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## 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  $\alpha$  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.

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