td>
</tr>
</tbody>
</table>

**Responsiveness to treatment**

<table>
<thead>
<tr>
<th>Responsiveness to treatment</th>
<th>Consult SQ</th>
<th>CSQ-18</th>
<th>GUTTSS</th>
<th>PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment effect (mean change)</td>
<td>0.58</td>
<td>0.45</td>
<td>0.58</td>
<td>0.45</td>
</tr>
<tr>
<td>Treatment effect (95% CI)</td>
<td>0.58</td>
<td>0.45</td>
<td>0.58</td>
<td>0.45</td>
</tr>
</tbody>
</table>

**Responsiveness to pooled Patient Satisfaction measures**

<table>
<thead>
<tr>
<th>Responsiveness to pooled Patient Satisfaction measures</th>
<th>Consult SQ</th>
<th>CSQ-18</th>
<th>GUTTSS</th>
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<td>0.45</td>
<td>0.58</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Interpretation:
- Poor coverage of patient satisfaction theory (best is CSQ-18, worst is PSI and GUTTSS)
- High variability - a function of consistent items (4) and instruments
- Evidence of response bias (CSQ-18 & PSI)
- Poor responsiveness (best is GUTTSS)

**Conclusions**
1. All 4 patient satisfaction instruments show to have some measurement problems.
2. Pooling of all items led to the construction of the SPS.
3. SPS (7 items) shortest instrument and has extensive internal psychometric properties.
4. SPS more sensitive than any instrument to pooled patient satisfaction estimate
5. SPS needs to be tested in other samples and populations.
6. A single item measure has also been derived from the study.

**Acknowledgements**
Study funded by the Australian Government Department of Health and Ageing as part of the National Continence Management Strategy.

Graeme Hawthorne, Jan Sansonii, Laura Hayes, Nick Maroszycky, Emily Sansonii

*Department of Psychiatry, The University of Melbourne. **Centre for Health Services Development, University of Wollongong*
Study Aims
1. Obtain current prevalence estimates for faecal incontinence in a community population survey (N=3015) in Australia.
2. Assess the psychometric properties of the Wexner Faecal Continence Grading Scale and other faecal incontinence items that were included in the survey to assess prevalence.

Introduction
1. A need for current prevalence data for faecal incontinence in Australia
2. There is a need to assess the psychometric properties of faecal incontinence instruments because:
   - The development of instruments for the measurement of faecal incontinence is still at an early stage in psychology.
   - The presence of small scale studies and clinical data makes the selection of reliable and valid measures difficult.
   - Issues surrounding the actual content of questionnaires and scoring systems are highly debated.

Study Materials
1. The Wexner Scale (Longo and Wexner, 1993) was included in the survey as it is a community based faecal incontinence measure and was recommended by Thomas et al. (2006) in the Australian Continence Outcome Measurement Scale Report.
2. Additional items, developed by a Uro-gastroenterologist, included faecal urgency, frequency, soiling and bowel patterns. It was noted that the Wexner does not include an item on faecal urgency.

Survey and Participants
Several all locations throughout South Australia with 1,000+ inhabitants. Sampling from AAS collection districts, using a random starting point and every 4th dwelling. Response rate = 72%. 720 households were selected with 3015 interviews. The sample comprised a total of 1202 miles and 1713 females.

It should be noted that incontinence prevalence in the 75+ age group is probably underestimated as this survey only includes those in community residences.

Methods
- For prevalence estimates the data was weighted by probability of selection and AAS 2001 census to ensure representation.
- For the psychometric analyses unweighted data was used for all adults over 18 years of age.
- All faecal items were scored for analysis.
- Psychometric properties were initially examined using classical Test Theory analyses. This included examination of item descriptive statistics, item endorsement and discrimination, item-total correlations, internal consistency reliability and exploratory factor analysis.
- Modern Test Theory approaches (Item Response Theory (IRT)) were also used to examine item component properties, to test the model with the best fit to the data and is a process commonly used to shorten scales.

Results 1: Item-Total Correlations
Corrected item - total correlations and Cronbach’s alpha if the item was deleted for each item of the Wexner Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected item - Total Correlation</th>
<th>Cronbach’s alpha if item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Leak Solid)</td>
<td>0.52</td>
<td>0.49</td>
</tr>
<tr>
<td>(Leak Liquid)</td>
<td>0.53</td>
<td>0.44</td>
</tr>
<tr>
<td>(Leak Gas)</td>
<td>0.25</td>
<td>0.77</td>
</tr>
<tr>
<td>(Wear Pad)</td>
<td>0.39</td>
<td>0.50</td>
</tr>
<tr>
<td>(Alter Lifestyle)</td>
<td>0.42</td>
<td>0.50</td>
</tr>
</tbody>
</table>

The internal consistency for the Wexner was found to be low at 0.57. This above tables show that the “(leak gas)” item has a low corrected item - total correlation, just above the acceptable range of 0.20 (Brenner and Norman, 2002). The Cronbach’s alpha data also suggests that if the leak gas item were deleted from Cronbach’s alpha we see a significant drop in 0.77.

The exploratory factor analysis produced a 3 factor structure explaining 81% of the variance. For the faecal incontinence items, Rotated Factor 1 accounted for a large proportion of the variance 40.0%, while Rotated Factors 2 and 3 accounted for 10.70% and 10.24% respectively. Rotated Factor 1 appears to represent the common factor of leakage or soiling, while Rotated Factor 2 could represent other bowel / stomach symptoms and Rotated Factor 3 could represent the number of bowel movements.

Selecting the Best Items
The Wexner factor item had a low item-total correlation and the internal consistency of this scale would be improved if it was deleted. The faecal incontinence prevalence estimates were 9% if this item was excluded but rose to 38% if included. Thus it is recommended that this item be excluded in epidemiological research.

The additional items “do you leak so that you have to change your underwear?” had slightly better psychometric properties than the pad items in the Wexner which has been the subject of some criticism (Vicary et al. 1999).

From these considerations the five best items were selected to form the Revised Faecal Incontinence Scale.

The RFSI and the FCA
Both scales had superior measurement properties compared with the Wexner. The items comprising these scales are:
- Do you leak, have accidents or loss control with solid stool?
- Do you leak, have accidents or loss control with liquid stool?
- Do you leak if you don’t go to the toilet in time?
- Does stool leak so that you have to change your underwear?
- Does bowel or stool leakage cause you to alter your lifestyle?

The response categories for these scales are the same as for the Wexner.

Acknowledgements
Study funded by the Australian Government Department of Health and Aged as part of the National Continence Management Strategy.

Jan Sansoni*, Nick Maroszszeky*, Graeme Hawthorne**, Emily Sansoni*, Kate Moore**
*Centre for Health Services Development, University of Wollongong, **Department of Psychiatry, The University of Melbourne, ***St George Hospital, Kogarah Sydney
The Assessment of Two Brief Self-Report Measures of Urinary Incontinence: Results from a Community Population Survey

Study Aims

1. Obtain current prevalence estimates for urinary incontinence in a community population survey (NH3015) in Australia.
2. Assess the psychometric properties of the Urgency Distress Inventory (UDI-6) (Luxenberg et al. 1999) and the Incontinence Severity Index (ISI) (Glisenti et al. 2000) instruments that were included in the survey to assess prevalence.

Introduction

1. A need for current prevalence data for urinary incontinence in Australia.
2. There is a need to assess and compare the psychometric properties of the urinary incontinence instruments in order to:
   - Compare the prevalence estimates that are derived from each instrument
   - Estimate the psychometric features of the scales and identify the best performing items
   - Develop a revised scale if required

Study Materials

The UDI-6 (Items 1-6) and the ISI (Items 7-9) were included in the survey as they were commonly used urinary incontinence measures and were recommended by Thomas et al. (2005) in the (Australian) Continence Outcomes Measurement Suite Project.

Survey and Participants

Sampled all locations throughout South Australia with 1,000+ inhabitants. Sampling from ABS collection districts, using a random starting point and every 4th polling. Response rate of 72%, 4,700 households were selected with 2015 interviews. The sample comprised a total of 1,002 males and 1,173 females.

It should be noted that incontinence prevalence in the 75+ age group is potentially underestimated as this survey only includes those in community residences.

Methods

- For prevalence estimates the data was weighted by probability of selection and ABS 2001 census data to ensure representativeness.
- For the psychometric analyses unweighted data was used for all adults over 18 years of age.
- All urinary items were pooled for analysis.
- Psychometric properties were initially examined using Classical Test Theory approaches. This included examination of item descriptive statistics, item endorsement and discrimination, item-total correlations, internal consistency reliability and exploratory factor analysis.
- Modern Test Theory approaches (Item Response Theory) (IRT) were also used to examine item properties. IRT is used to fit the model with the best fit to the data and is a process commonly used to shorten scales.

Results 1: Item-Total Correlations

The internal consistency for the UDI-6 was 0.75 and for the ISI 0.83. The above table shows that for the UDI-6 the corrected item-total correlations for items (emptying bladder) and labial lower abdomen are low, just above 0.20 which is at the lower end of the acceptable range (Striker and Norman, 2001). The Cronbach’s alpha data shows that if either of these items were deleted it would not affect the internal consistency of the scale. If both these items were deleted it would slightly increase the internal consistency of the scale to 0.71.

Jan Sansoni*, Nick Marosszeky†, Graeme Hawthorne**, Emily Sansoni*, Kate Moore**

*Centre for Health Services Development, University of Wollongong. **Department of Psychiatry, The University of Melbourne. *** St George Hospital, Kogarah, Sydney

Acknowledgements

The method of exploratory factor analysis used was principal components analysis for extraction (eigenvalues > 1.00) with varimax rotation.

The exploratory factor analysis produced a 2 factor structure explaining 87% of the variance. For the other incontinence items, Rotated Factor 1 accounted for a large proportion of the variance 53.43% while Rotated Factor 2 accounted for 12.56%.

Rotated Factor 1 appears to represent the common factor of urinary leakage/incontinence, while Rotated Factor 2 seems to reflect either co-existing symptoms like lower abdominal pain and bladder emptying.

The UDI-6 items on frequency urination loaded equally on both factors.

** Selecting the Best Items

The urinary incontinence prevalence estimates for the ISI were 54% and 47% for the UDI-6 indicating a large discrepancy.

1. A number of UDI-6 symptom items (pain lower abdomen, emptying bladder) are endorsed by those who do not experience urinary leakage and this may lead to inflated prevalence estimates for the UDI-6. Such items should not be included in prevalence studies.

Using Classical Test Theory approaches the five best items were selected to form the Revised Urinary Incontinence Scale.

IRT analysis confirmed the findings from the Classical Test Theory analyses – also identifying problems with the abdominal pain and emptying bladder items from the UDI-6. The shorter IRT solution, the Urinary Continence Assessment, would not include the leakage frequency item from the ISI (because of disordered response thresholds) and the stress leakage item from the UDI-6 (due to other item functioning across categories).

The RUJS and the UCA

Both these scales had superior measurement properties when compared with the UDI-6 and the ISI. The items comprising these scales are:

- Urine leakage related to the feeling of urgency (UDI-6)
- Urine leakage related to physical activity, coughing or sneezing (UDI-6)
- Small amounts of urine leakage (drop?) (UDI-6)
- How often do you experience urinary leakage (ISI)
- How much urine do you lose each time? (ISI)

* 4 items included in the UCA

The response categories and the time items for these scales are the same as the original scales from which they are derived.

For clinical applications the 5 item RUJS may be more appropriate as it includes the item on stress incontinence. The shorter 3 item UCA scale may be appropriate for prevalence studies.

Conclusions

1. From a psychometric examination of the properties of the ISI and the UDI-6 in a community population survey two new scales were developed.
2. The RUJS and the UCA have good psychometric properties and could be considered by researchers and epidemiologists seeking for short, reliable and valid scales of urinary incontinence (as defined by leakage).
3. It is noted that these scales were derived from a statistical modeling exercise and are currently being further assessed in clinical settings.

A copy of the report can be obtained from Jan Sansoni!

Email: jan.sansoni@uow.edu.au

Study funded by the Australian Government Department of Health and Ageing as part of the National Continence Management Strategy.
4.3 Continence Foundation of Australia Abstracts

Continence outcomes measurement: an overview of projects sponsored by the National Continence Management Strategy

J. Sansoni, N. Marosszeky, E. Sansoni. (Podium Presentation)
Centre for Health Service Development, University of Wollongong

Introduction: The National Continence Management Strategy recently funded a number of projects to examine ways to monitor the health outcomes of constipation patients. The purpose of the Continence Outcomes Measurement Suite (1) was to develop a set of recommended measures/tools for routine use in the assessment, diagnosis, screening and monitoring of constipation conditions, and for the evaluation of treatments that are applicable for the Australian health care context. By developing a set of recommended measures it was hoped to standardise the assessment and evaluation procedures used in this field to enhance comparability of findings across research and practice settings.

The Continence Outcomes Measurement Suite examined all the instruments and indicators that were currently used to assess patients suffering from both faecal and urinary incontinence. This report systematically reviewed clinical indicators such as bowel and bladder charts, examined measures of symptoms of incontinence and also reviewed those measures that are used to assess the health related quality of life in patients with this condition. A related project, the Review of Patient Satisfaction Measures (2), examined available patient satisfaction measures. Although both of these projects made recommendations concerning the best measures to use it was thought that some of the recommended tools could be improved further and a program of research was advised.

Materials and Methods: In 2004 it was decided to include a number of the recommended measures in the 2004 South Australian Health Omnibus Survey (3). This is a community population survey with more than 3000 participants. Inclusion of the recommended instruments (Incontinence Severity Index, Urogenital Distress Inventory-6, and the Wexner Faecal Continence Grading System) would not only provide current prevalence estimates of incontinence in the community but would also serve as a field trial of some of the recommended measures from the Continence Outcomes Measurement Suite. This work was reported in Measuring Incontinence in Australia (4). The data derived from this study was also used by the AIHW (5) in their report Australian Incontinence Data Analysis and Development which provides prevalence and burden of disease estimates for incontinence in the Australian population.

Measuring Incontinence in Australia (4) did show there were some problems with some of the items used in the recommended measures to assess incontinence. For example, the Wexner Scale includes items on leakage of solid and liquid stool but also includes an item on leakage of gas (flatus) and these items are equally weighted in this scale. We found that the flatus item is commonly endorsed in the community by those without any other symptoms of faecal incontinence and thus including such an item in a faecal incontinence scale will lead to overestimates of the number of patients with faecal incontinence both in the community and in clinical settings. Similar problems were noted with some of the items included in the Urogential Distress Inventory-6 – that is some items may be endorsed by those who do not experience urinary incontinence. As a result of these findings a project was undertaken to improve the measurement properties of the measures used to assess incontinence.

Results: The project Refining Continence Measurement Tools (6) further examined the measurement properties of all the incontinence items included in the 2004 SAHOS using Classical Test Theory approaches. A new scale for assessing urinary incontinence - the Revised Urinary Incontinence Scale (RUIS) - was developed by selecting the best performing items from the Incontinence Severity Index (7) and the Urogenital Distress Inventory-6 (8).

A new scale for assessing faecal incontinence - the Revised Faecal Incontinence Scale (RFIS) - was developed by selecting the best performing items from the Wexner Faecal Continence Grading System (9) and from additional items that Assoc Prof Kate Moore had included in the 2004 SAHOS.

Conclusions: These instruments are currently being trialed in clinical settings and the initial data presented indicates these new instruments work well in assessing incontinence status. It is recommended that these instruments are routinely used by clinicians and practitioners for both the assessment of symptoms and the monitoring of the health outcomes of patients with incontinence.
References:


Measuring Incontinence in Australia: Outcome Measures for Continence Conditions in Clinical Practice and Research Settings

Presenters: Jan Sansoni¹, Nick Marosszeky¹, Graeme Hawthorne², Emily Sansoni¹

1. Australian Health Outcomes Collaboration, Centre for Health Service Development, University of Wollongong
2. Department of Psychiatry, University of Melbourne

Clinicians, practitioners and researchers need to measure incontinence and its impact, as well as patient satisfaction with treatment. This workshop will cover the findings and recommendations of the Australian National Continence Management Strategy with regard to assessing and monitoring incontinence and patient satisfaction with treatment for incontinence.

Using an interactive exercise the workshop will introduce participants to some of the most commonly used measurement instruments. There will be discussion of their measurement properties. Delegates will then be introduced to improved assessment measures that overcome some of the limitations of these current instruments. Appropriate applications for these measures will be discussed.

The workshop will cover:

- A brief overview of the Australian National Continence Management Strategy with respect to its activities related to the assessment of incontinence, the use of measures to evaluate the outcomes of interventions used to treat incontinence and the production of Australian prevalence and burden of disease estimates.
- An assessment of the most commonly used self-report assessment measures for both urinary and faecal incontinence against the current definitions of the International Continence Society. Recommended instruments for urinary incontinence include: the Urogenital Distress Inventory 6 (Uebersax et al. 1995) and the Incontinence Severity Index (Sandvik et al. 2000); as well as the Wexner Faecal Continence Grading System (Jorge & Wexner 1993) for faecal incontinence.
- The field testing of these instruments, based on a community-based survey of >3000 Australians. These results highlight some of the measurement limitations of current instruments. Psychometric analyses suggested some revision of these instruments.
- An introduction to the new instruments, developed by statistically modelling incontinence using items from existing measures. This modelling is based on factor analysis and item response theory.
- Initial results from the pilot testing of the revised instruments with a clinical sample of incontinence patients.
- The measurement of patient satisfaction with care for incontinence, based on the analysis of a survey of patients receiving treatment for their incontinence (n=184). Two new measures are reported: a 7-item patient satisfaction scale and a single item that can be used by clinicians in routine care settings.
4.4 **Australian Association of Gerontology Abstracts**

**A SHORT AND RELIABLE MEASURE OF URINARY INCONTINENCE - PRESENTATION**

Marosszeky N¹, Sansoni J¹, Hawthorne G², Sansoni E¹

¹University of Wollongong, Wollongong, NSW
²University of Melbourne, Melbourne, Vic

**Background**

Two brief, self-report measures of urinary incontinence were included in a community population survey (N=3015) to obtain current prevalence estimates for urinary incontinence in Australia and to examine the psychometric properties of these measures.

**Methods**

The Incontinence Severity Index (ISI) asks two questions about urinary incontinence producing a severity index. The Urogenital Distress Inventory (UDI-6) consists of 6 items concerning the symptoms associated with urinary incontinence.

The dataset was subjected to a standard psychometric analysis; including item endorsement and discrimination, item-total correlations, internal consistency reliability and exploratory factor analysis.

**Results**

The prevalence of urinary incontinence symptoms as measured by the ISI was 24% while the prevalence estimate using the UDI-6 was 47%. This disparity may be partly explained by the fact that ISI items are only concerned with urinary leakage, whereas the UDI covers a broader range of symptoms.

Internal consistency reliability for both scales was acceptable. However, some items from the UDI-6 had poor item-total correlations suggesting they could be removed without affecting the scale’s reliability.

The exploratory factor analysis of the items produced a 2 factor structure, explaining 67% of the variance. Most items loaded on the first common factor, which may be defined by urinary leakage symptoms.

**Conclusions**

A five item scale, the Revised Urinary Incontinence Scale, was developed by combining the most useful items from these scales. This new measure has good psychometric properties and could be considered by those looking for a short and reliable scale of urinary incontinence for older populations. Further work is being undertaken to examine the validity of this measure in clinical settings.
MEASURING FAECAL INCONTINENCE IN AUSTRALIA - POSTER

Sansoni J¹, Marosszeky N¹, Hawthorne G², Sansoni E¹
¹University of Wollongong, Wollongong, NSW
²University of Melbourne, Melbourne, Vic

Background
The Wexner Faecal Continence Grading Scale and some faecal incontinence items were included in a population-based survey (N=3015) to obtain current prevalence estimates for Australia and to examine the psychometric properties of these items.

Methods
The additional faecal incontinence items covered urgency, frequency, soiling and bowel patterns.

Examination of the psychometric properties of these items included: item endorsement and discrimination, item-total correlations, internal consistency reliability and exploratory factor analysis.

Results
The Cronbach's alpha for the standard Wexner was α = 0.57 which is considered unacceptable. The item concerning flatus had a low corrected item-total correlation (0.20). Removal of this item improved the reliability to 0.77.

The flatus item from the Wexner may confound prevalence estimates. The prevalence estimates were 8% if flatus was excluded but rose to 35% when included.

The exploratory factor analysis indicated a 3 factor structure, explaining 61% of the variance. The first factor appeared to be a 'general faecal incontinence' factor, as all items were concerned with leakage and soiling. Flatus and bowel pattern items loaded on the second factor. The only item that loaded on the third factor is 'frequency of bowel motions' and this item had low loadings on the other two factors.

Following removal of items with poor properties a 5-item scale resulted, the Revised Faecal Incontinence Scale (RFIS).

Conclusion
The RFIS has superior psychometric properties to the standard Wexner, it includes an item associated with urge incontinence and could be considered by those looking for a short, reliable and valid scale of faecal incontinence for older age groups. Further research is examining the validity of this measure in clinical settings.
MEASURING PATIENT SATISFACTION WITH URINARY INCONTINENCE TREATMENT - POSTER

Sansoni J\(^1\), Hawthorne G\(^2\), Marosszeky N\(^1\), Hayes L\(^2\), Sansoni E\(^1\)
\(^1\)University of Wollongong, Wollongong, NSW
\(^2\)University of Melbourne, Melbourne, Vic

Background
A number of patient satisfaction measures were trialed in a cross-sectional survey of women who had treatment for urinary incontinence (N=187). The psychometric properties of these measures were examined and a short measure for patient satisfaction was developed.

Methods
Participants completed a questionnaire comprising items covering incontinence status, treatment type and three generic patient satisfaction questionnaires: the Client Satisfaction Questionnaire (CSQ-18), the Consultation Satisfaction Questionnaire (Consult SQ), and the Patient Satisfaction Index (PSI).

Donabedian’s model postulates that satisfaction is the patient’s judgment on the quality of care. The seven dimensions in this model provide the conceptual framework against which the measures were reviewed.

Results
The instruments were examined by their descriptive systems, internal structures and responsiveness. The items from the instruments were examined through iterative Mokken and partial credit IRT analyses against Donabedian’s model. Seven items were selected which formed a Short Assessment of Patient Satisfaction (SAPS) scale. Its internal psychometric properties were excellent (\(\alpha = 0.86\)) and it provided a patient satisfaction perspective that was most consistent with Donabedian’s model.

In summary, the internal structures of the instruments suggested that all SAPS items were responsive, but some items on the other measures were insensitive. Also, all measures were shown to be unidimensional. Tests of response bias suggested that this was present in the CSQ-18 and the PSI. Redundancy was observed in the Consult SQ, CSQ-18 and PSI.

Conclusions
This study has provided evidence that patient satisfaction can be assessed validly, reliably and sensitively using the much shorter SAPS instrument. This new short measure of patient satisfaction with treatment will be a useful tool for clinicians and evaluators as the population ages.