



An Australian Government Initiative

Developing and Refining Outcomes Measurement Suites: An Example from the National Continence Management Strategy

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Continence Outcomes Measurement Suite

- In 2006 the Continence Outcomes Measurement Suite (COMS) report (Thomas et al, 2006) was released by the National Continence Management strategy.
- The COMS report systematically reviewed an extensive range of instruments used to assess incontinence. The COMS publication also included a review of a range of patient satisfaction with treatment scales (Hawthorne, 2006).
- Based on these reviews the COMS report recommended the King's Health Questionnaire, the Urogenital Distress Inventory-6 and the Incontinence Severity Index for the assessment of urinary incontinence.
- There was also an interim recommendation for the Wexner Faecal Continence Grading Scale for faecal incontinence.

COMS Recommendations

- The COMS report recommended the inclusion of a number of these incontinence scales in the 2004 South Australian Health Omnibus Survey to further assess their measurement properties. This is reported on in *Measuring Incontinence in Australia (2006)*.
- The most recent Australian prevalence data derives from this study and this was also used by the AIHW in the *Australian Incontinence Data Analysis and Development* report. This report also examined burden of disease and monetary costs associated with incontinence.
- The COMS *Review of Patient Satisfaction Measures* also recommended a study be undertaken to develop a new short measure of patient satisfaction.

2004 SAHOS

- South Australian Health Omnibus Survey is a 'user-pays' population health survey
- Conducted April/June 2004 (13 participating organisations)

DoHA focus was:

- To examine the prevalence of faecal and urinary incontinence in the population
- To report on 5 key health related quality of life/multi-attribute utility instruments (AQoL, HUI3, SF-6D, 15D, EQ-5D) and their sensitivity to incontinence status
- To report population norms for the new SF-36 Version 2 recommended as a generic health status measure for research

2004 SAHOS

- Sampled all locations throughout SA with 1000+ inhabitants
- Sampling from ABS collection districts, using a random starting point and every 4th dwelling
- Response rate: 72%; 4700 households selected, **3015 interviews**
- The sample comprised a total of 1202 males 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 residence
- For prevalence estimates the data was weighted by probability of selection and ABS 2001 census data; for psychometric analyses unweighted data was used

Measuring Incontinence in Australia (Hawthorne, 2006)

- Provided Australian incontinence prevalence estimates
- Identified various problems with the incontinence measures included in SAHOS 2004
- Recommended a study be undertaken to examine further the psychometric properties of these instruments and to revise the measures based on these analyses
- A recent study, *Refining Continence Measurement Tools*, further examines the performance of incontinence items included in the 2004 SAHOS survey. A report of this project is now available.

Refining Continence Measurement Tools

- Used the SAHOS data to assess the psychometric properties of the Urogenital Distress Inventory-6 and the Incontinence Severity Index – **this will be reported on in the following paper by Nick Marosszeky**
- Assessed the psychometric properties of the Wexner Faecal Continence Grading Scale and the other faecal items included in the survey – reported here.
- Psychometric analyses of the data used both Classical Test Theory and Modern Test Theory (IRT) approaches
- An aim was to see if refined measures of incontinence could be derived from this data

Faecal incontinence items included in SAHOS (Wexner Items)

- In the past 4 weeks:
 - Do you leak, have accidents or lose control with a liquid stool?
 - Do you leak, have accidents or lose control with a solid stool?
 - Do you leak, have accidents or lose control with gas (flatus or wind)?
 - Do you need to wear a pad to protect your underwear from stool?
 - Does bowel or stool leakage cause you to alter your lifestyle?

Response Categories: Never/ Rarely/ Sometimes/ Often or usually/ Always, i.e. > once a day or whenever you have a bowel movement

Note: self report version used

Other Faecal Items

- In the past 4 weeks:
 - How do you describe your usual bowel pattern? (normal, constipated, diarrhea, alternating)
 - How many bowel movements do you have in a week? (seven categories)
 - Do you experience an urgent need to have a bowel movement that makes you rush to the toilet?*
 - Do you leak stool if you don't get to the toilet in time?*
 - Does stool leak so that you have to change your underwear?*

* Response categories as for Wexner Scale

Item-Total Correlations: Wexner Scale

Corrected item-total correlations and Cronbach's alpha if the item was deleted for each item of the Wexner Scale

Item	Corrected – Item Total Correlation	Cronbach's Alpha if Item Deleted
(Leak Solid)	0.52	0.46
(Leak Liquid)	0.53	0.44
(Leak Gas)	0.25	0.77
(Wear Pad)	0.39	0.50
(Alter Lifestyle)	0.42	0.50

Cronbach's alpha was low for the Wexner Scale at 0.57 – if flatus item removed Cronbach's alpha moves to an acceptable level of 0.77.

Exploratory Factor Analysis

Rotated Factor Matrix for the Wexner and other items

	Factor		
	1	2	3
1 (Bowel Pattern)	0.27	0.59	-0.12
2 (Bowel Movements)	0.08	-0.03	0.95
3 (Urgency)	0.20	0.70	0.33
4 (<i>Leak Solid</i>)	0.71	0.22	0.07
5 (<i>Leak Liquid</i>)	0.75	0.31	0.10
6 (<i>Leak Gas</i>)	0.08	0.74	-0.08
7 (Leak Stool / Urgency)	0.77	0.25	0.06
8 (<i>Wear Pad</i>)	0.71	-0.03	-0.06
9 (Leak / Change Underwear)	0.78	0.18	0.06
10 (<i>Alter Lifestyle</i>)	0.70	0.15	0.09

11

Interpretation

- The exploratory factor analysis produced a 3 factor structure explaining 61% of the variance. For the faecal incontinence items, Rotated Factor 1 accounted for 40.06% of the variance, while Rotated Factors 2 and 3 accounted for 10.70% and 10.24% respectively
- Rotated Factor 1 appears to represent **faecal incontinence/soiling**, while Rotated Factor 2 could represent **other bowel/stomach symptoms**, and Rotated Factor 3 represents **the number of bowel movements**

Selecting the Best Items

- The Wexner flatus item had a low item-total correlation and the scale's internal consistency would be improved if it was deleted
- The faecal incontinence prevalence estimates (Hawthorne) were **8%** if the flatus item was excluded but rose to **35%** if included. The latter is more consistent with other prevalence estimates
- The soiling item 'does stool leak so that you have to change your underwear?' has slightly better psychometric properties than the pad item from the Wexner – which has been criticised (Vaizey, 1999)
- The Revised Faecal Incontinence Scale contains the remaining 3 items from the Wexner, the soiling item above, and an item on faecal urgency:

'Does stool leak if you don't get to the toilet in time?'

13

Conclusions: Faecal Incontinence

- The Wexner flatus item should be excluded from epidemiological studies as it confounds prevalence estimates.
- Since flatus is common in the community, and the flatus item is poorly worded, its equal weighting with other faecal leakage items also presents problems for clinical applications.
- Further consideration will be given to the development of a revised flatus item for clinical applications.
- The RFIS has superior psychometric properties to the standard Wexner and includes an item associated with faecal urge incontinence.
- It is noted that this scale was derived from a statistical modelling exercise and is currently being further assessed in clinical settings.

Patient Satisfaction

- A *Review of Patient Satisfaction Measures* was undertaken by Hawthorne (2006) to assess suitable instruments to assess patient satisfaction with continence services and treatment.
- The best generic measures identified were the Client Satisfaction Questionnaire (CSQ-18) the Consultation Satisfaction Questionnaire (Consult SQ) and the Patient Satisfaction Index (PSI). The only continence specific measure identified was the Genito-Urinary Treatment Satisfaction Scale (GUTSS).
- It was recommended that a short, reliable instrument be developed based on the psychometric examination of the items from these four instruments (when tested in clinical settings).

Patient Satisfaction Study

- Piloted a patient survey at St George Hospital and Royal Women's Hospital (and associated private clinics) with patients who had recently completed their treatment (N = 178).
- Survey included the 4 patient satisfaction measures (PSI, CSQ, ConsultSQ, GUTSS), the continence measures to assess severity (e.g. UDI-6, ISI) and 8 items on treatment (e.g. expectations of treatment, treatment type and self reported treatment success).
- Patients were also asked to respond to continence measures retrospectively (how they were before treatment) and currently (report on current symptoms).

Coverage

- From the literature review it was ascertained that seven aspects of patient satisfaction should be addressed.
- These were: *effectiveness, information, technical skill, participation, relationship, access & facilities, satisfaction general.*
- The instruments included in the study had varying coverage of these domains. Longer instruments had more comprehensive coverage.
- However, there is a need for a shorter instrument but with comprehensive coverage.

Deriving a Short Generic Measure

- Item and scale properties for all instruments were examined to identify the best 7 items, one to cover each domain of patient satisfaction as identified in the model

Data analysis

- Partial credit item response theory (IRT) analysis for item examination
- Mokken analysis for item fit and scale analysis
- Modern Test Theory approaches are used to find the model with the best fit to the data and these approaches are also commonly used to shorten scales

Procedure

- Iterative analyses until best fitting model achieved, consistent with the theoretical 7 areas of patient satisfaction

The Construction of the SAPS

Final model of a unidimensional Short Assessment of Patient Satisfaction scale (SAPS)

<i>Dimension</i>	<i>N</i>	<i>Item stem (abbreviated)</i>	<i>Item source</i>
Effectiveness	1	Happy with the effect of your treatment	GUTSS
Information	2	Satisfaction with explanations of treatment results	GUTSS
Technical skill	3	The clinician was careful to check everything	Consult SQ
Participation	4	Satisfaction with health care choices	PSI
Relationship	5	How much were you respected	PSI
Access & facilities	6	The time with the clinician was not long enough	Consult SQ
Satisfaction general	7	Happy with the care received	GUTSS

SAPS

- The SAPS has an excellent coverage of patient satisfaction theory areas and the Loevinger H ($H = 0.55$) exceeds the value for a strong unidimensional scale
- The SAPS was more sensitive than any other instrument to the pooled patient satisfaction estimate
- Internal consistency reliability is Cronbach's alpha = 0.86

Single Item Indicator

- Seven items in the item pool were contenders to be a global item for patient satisfaction. From an examination of their psychometric properties the best item was:

How satisfied are you with the outcome of your treatment?

Conclusions

- This has been an ambitious program of research
- There is a need for a prospective clinical study using both the patient satisfaction and revised continence measures. This will assist with the further validation of the measures across a range of continence settings.
- The measures may need some adaptation to make them more appropriate to particular groups (e.g. a proxy version is required; and some adaptation may be required to address CALD and ATSI issues).
- The new instruments are available from

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