SRS-7: A Valid, Responsive, Linear, and Unidimensional Functional Outcome Measure for Operatively Treated Patients With AIS.

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Abstract

STUDY DESIGN: Comparison of the Scoliosis Research Society-22 (SRS-22) questionnaire with a 7-item Rasch-derived questionnaire (SRS-7).

OBJECTIVE: To compare the construct and discriminant validity, internal consistency, responsiveness, and dimensionality of SRS-7 against SRS-22 in operatively treated children with adolescent idiopathic scoliosis.

SUMMARY OF BACKGROUND DATA: SRS-22 has not been shown to possess linearity or unidimensionality (internal validity).

METHODS: A multicenter database was queried for children with adolescent idiopathic scoliosis who underwent spinal fusion and answered all preoperative and 1-year postoperative SRS-22 questions. SRS-7 scores for the 685 patients were calculated from SRS-22 item responses. Traditional psychometric properties were assessed for both instruments (significance, P < 0.01).

RESULTS: SRS-7 and SRS-22 scores correlated preoperatively and postoperatively (r = 0.78, P < 0.001, and r = 0.78, P < 0.001, respectively). Both instruments showed good discriminant validity in segregating 4 groups of patients with adolescent idiopathic scoliosis by curve magnitudes (F = 8.36, P < 0.001, and F = 8.38, P < 0.001, respectively). Pre- and postoperative SRS-7 and SRS-22 had internal consistency Cronbach α values of 0.64 and 0.67, and 0.85 and 0.85, respectively. With SRS-7, mean postsurgical improvement was 18.7 points (46.6-65.3, P < 0.001), with effect size measures of Cohen d = 1.57, Hedge g = 1.57, and r = 0.62. With SRS-22, mean improvement was 11.6 points (84.5-96.1, P < 0.01), with effect size measures of Cohen d = 1.25, Hedge g = 1.25, and r = 0.53. Iterative principal factor analysis of pre- and postoperative SRS-7 and SRS-22 showed the presence of 1 dominant latent factor (unidimensionality) and 4 latent factors (multidimensionality), respectively.

CONCLUSION: SRS-7 shows good concurrent and discriminative validity, reasonable internal consistency, and excellent responsiveness. It has the advantages over SRS-22 of being short, unidimensional, and an interval scale.

LEVEL OF EVIDENCE: 4.

PMID: 26030215 DOI: 10.1097/BRS.0000000000000836

[PubMed - indexed for MEDLINE]