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Title (type in CAPITAL LETTERS): **TEST RE-TEST RELIABILITY AND CONSTRUCT VALIDITY OF A NEW INCONTINENCE SCORE**

Introduction

The most recent report of the ICS Standardization Committee recommends that "a respondent's overall opinion of their incontinence" should be recorded, but "there is no general symptom (opinion) measure with established methodological reliability". Our urinary incontinence score (SGUIS) was developed as an office assessment of severity of incontinence symptoms in women, that could be used as a post-treatment outcome measure. The score was derived from an existing method for assessment of faecal incontinence[1]. The score quantifies the number of urge or stress leaks per weak, the wetness of pads and the effect of the incontinence on lifestyle (see table 1). A maximum score of 20 is possible. The SGUIS takes 30 seconds to perform. We aimed to establish the test-retest reliability and construct validity of this new measure.

Table 1 - The urinary incontinence score (SGUIS)

Incontinence	Never (0)	Rarely (1/3 - 1/wk)	Sometimes (1/day)	Often (2/day)	Always (3+/day)
Stress	0	1	2	3	4
Urge	0	1	2	3	4
Pads - damp	0	1	2	3	4
- soaked	0	2	4	6	8
Lifestyle	0	1	2	3	4

Patients and Methods

60 women presenting with urinary incontinence completed a SGUIS at their first consultation and this was repeated (retest) prior to any treatment or investigations. 158 women with urinary incontinence had their SGUIS calculated and validated by comparison to standard one hour pad test as well as pads used per day and leaks per week on frequency-volume chart.

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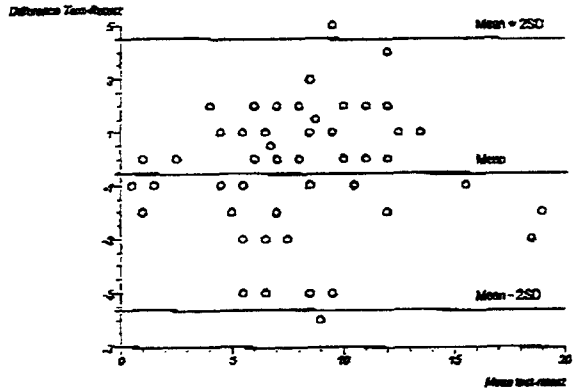
Results

There was a highly significant correlation coefficient between the test-retest measures, ($r = 0.8$, $p < 0.0001$). However, when the data were analysed by the Bland & Altman method of determining agreement, the test-retest repeatability did not conform to the British Standards Institute definition of acceptible repeatability [Mean = -0.63 (CI 95% -1.3 to 0.02), SD = 2.53]. The Limits of agreement are from +4.42 to -5.69. See figure 1.

The SGUIS correlated with the pad test result ($r = 0.3$, $p < 0.01$), pads used per day ($r = 0.7$, $p < 0.001$) and leaks per week ($r = 0.73$, $p < 0.001$).

Figure 1- Test-Retest Repeatability



Conclusion

The Correlation Coefficient [r] measures the strength of the *relationship* between two variables NOT the agreement between them. The correlation [*relationship*] with Leaks/week and pads/day would be expected as two of the questions asked in SGUIS are about leaks and pads used. However, the demonstration of a significant *relationship* between 1 hour Pad Test and SGUIS would be better indication of construct validity. In test-retest analysis of the SGUIS, although there was a strong *relationship* between the two results, there was poor agreement. Test 2 could be 4.42 points higher or 5.69 points lower than test 1. On a scale out of 20, this represents a 25% lack of agreement. The two tests relied on the patients memory of recent events, and of the patients reporting the same symptoms at each visit. The lack of strong agreement between the tests may also reflect the varying nature of the patients urinary symptoms, however.

Care must be taken when presenting test-retest data as use of the correlation coefficient is inappropriate and often hides considerable lack of agreement. The SGUIS still has a place in assessment of urinary leakage but does not appear sufficiently reliable to use as a research outcome tool. We have commenced modification of the test to improve its reliability.

[1] *Colon Rectum* 1993;**36**:77-97

[2] *Lancet* 1986 1: 307-310