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ISYQOL: a rasch-consistent questionnaire for measuring health-related quality of life in adolescents with spinal deformities.

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Abstract

BACKGROUND CONTEXT: - **Spinal deformities** are commonly associated with poor HRQOL. Several questionnaires (e.g. SRS-24 and SRS-22) have been developed to evaluate HRQOL in these conditions. In adults as well as during growth, the HRQOL is considered one of the most relevant outcomes of both conservative and surgical treatment. Rasch analysis is a powerful statistical technique for developing high **quality** and valid questionnaires. The SRS-24 and SRS-22 have been evaluated using the Rasch analysis, but showed poor measurement properties. Thus, a proper measure of HRQOL in people with a spine condition is still missing.

PURPOSE: - To develop a new **questionnaire** totally **Rasch-consistent** for **measuring** the HRQOL in young people with a spine condition.

STUDY DESIGN: - Cross-sectional study for developing a new **health-related quality of life** (HRQOL) measure.

PATIENT SAMPLE: - 402 participants with adolescent idiopathic scoliosis or Scheuermann juvenile kyphosis.

OUTCOME MEASURES: - The **ISYQOL questionnaire**.

METHODS: - The study consisted of different stages: a conventional approach content analysis, an opinion poll among clinicians trained in spine **deformities** and the Rasch analysis (partial credit model).

RESULTS: - The Rasch analysis showed that all items of the **ISYQOL questionnaire** had ordered thresholds and a good fit to the model. Differential item functioning (DIF) was present for item 1 with bracing only and was solved with a conventional items splitting procedure. The **ISYQOL** item map spans an adequate range of HRQOL. The principal component analysis for Rasch residuals showed, in practical terms, the **ISYQOL** uni-dimensionality. **ISYQOL** reliability is high enough so that approximately three significantly different levels of HRQOL can be discerned. Two **questionnaire** versions are provided for patients with and without the brace, respectively.

CONCLUSIONS: - **ISYQOL** is the first HRQOL **questionnaire** developed according to the Rasch analysis. It was developed in a conservative treatment setting for all type of **spinal deformities**, including also patients with surgical curves. Validation in many languages are already underway.

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KEYWORDS: Rasch analysis; Scheuermann juvenile kyphosis; adolescent idiopathic scoliosis; brace; content analysis; interval measurement; ordinal measurement; psychometrics; **questionnaire** development; **spinal deformities**; – **health related quality of life**

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