Does time influence reproducibility of the Roland-Morris disability questionnaire?

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Background

- Reproducibilty is often measured by
  - Correlation coefficient (degree of association)
  - ICC, strongly influenced by variation between subjects; reliability (degree to which patients can be distinguished) rather than agreement (absolute measurement error)

Background

- For evaluation purposes agreement is preferred
  - Limits of agreement (LOA)
  - Standard error of measurement ($SEM_{agreement}$)
  - Minimal Detectable Change (MDC)

Background

- Reliability for short time intervals between test-retest (0-14 days) is higher compared to studies with a longer interval (> 6 weeks)

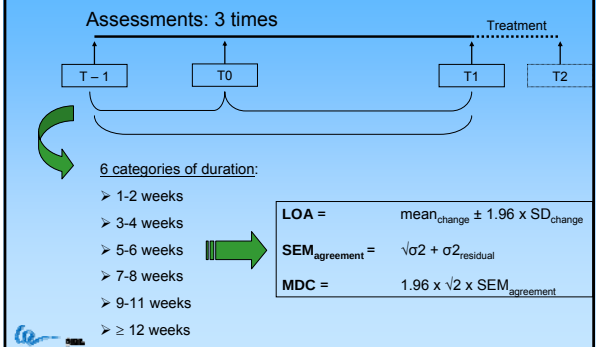
  Roland and Morris, Spine 1983; Scharovsky et al. Spine 2008 and Davidson and Keating, Phys Ther 2002, Jensen et al. Pain 2002
- No comparison of different time intervals within one population

Aim

- Assess the influence of test interval on agreement parameters of the RMDQ in a population of patients with chronic low back pain not receiving treatment

Methods

- Patients with non-specific chronic low back pain referred for rehabilitation treatment and waiting to receive trial treatment



Results

- Mean age 41.8 ± 9.9 years
- Sex: % female 48% (n = 100)
- Duration of pain 57 ± 73 months
- Duration disability 35 ± 50 months
- Baseline RMDQ 14.1 ± 3.6

Results

Time interval (weeks)	N	RDQ 1st measure Mean (SD)	RDQ 2nd measure Mean (SD)	Change Mean (SD)	LOA[b]	SEM$_{agreement}$[c]	Minimal Detectable Change[d]
1–2	106	14.7 (3.5)	14.5 (3.6)	0.2 (1.9)	−3.5, 3.9	1.3	3.7
3–4	140	14.2 (3.6)	14.2 (3.6)	0 (2.6)	−5, 5	1.8	5
5–6	101	13.4 (3.7)	13.5 (3.5)	−0.1 (2.6)	−5.2, 5	1.8	5
7–8	53	13.7 (3.5)	13.2 (3.3)	0.5 (2.2)	−3.8, 4.8	1.6	4.4
9–11	46	13.2 (3.5)	13.5 (3.6)	−0.3 (3)	−6.1, 5.5	2.1	5.7
≥12	29	14.3 (3.5)	13.3 (4)	1 (3.5)	−5.8, 7.8	2.5	6.9

Conclusions

- Longer time interval between tests results in higher agreement parameters
- Clinicians should take time into account when interpreting patient score changes
- Relatively large LOA and MDC
  - because RMDQ is based on the last 24 h?

Demoulin et al. Eur J Pain 2009, doi:10.1016/j.ejpain.2009.04.007