

QUALITY OF LIFE IN SCOLIOSIS PATIENTS DURING ADULTHOOD: A NEW EVALUATION TOOL

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1 Introduction

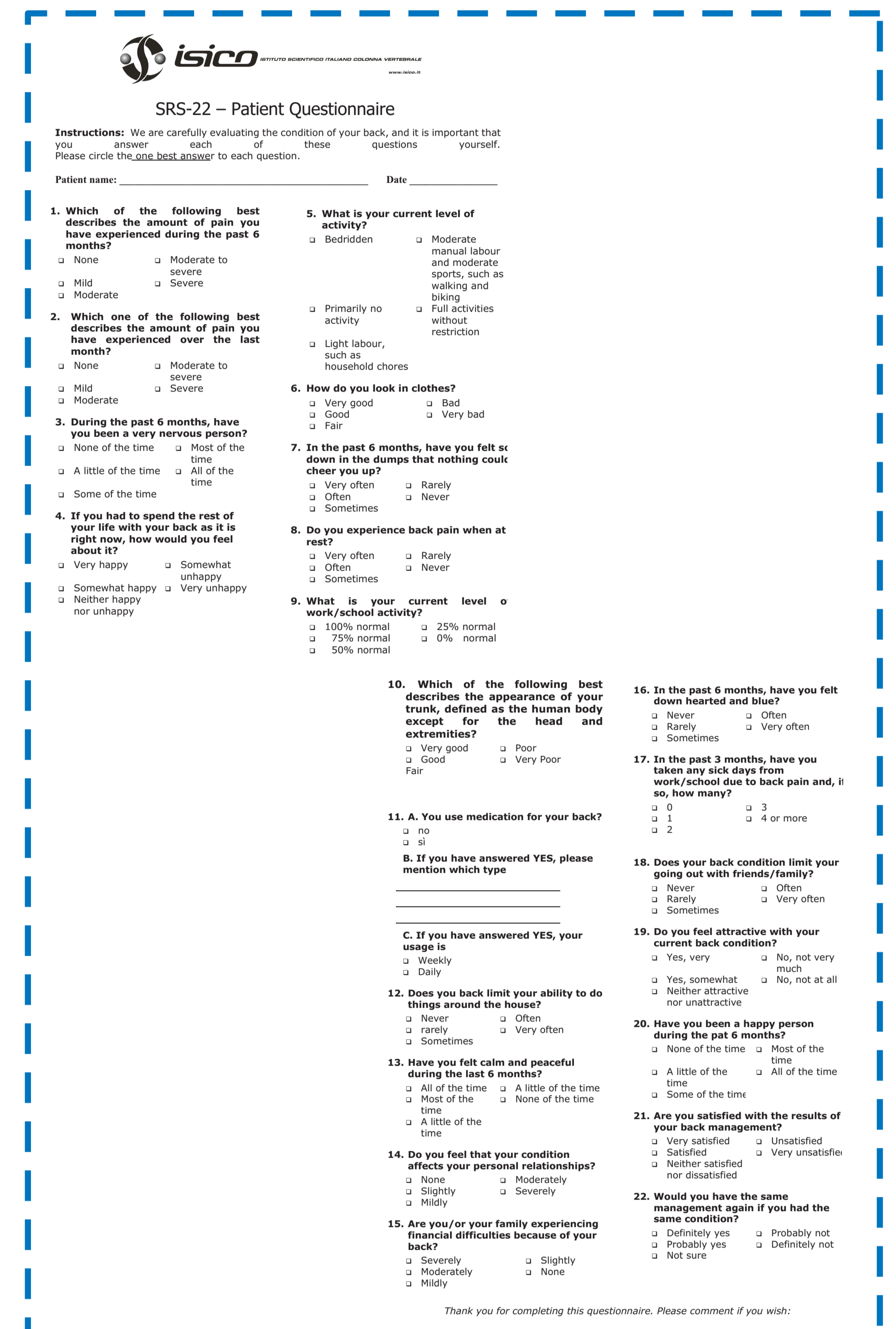
Scoliosis is a very frequent problem during adulthood. Surgery is a common option for these patients, but there are relevant risks and side effects and not all patients are willing for such treatment. For these reasons, many patients seek for a conservative treatment in rehabilitation centers. Spinal deformities, as well as the conservative treatment itself, have an impact on health-related quality of life (HRQoL) in adolescents, this is why it so important to measure it. Even though the SRS-22 was firstly developed to measure QoL in surgically treated patients, it is widely used also in the conservative field. Rasch analysis showed that the SRS-22 suffers poor metric properties, which eventually prevents it from properly measuring patients' HRQoL. As a provisional solution, a Rasch-consistent 7-items questionnaire (SRS-7) was prepared by rearranging single items from the original SRS-22. However, SRS-7 metric properties remain unsatisfactory and thus a proper questionnaire for measuring HRQoL in adolescents with spinal deformities is still missing. More recently, the ISYQOL questionnaire was developed, but it was tested only in youngsters. ISYQOL consists of 20 items scored on three categories, from 0 to 2. It's expressed on a 0%-100% scale, with 100% indicating great quality of life. Two sub-scales are represented: spine (13 items) and brace (7 items). ISYQOL was developed based on patients' issues and questions. The ISYQOL Ruler satisfies the requirements of a fundamental measure: additivity, generalizability and unidimensionality. It is so a robust measure for evaluating HRQoL in adolescents with spinal deformities. ISYQOL showed high validity to measure HRQoL in adolescents with spinal deformities and performed better than SRS-22, having better known-groups validity and, contrary to SRS22, detecting the impact of disease severity on HRQoL (Caronni et al, 2017).

◆ This is the first study reporting the general characteristics of patients affected by scoliosis attending a specialized rehabilitation center based on the SRS-22 and ISYQOL questionnaires.

◆ Both questionnaires can describe the population of adult with scoliosis and are able to assess the quality of life.

◆ Adult scoliosis patients need specific tools of evaluation mainly for quality of life and pain. The SRS-22 and the ISYQOL seem to be able to accomplish this task.

◆ ISYQOL for QoL in adults with scoliosis is a promising tool, but a larger sample is needed to check and fix some issues.

SRS-22 - Patient Questionnaire

Instructions: We are carefully evaluating the condition of your back, and it is important that you answer all the following questions honestly. Please circle the best answer to each question.

Patient name: _____ Date: _____

- Which of the following best describes the amount of pain you have experienced during the past 6 months?
 - None
 - Mild
 - Moderate
 - Severe
- Which one of the following best describes the amount of pain you have experienced over the last month?
 - None
 - Mild
 - Moderate
 - Severe
- During the past 6 months, have you been a very nervous person?
 - None of the time
 - A little of the time
 - Some of the time
 - All of the time
- If you had to spend the rest of your life with your back the way it is right now, how would you feel about it?
 - Very happy
 - Somewhat happy
 - Somewhat unhappy
 - Very unhappy
 - Neither happy nor unhappy
- What is your current level of activity?
 - Disabled
 - Primarily no activity
 - Light labor, such as household chores
 - Moderate manual labour and moderate sports, such as walking and hiking
 - Full activities without restriction
- How do you look in clothes?
 - Very good
 - Good
 - Fair
 - Bad
 - Very bad
- In the past 6 months, have you felt as if you were sinking down in the dumps that nothing could cheer you up?
 - Very often
 - Often
 - Sometimes
 - Rarely
 - Never
- Do you experience back pain when it rains?
 - Very often
 - Often
 - Sometimes
 - Rarely
 - Never
- What is your current level of work/school activity?
 - 25% normal
 - 50% normal
 - 75% normal
 - 100% normal
- Which of the following best describes the appearance of your neck, defined as the human body except for the head and extremities?
 - Very good
 - Good
 - Fair
 - Poor
 - Very poor
- In the past 3 months, have you taken any sick days from work/school due to back pain and, if so, how many?
 - 0
 - 1
 - 2
 - 3
 - 4 or more
- Do your back conditions limit your going out with friends/family?
 - Never
 - Often
 - Sometimes
 - Very often
- Do you feel attractive with your current back condition?
 - Yes, very
 - Yes
 - No, not very
 - No, not at all
- Have you been a happy person during the past 6 months?
 - A little of the time
 - A little of the time
 - Some of the time
 - All of the time
- Are you satisfied with the results of your back management?
 - Very satisfied
 - Satisfied
 - Not satisfied
 - Very unsatisfied
 - Probably not
 - Definitely not
- Would you have the same back condition if you had the same condition?
 - Definitely yes
 - Probably not
 - Definitely not
 - Probably yes
 - Not sure

Thank you for completing this questionnaire. Please comment if you wish:

2 Objective

The aim of the present study was to test the discriminative validity of the ISYQOL questionnaire in a group of adults with scoliosis and compare its properties to the gold standard SRS-22 questionnaire.

3 Methods

We retrospectively reviewed the record of all the adult patients included in our prospective database, running between 2003 and 2017. The inclusion criteria were:

- Age: 30-75 years;
- Diagnosis of scoliosis;
- No previous spinal surgery;
- No limits for treatment.

The SRS-22 is based on 5 items (Function, Psychological wellbeing, Pain, Aesthetics and Satisfaction for treatment), with scores ranging from 5 (no impairment) to 0 (high impairment). The Isyqol is a Rasch consistent questionnaire based on 13 questions that gives a continuous value of quality of life ranging from 0 to 100. The Cronbach alpha was used to check the internal validity, and a Rasch analysis was run to explore the features of the different tools. Spearman's rank correlation coefficient was used for ISYQOL concurrent validity assessment, that is, to evaluate the strength of the association between ISYQOL measure and SRS-22 total score. Group analysis was based on age, sex, BMI, Cobb angle, TRACE score (Trunk Aesthetic Clinical Evaluation).

4 Results

182 patients (157 females, 25 males) respected the inclusion criteria. The mean age was 51.7 ± 12.9. The mean Cobb angle was 48.9 ± 15.8°. The TRACE score was 6.2 ± 2.9 on average. Total SRS-22 average score was 3.7 ± 0.6, total ISYQOL average measure was: 51.0 ± 12.4%. Only spine domain was used (13 items, score 0-26). The ISYQOL respected the Rasch model and the order of categories (0, 1, 2). Rasch reliability was 0.85. The DIF (differential item functioning) variables were dichotomised based on median values. There was no DIF (threshold: p < 0.01) for age, Cobb BMI, TRACE. Item 10 showed DIF for sex: female showed a worst QoL when answering positively with respect to males (41.9 vs 50.0%). Item 7 showed DIF for pain: positive answer means more pain. The correlation between ISYQOL and SRS-22 was made by Spearman correlation. The correlation (rho) was 0.64, p < 0.001. Considering the different classes of age, the correlation (rho) was 0.79, p < 0.001 in 30-45 years-old patients, 0.60, p < 0.001 in 45-60 years-old patients, and 0.46, p < 0.001 in 60-75 years-old patients.

5 Discussion

Spine domain of ISYQOL showed to be a good measure in adults with scoliosis. There were some issues with item 5 and the DIF for pain and sex. Before modifying these items, the Authors want to confirm the findings with an increased sample size. The ISYQOL showed a good correlation with SRS-22.

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