



ST GEORGE'S RESPIRATORY QUESTIONNAIRE MANUAL

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1. A GUIDE TO THE SGRQ

What is the St George's Respiratory Questionnaire?

The SGRQ is designed to measure health impairment in patients with asthma and COPD. It is also valid for use in bronchiectasis and has been used successfully in patients with kyphoscoliosis and sarcoidosis. There is a report of its validation in a small study of adults with cystic fibrosis (Archivos de Bronconeumologia Volume 43, Issue 4, April 2007, pages 205-211). It is in two parts. Part 1 produces the Symptoms score, and Part 2 the Activity and Impacts scores. A Total score is also produced.

- **Part 1 (Questions 1 to 8)** covers the patients' recollection of their symptoms over a preceding period that may range 1 month to 1 year. It is not designed to be an accurate epidemiological tool, its purpose is to assess the patient's perception of their recent respiratory problems. The original version was validated using a 12-month recall period. More recently a 1 month recall version (appropriately worded) has been validated. This has slightly weaker psychometric properties than the 12-month version and produces a marginally lower Symptoms score and Total score. A 3-month recall period has been used very satisfactorily. In summary, the 3-month and 1-year versions provide the best properties, with no specific advantages to either. The 1-month version should only be used when the time frame of the study dictates.

Part 2 (Questions 9 to 16) addresses the patients' current state (i.e. how they are these days). The Activity score just measures disturbances to patients daily physical activity. The Impacts score covers a wide range of disturbances of psycho-social function. Validation studies showed that this component relates in part to respiratory symptoms, but it also correlates quite strongly with exercise performance (6-minute walking test), breathlessness in daily life (MRC breathlessness score) and disturbances of mood (anxiety and depression). The Impacts score is, therefore, the broadest component of the questionnaires, covering the whole range of disturbances that respiratory patients experience in their lives.

2. STRUCTURE OF SGRQ

Part 1 (Questions 1-8) addresses the frequency of respiratory symptoms. It is not designed to be a precise epidemiological tool, but to assess the patient's perception of their recent respiratory problems.

Part 2 (Sections 9-16) addresses the patient's current state (i.e. how they are these days). The Activity score measures disturbances to daily physical activity. The Impacts score covers a range of disturbances of psycho-social function. Validation studies for the original SGRQ showed that this component relates in part to respiratory symptoms, but it also correlates quite strongly with exercise performance (6-minute walking test), breathlessness in daily life (MRC breathlessness score) and disturbances of mood (anxiety and depression). The Impacts score is, therefore, the broadest component of the questionnaires, covering the whole range of disturbances that respiratory patients experience in their lives.

Note: the general scale on the front page is not part of the SGRQ or SGRQ-C, but some investigators find it useful as an additional global measure.

3. ADMINISTRATION

The questionnaire should be completed in a quiet area, free from distraction and the patient should ideally be sitting at a desk or table. Explain to the patient why they are completing it, and how important it is for clinicians and researchers to understand how their illness affects them and their daily life. Ask him or her to complete the questionnaire as honestly as they can and stress that there are no right or wrong answers, simply the answer that they feel

best applies to them. Explain that they must answer every question and that someone will be close at hand to answer any queries about how to complete the questionnaire.

It is designed for supervised self-administration. This means that the patients should complete the questionnaire themselves, but someone should be available to give advice if required. It is designed to elicit the patient's opinion of his/her health, **not** someone else's opinion of it, so family, friends or members of staff should not influence the patient's responses. If the spouse or partner has accompanied the patient they should be asked to wait in a separate area. Similarly, do not allow patients to take the SGRQ home to be completed since you cannot be sure that it will be completed without the help of family or friends. A recent study of the use of surrogates to complete the questionnaire has shown small but significant differences in scores obtained from the patients themselves (Santiveri et al Respiratory Medicine (2007) 101, 439–445)

Once the patient has finished, it is very important that you check the questionnaire to make sure a response has been given to every question. If they have missed an item return it to the patient for completion, *before they leave*.

Telephone administration of the SGRQ has been validated (Anie et al J Clin Epidemiol 1996;49:653-6.), as has computer based presentation (Meguro and Jones, unpublished), but postal administration has not.

What should I do about queries regarding completion of the questionnaire?

If a patient asks for help with a question, do not provide an answer for them. The point of the questionnaire is to get an understanding of how the patient views his or her illness. It is appropriate to clarify a question but not to provide an answer. Questions may be read aloud if patients have difficulty with reading, but the responses must be theirs alone. If a patient gives an answer you disagree with it is not appropriate to challenge their response or to query it. It is their view of their condition we are interested in – no matter how strange the response!

The following are notes which may help you explain to patients what is required

1. In Part 1 of the questionnaire, emphasise to patients that you are interested in how much chest trouble they have had over the last year. The exact period is not important. We are looking for an impression or perception of health.
2. Asthma and COPD can vary day-to-day. In Part 2, we want to know about the patient's current state (these days).
3. A severe or very unpleasant attack of chest trouble (Part 1, Question 5) is any attack that could be described that way *in the patient's own judgement*. Not 'severe' as defined by medical staff.
4. For Question 7 emphasise that you are interested in the number of good days that they have had.
5. Question 10 regarding employment can cause patients some problems. We are interested in how a patient's chest trouble affects their current working life or how it affected life when they were working. For example, if a patient took early retirement because of their chest condition, the response would be 10a – 'My chest trouble made me stop work', if a patient's retirement was unrelated to their chest trouble, their response would be 10c 'My chest trouble does not affect my work'.
6. Questions 11 to 16 require a response to every question. It may be worth emphasising this to the patient.

7. Many patients do not engage in physical activity. It is important to determine whether this is because they do not wish to (in which case the answer would be 'False') or cannot engage in these activities because of their chest trouble (in which case the answer would be 'True').
8. Medication questions refer to medications and treatments given for a patient's chest disease and may interfere with their life if, for example, they are on oxygen support and have to carry it around with them.
9. It should be emphasised that responses to Question 15 are in terms of breathing difficulties and not any other problems. If patients do not engage in activities described in certain items, they should tick 'False'. Patients who do not engage in these activities because they are limited by their breathlessness, should tick 'True'.

4. EXCEL-BASED SCORING CALCULATOR

Three component scores are calculated for the SGRQ:

- Symptoms** - this component is concerned with the effect of respiratory symptoms, their frequency and severity.
- Activity** - concerned with activities that cause or are limited by breathlessness
- Impacts** - covers a range of aspects concerned with social functioning and psychological disturbances resulting from airways disease

A **Total** score is also calculated which summarises the impact of the disease on overall health status. Scores are expressed as a percentage of overall impairment where 100 represents worst possible health status and 0 indicates best possible health status.

You will find an Excel spreadsheet accompanying this manual called 'SGRQ Calculator' which can be used to calculate the three SGRQ component scores and the Total score.

Data Entry

Open the calculator and select the sheet called 'SGRQ Template'. This is where data from the questionnaire is entered. Individual patient identification numbers are entered in the column named 'ID'. Columns B to CH are for data-entry from the questionnaire and column names correspond to the question numbers on the questionnaire. One patient on the spreadsheet = one row. All positive responses are entered as 1 and all negative responses are entered as 0. **Where data are missing the cells must be left blank.** Data entry guidelines are as follows for each question:

- | | |
|-----------------|--|
| Questions 1 – 7 | Where a patient has ticked a box, a value of 1 is entered for the appropriate question. The empty boxes are entered as 0. Where a patient has missed a question the cells on the spreadsheet are left blank.
Example: Response = 1c, 'Over the last year I have coughed a few days a month'. A value of 1 is entered for 1c and a value of 0 is entered for 1a, 1b, 1d and 1e. If no tick was present for question 1 then 1a to 1e would be left blank. |
| Question 8 | Where a patient has ticked 'Yes' to having a worse wheeze in the morning, a value of 1 is entered for the appropriate question. <u>All other responses are entered as 0.</u>
Example: Do you have a wheeze? = 'Yes' and Worse in the morning = 'Yes'. Then response to question 8 = 1. |

Do you have a wheeze? = 'Yes' and Worse in the morning = 'No'. Or, Do you have a wheeze? = 'No'. Then response to question 8=0.

Questions 9, 10 & 17 Where a patient has ticked a box, a value of 1 is entered for the appropriate question. The empty boxes are entered as 0. Where a patient has missed the question the cells on the spreadsheet are left blank.

Example: Response = 10a, 'My chest trouble made me stop work'. A value of 1 is entered for 10a and a value of 0 is entered for 10b and 10c. If no tick was present for question 10, then 10a to 10c would be left blank.

Questions 11 – 16 Where a patient has ticked 'True' a value of 1 is entered for the appropriate question and where a patient has ticked 'False' a value of 0 is entered. Where a patient has missed a question the cell on the spreadsheet is left blank.

Example: 15a = 'True' then 15a = 1.
14c = 'False' then 14c = 0.
13h = missing then 13h is left blank

In response to question 14, if a patient is not receiving medication, enter the responses as zero, otherwise the calculator will read the values as missing.

Columns CJ to CV on the SGRQ Template sheet are part of the calculation formulae and you will not be able to alter these cells. This is to ensure that your SGRQ scores are valid.

Missing Questions

The calculator is designed to handle multiple entries in part 1 (Symptoms) by producing an average of the multiple responses. The scoring program adjusts for up to 24% of missing items in the questionnaire. If more than 24% of items are missing the scoring programme will return a value of 'Missing'.

Maximum number of patients

The spreadsheet is designed to calculate a maximum of 1300 patients. If you have more patients than this you will have to enter the first batch of data and calculate the scores and then clear the cells and enter the next batch of data.

The calculated scores

Once all data has been entered onto the SGRQ Template sheet select the sheet called 'SGRQ Scores'. The patient ID numbers and their scores are in the first five columns. To copy these values to another dataset or document select only the SGRQ scores corresponding to the number of patients you have entered on the database and **COPY**. These scores are pasted as follows; from the **EDIT** menu select **PASTE SPECIAL** then the select the option marked **VALUES**.

5. SGRQ SCORES IN HEALTHY SUBJECTS

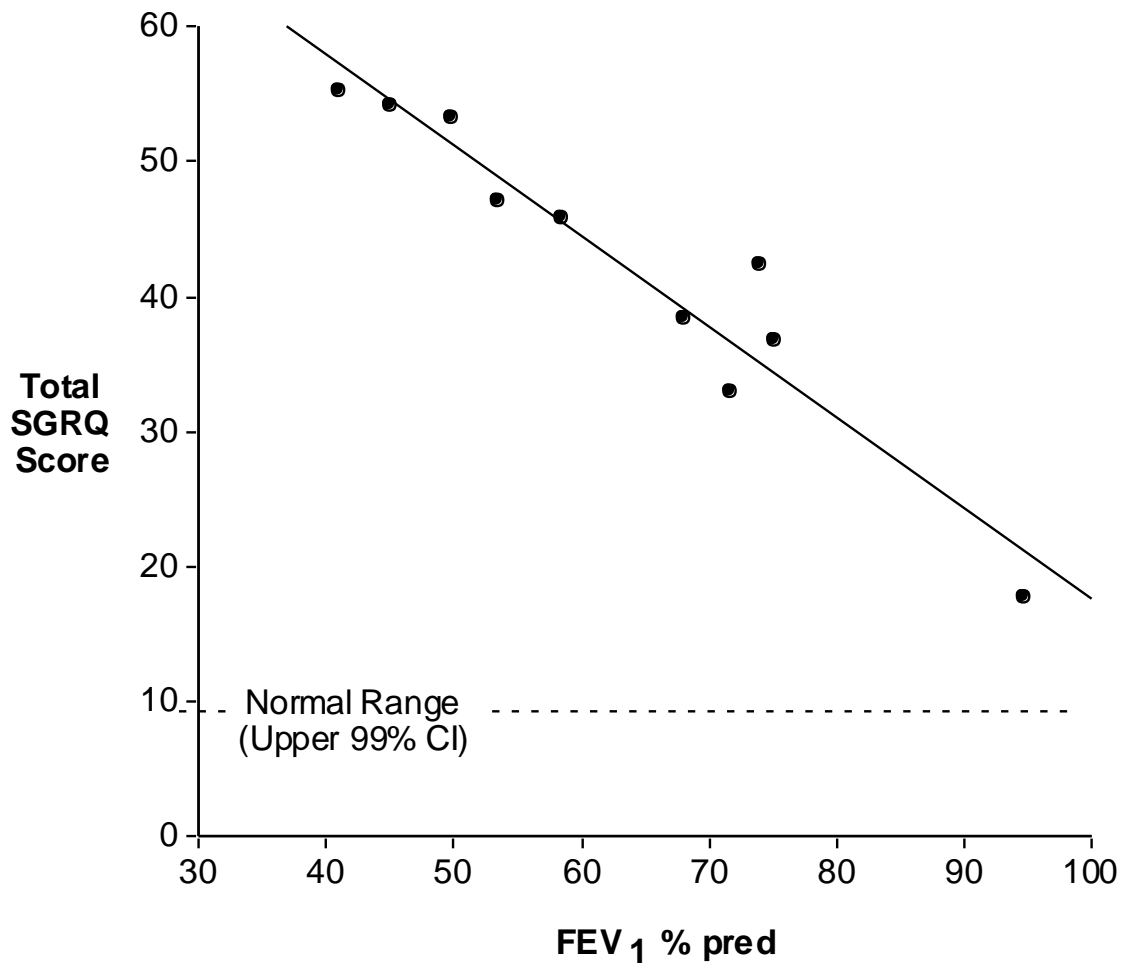
Means (95% confidence intervals) for SGRQ scores in normal subjects with no history of respiratory disease

N	Age - years	FEV1 as % predicted	Symptoms Score	Activity Score	Impacts Score	Total Score
74	46 range 17-80	95 (91-99)	12 (9-15)	9 (7-12)	2 (1-3)	6 (5-7)

A full range of normative values for a general population studied in Spain can be found in Reference 26 in the Bibliography

6. DATA FROM PREVIOUS STUDIES

SGRQ SCORES AND FEV₁ FROM 10 STUDIES IN COPD AND ASTHMA
(Total n - 1900)



Note: this plot was produced in 1999, since then many studies have been published in asthma and COPD. In them, the mean values for FEV₁ and the associated SGRQ scores lie on or close to this regression

7. ITEM WEIGHTS

Note:

1. This is given for information only. The Excel-based system and other computerised scoring systems use these weights.
2. The wording of the item may not correspond exactly with the wording in the current version of the questionnaire.

PART 1

1) Over the last year, I have coughed:

Most 80.6
Several 63.2
A few 29.3
Only 28.1
Not 0.0

2) Over the last year, I have brought up phlegm (sputum):

Most 76.8
Several 60.0
A few 34.0
Only 30.2
Not 0.0

3) Over the last year, I have had shortness of breath:

Most 87.2
Several 71.4
A few 43.7
Only 35.7
Not 0.0

4) Over the last year, I have had attacks of wheezing:

Most 86.2
Several 71.0
A few 45.6
Only 36.4
Not 0.0

5) During the last year, how many severe or very bad unpleasant attacks of chest trouble have you had?

More than three 86.7
3 attacks 73.5
2 attacks 60.3
1 attack 44.2
None 0.0

6) How long did the worst attack of chest trouble last?

a week or more 89.7
3 or more days 73.5
1 or 2 days 58.8
less than a day 41.9

7) Over the last year, in an average week, how many good days (with little chest trouble) have you had?

None 93.3
1 or 2 76.6
3 or 4 61.5
nearly every day 15.4
every day 0.0

8) If you have a wheeze, is it worse in the morning?

No 0.0

Yes 62.0

PART 2

9) How would you describe your chest condition?

The most important problem I have 83.2

Causes me quite a lot of problems 82.5

Causes me a few problems 34.6

Causes no problem 0.0

10) If you have ever had paid employment?

My chest trouble made me stop work 88.9

My chest trouble interferes with my work or made me change my work 77.6

My chest trouble does not affect my work 0.0

11) Questions about what activities usually make you feel breathless.

Sitting or lying still 90.6

Getting washed or dressed 82.8

Walking around the home 80.2

Walking outside on the level 81.4

Walking up a flight of stairs 76.1

Walking up hills 75.1

Playing sports or games 72.1

12) More questions about your cough and breathlessness.

My cough hurts 81.1

My cough makes me tired 79.1

I get breathless when I talk 84.5

I get breathless when I bend over 76.8

My cough or breathing disturbs my sleep 87.9

I get exhausted easily 84.0

13) Questions about other effects your chest trouble may have on you.

My cough or breathing is embarrassing in public 74.1

My chest trouble is a nuisance to my family, friends or neighbours 79.1

I get afraid or panic when I cannot get my breath 87.7

I feel that I am not in control of my chest problem 90.1

I do not expect my chest to get any better 82.3

I have become frail or an invalid because of my chest 89.9

Exercise is not safe for me 75.7

Everything seems too much of an effort 84.5

14) Questions about your medication.

My medication does not help me very much 88.2

I get embarrassed using my medication in public 53.9

I have unpleasant side effects from my medication 81.1

My medication interferes with my life a lot 70.3

15) Questions about how activities may be affected by your breathing.

I take a long time to get washed or dressed 74.2

I cannot take a bath or shower, or I take a long time 81.0

I walk more slowly than other people, or I stop for rests 71.7

Jobs such as housework take a long time, or I have to stop for rests 70.6

If I walk up one flight of stairs, I have to go slowly or stop 71.6

If I hurry or walk fast, I have to stop or slow down 72.3

My breathing makes it difficult to do things such as walk up hills, carry things up stairs, light gardening such as weeding, dance, play bowls or play golf 74.5

My breathing makes it difficult to do things such as carry heavy loads, dig the garden or shovel snow, jog or walk at 5 miles per hour, play tennis or swim 71.4

My breathing makes it difficult to do things such as very heavy manual work, run, cycle, swim fast or play competitive sports 63.5

16) We would like to know how your chest trouble usually affects your daily life.

I cannot play sports or games 64.8

I cannot go out for entertainment or recreation 79.8

I cannot go out of the house to do the shopping 81.0

I cannot do housework 79.1

I cannot move far from my bed or chair 94.0

17) Tick the statement which you think best describes how your chest affects you.

It does not stop me doing anything I would like to do 0.0 It stops me doing one or two things I would like to do 42.0

It stops me doing most of the things I would like to do 84.2

It stops me doing everything I would like to do 96.7

8. OUTLINE OF SCORING ALGORITHM

Note: This is given for information only. The Excel-based system and other computerised scoring systems use these principles.

SUMMARY

Three component scores are calculated: **Symptoms; Activity; Impacts**

One **Total** score is also calculated.

PRINCIPLE OF CALCULATION

Each questionnaire response has a unique empirically derived 'weight'. The lowest possible weight is zero and the highest is 100.

Each component of the questionnaire is scored separately in three steps:

- i. The weights for all items with a positive responses are summed.
- ii. The weights for missed items are deducted from the maximum possible weight for each component. The weights for all missed items are deducted from the maximum possible weight for the Total score.
- iii. The score is calculated by dividing the summed weights by the adjusted maximum possible weight for that component and expressing the result as a percentage :

$$\text{Score} = 100 \times \frac{\text{Summed weights from positive items in that component}}{\text{Sum of weights for all items in that component}}$$

The Total score is calculated in similar way:

$$\text{Score} = 100 \times \frac{\text{Summed weights from positive items in the questionnaire}}{\text{Sum of weights for all items in the questionnaire}}$$

Sum of maximum possible weights for each component and Total:

Symptoms	662.5
Activity	1209.1
Impacts	2117.8
Total	3989.4

(Note: these are the maximum possible weights that could be obtained for the worst possible state of the patient).

It will be noted that the questionnaire requests a single response to questions 1-7, 9-10 and 17. If multiple responses are given to one of these questions then averaging the weights for the positive responses for that question are acceptable. We feel that this is a better approach than losing an entire data set and have used this technique in calculating the results used in our validation studies. (Clearly a better approach is to prevent such multiple response occurring, but it is difficult to prevent occasional accidents). This method is used in the Excel calculator

SYMPTOMS COMPONENT

This is calculated from the summed weights for the positive responses to questions 1-8.

ACTIVITY COMPONENT

This is calculated from the summed weights for the positive responses to questions 11 and 15.

IMPACTS COMPONENT

This is calculated from the summed weights for the positive responses to questions 9-10, 12-14 and 16-17.

TOTAL SCORE

The Total score is calculated by summing all positive responses in the questionnaire and expressing the result as a percentage of the total weight for the questionnaire (as shown on previous page).

HANDLING MISSED ITEMS

It is better not to miss items and any missing items are the fault of the experimenter, not the patient. We have examined the effect of missing items and recommend the following methods:

Symptoms

The Symptoms component will tolerate a maximum of 2 missed items. The weight for the missed item is subtracted from the total possible weight for the Symptoms component (662.5) and from the Total weight (3989.4).

Activity

The Activity component will tolerate a maximum of 4 missed items. The weight for the missed item is subtracted from the total possible weight for the Activity component (1209.1) and from the Total weight (3989.4).

Impacts

The Impacts component will tolerate a maximum of 6 missed items. The weight for the missed item is subtracted from the total possible weight for the Impacts component (2117.8) and from the Total weight (3989.4).

SGRQ translations

Please visit the [SGRQ website](https://www.sgul.ac.uk/research/research-operations/research-administration/st-georges-respiratory-questionnaire/downloads) for details of SGRQ versions currently available in our translation library <https://www.sgul.ac.uk/research/research-operations/research-administration/st-georges-respiratory-questionnaire/downloads>

Publications

Please visit the [SGRQ website for](https://www.sgul.ac.uk/research/research-operations/research-administration/st-georges-respiratory-questionnaire/publications) a list of core papers related specifically to the SGRQ or its use. <https://www.sgul.ac.uk/research/research-operations/research-administration/st-georges-respiratory-questionnaire/publications>