



Exploring the Impact of Physiotherapy Scoliosis-Specific Exercise (PSSE) based therapy on Scoliosis using SRS-30 and Health Economic Measures

Jason Black¹, David Glynn², Erika Maude¹, Abbie Turland¹

¹ Scoliosis SOS Clinic, London, England ² Independent Statistician, York, England

Introduction



- A key objective of research in scoliosis should be to demonstrate value.
- Health economic measures assess the value of treatment to health systems and are increasingly used to inform funding decisions.
- To measure value across disease area, generic quality of life measures such as the EQ5D are used.

- The dimensions of this measure are **mobility, self-care, usual activities, pain and anxiety/depression**. These 5 dimensions have 5 levels ranging from no problems to extreme problems.
- These dimensions are weighted to reflect trade-offs in quality and quantity of life using values from the UK public and are used to calculate quality adjusted life years (QALYs).
- As the SRS Questionnaires are used in a number of scoliosis studies, understanding how these are related to the EQ5D and how scoliosis therapies such as ScolioGold affect economic measures is an important aspect of demonstrating value to health systems.

Patient Quality of Life Questionnaire
Version 3.0 (Encompasses Versions 2.2 and 2.4) Last Modified by Scoliosis SOS 28/01/2014

Name: _____ Age: _____ Today's Date: _____

Classification: _____ Years since diagnosis: _____

I understand that the information supplied in this questionnaire may be used for research purposes and will not affect my treatment at Scoliosis SOS.

Exam (please circle the most appropriate time period): Consultation Pre-treatment Post-treatment

3-months 6-months 9-months 1 year (12m) 1 1/2 years (18m) 2 years (24m) 2 1/2 years (30m)

3 years (36m) 3 1/2 years (42m) 4 years (48m) 4 1/2 years (54m) 5 years (60m) 5 1/2 years (66m)

Other time period (please specify): _____

Your therapist are carefully evaluating the condition of your back before and after your treatment and at subsequent follow-ups. Please tick the most appropriate answer to each question.

Consultation & Pre-treatment patients: -- please complete SECTION 1
Post-treatment & Follow-up patients: -- please complete SECTION 1 & SECTION 2

Section 1: ALL PATIENTS

1. Which one of the following best describes the amount of pain you have experienced during the last 6 months?

☐ None
☐ Mild
☐ Moderate
☐ Moderate to severe
☐ Severe

2. Which one of the following best describes the amount of pain you have experienced during the last month?

☐ None
☐ Mild
☐ Moderate
☐ Moderate to severe
☐ Severe

3. During the last month do you feel your condition had increased your anxiety levels?

☐ None of the time
☐ A little of the time
☐ Some of the time
☐ Most of the time
☐ All of the time

4. If you had to spend the rest of your life with your back shape as it is right now, how would you feel?

☐ Very happy
☐ Somewhat happy
☐ Neither happy nor unhappy
☐ Somewhat unhappy
☐ Very unhappy

5. What is your current level of activity?

☐ Deirdren/Wheelchair
☐ Primarily no activity
☐ Light labour, such as household chores
☐ Moderate manual labour or sports, e.g. walking/cycling
☐ Full activities without restriction

6. How do you feel condition affects your appearance in clothes?

☐ Not at all
☐ Mildly
☐ Moderately
☐ Moderate to severe
☐ Severe

7. In the past month has your condition depressed you so much that you felt nothing could cheer you up?

☐ Very often
☐ Often
☐ Sometimes
☐ Rarely
☐ Never

8. Do you experience back pain when at rest?

☐ Very often
☐ Often
☐ Sometimes
☐ Rarely
☐ Never

9. What is your current level of work/school activity?

☐ 100% of normal
☐ 75% of normal
☐ 50% of normal
☐ 25% of normal
☐ 0% of normal

10. Which of the following best describes the appearance of your back?

☐ Very good
☐ Good
☐ Fair
☐ Poor
☐ Very poor

11. Which one of the following best describes your medication usage (e.g. painkillers) for your back?

☐ Never
☐ Rarely
☐ Sometimes
☐ Often (weekly)
☐ Very Often (daily)

Method

- Participants presenting at the Scoliosis SOS Clinic filled out both SRS-30 and EQ5D5L questionnaires before and after treatment with the ScolioGold method. Preliminary analysis of the effect of the treatment and the association between the measures was carried out using statistical methods.
- The **ScolioGold Method** consists of 4 weeks of Intensive Scoliosis-Specific Exercise Therapy. It is a unique combination of various different treatment modalities; including Schroth, Rigo-schroth, FITS, SEAS and PNF Methods.

Results

- 161 consecutive patients were registered on the database as of 27/11/2015.
- 97% provided pre-treatment data and 68% had completed therapy and thus provided both pre and post treatment data.
- The only baseline variable statistically related to EQ5D or SRS-30 was age with higher age associated with lower scores ($p < 0.01$ for both). The spinal fusion classification was weakly associated with SRS score ($p = 0.09$).

	Pre-Treatment	Post Treatment	Significance
EQ5D	0.76 (range 0.22-1)	0.85 (increase 0.09)	$P < 0.01$
SRS-30	3.57 (range 1.86-4.90)	3.81 (increase 0.24)	$P < 0.01$



Relationship between EQ5D and SRS-30

EQ5D can then be predicted from SRS-30 data through use of the below formula:

$$\text{EQ5D} = -0.029 + (\text{Function} \times 0.073) + (\text{Pain} \times 0.067) + (\text{Mental Health} \times 0.063)$$

Intercept

Coefficients

Conclusion

The **ScolioGold method** is associated with significant improvements in both **SRS-30** and **EQ5D**. The relationships estimated here can be used to map between SRS-30 and EQ5D allowing researchers to predict EQ5D scores from SRS-30 data. Subject recruitment continues and data at 6 months and 12 months is being collected for further analysis to investigate longer term effects.