Reducing breathlessness through group singing

Singing for Lung Health Impact Report

February 2018

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GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol
Betsi Cadwaladr
University Health Board

Cyngor Celfyddydau Cymru
Arts Council of Wales

ARIENNIR GAN Y LOTERI
LOTTERY FUNDED

Noddir gan Lywodraeth Cymru
Sponsored by Welsh Government

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Theatr Clwyd

Celfyddydau mewn Iechyd a Lles BIPBC / BCUHB Arts in Health and Wellbeing


“The singing helps you to expand your lungs and your life, it helps you to not limit yourself.”

CONTENTS

"[COPD] is a very limiting condition. It is so scary and you think you're going to die."

INTRODUCTION

Singing for Lung Health (SFLH) East is a partnership programme aiming to provide support for patients with chronic lung disease in the north east of Wales.

This evaluation aims to investigate whether 'Singing for Lung Health' can improve self-perceived quality of life and health status for people with chronic lung conditions.

The evaluated group is part of a larger Health Board programme for people with chronic lung conditions. SFLH was developed by the British Lung Foundation, introduced to Betsi Cadwaladr University Health Board (BCUHB) in 2013. With groups already in place in the central and west areas of the Health Board, the Mold group extended the programme to NHS patients in the east. The group is a collaboration between the BCUHB Arts in Health and Wellbeing and Wrexham Maelor Hospital Pulmonary Rehabilitation teams.

The group, led by an experienced singing teacher, and supported by the Technical Instructor for Pulmonary Rehab, met every Monday at Theatr Clwyd in Mold, Flintshire, for one and a half hours. During the session, they would sing a range of songs, practice breathing exercises, and learn techniques to help them improve their breathing and singing.

All members of the group had some form of chronic lung disease, either Chronic Obstructive Pulmonary Disease (COPD) or Interstitial Lung Disease (ILD).

The group included members with a variety of mobility issues. Some used walking aids or wheelchairs to get to the venue and some attended the session with their partners who also took part. Some used portable oxygen when walking into the session and during the SFLH sessions.

Participants of 'Singing for Lung Health' are offered:

- relaxation and postural work,
- vocal / breathing exercises,
- interactive vocal exercises,
- group singing with songs taught by ear, with and without accompaniment, with simple vocal harmonies.

The programme hopes to improve people's ability to cope with chronic respiratory illness by:

- Practicing relaxation
- Providing gentle physical exercise
- Improving posture related awareness of habitual breathing patterns
- Developing diaphragmatic breathing
- Introducing a new form of psycho-social support
- Developing confidence through enjoyment and sense of achievement

Between June 2017 and November 2017 there were fifteen SFLH sessions. Participants had a variable attendance rate at the sessions, mainly because their general health was variable. This qualitative and quantitative evaluation focused on:

- The physical outcomes of using singing to promote health for those living with COPD
- The further wellbeing outcomes as identified by those living with chronic lung disease and participating in the Singing for Lung Health programme, for example, changes to mental health, confidence and social activity.

EXECUTIVE SUMMARY

Singing for Lung Health (SFLH) East is a partnership programme between Betsi Cadwaladr University Health Board (BCUHB) Arts in Health and Wellbeing team and the BCUHB Pulmonary Rehabilitation team from Wrexham Maelor Hospital.

It aims to provide support for patients with chronic lung disease in North East Wales. The group is led by an experienced singing teacher, and supported by the Technical Instructor for Pulmonary Rehab. The programme hopes to improve people's ability to cope with chronic respiratory illness by:

- Practicing relaxation
- Providing gentle physical exercise
- Improving posture related awareness of habitual breathing patterns
- Developing diaphragmatic breathing
- Introducing a new form of psycho-social support
- Developing confidence through enjoyment and sense of achievement
- Practicing interactive vocal exercises
- Singing as a group with songs taught by ear, with and without accompaniment, with simple vocal harmonies.

This qualitative and quantitative evaluation focused on:

- The physical outcomes of using singing to promote health for those living with COPD
- Further wellbeing outcomes as identified by those living with chronic lung disease and participating in the Singing for Lung Health programme, for example, changes to mental health, confidence and social activity.

Four main themes emerged from the qualitative data:

Theme 1 – Improved breathing

In 87.5% of the comments where participants said their breathing had improved, they attributed the improvement only to singing.

The subsequent impacts on their daily lives included:

- being able to walk for longer without as many rests
- improvements in other physical exercise
- general health improvements
- reduced illness and related GP appointments
- increased participation in another choir
- being able to walk upstairs
- improved mental health (see Theme 4, p. 6)

"It has surprised me that I can control my diaphragm better. This is directly related to the singing. My overall breathing is better. It cheers you up, I love doing this [singing]."

Theme 2 – Having fun

Having fun and enjoying singing together was mentioned by all the participants. The experience for all seemed to be positive and light hearted. The group enjoyed laughing and joking together. Enjoying singing together increased their wellbeing and encouraged participation in, and attendance of, the group.

Theme 3 – Improving social activity

Participants felt socialising with the other members of the group was beneficial to their overall wellbeing. They had made new friends and increased their social activities. For example, a number of participants said they now meet up during the week outside the singing group.

Theme 4 – Improved wellbeing, with a specific focus on mental health

SFLH participants felt that the SFLH programme had positive impacts on their mental and physical health. They felt singing together improved their mood, lifted their spirits and gave them 'a buzz'. It made them feel good and cheered them up.

Quantitative Data

The Borg Dyspnoea Scale was used to measure the breathlessness of SFLH participants before and after the weekly SFLH session. Please see Appendices One and Two, pages 19 and 20, for more information about this scale.

This result shows that there was a general trend for participants reporting reduced breathlessness following the SFLH sessions. **There was a clinically significant reduction in breathlessness within the July and September session.**

The Medical Research Council (MRC) Dyspnoea Scale was used to measure perceived respiratory disability of SFLH participants. Please see Appendices Two and Three, pages 20 and 22 for more information about this scale.

MRC scores were collected for 18 patients at baseline and 9 patients at the end of the evaluation period. **Four of the nine participants reported a clinically significant improvement in their MRC scores**, three participants had an improvement in score from MRC 4 to MRC 3 and one participant had an improvement in score from MRC 3 to MRC 2. The mean MRC score at baseline was 3.8 and the mean MRC score at the end of the evaluation was 3.3.

These changes represent an improvement in the patients perceived respiratory ability but this overall change is not statistically significant due to the small numbers of scores collected.

Recommendations

There are a number of minor recommendations noted on page 17 which include considering making changes to the session's location, time, frequency, the evaluation process and communications with participants about future plans for the programme.

Overall, the SFLH programme is working very effectively with the participants. When the participants were asked what they would like to change about the programme, they were all clear that nothing significant needed to be altered.

METHODOLOGY

This impact report employed qualitative and quantitative methods to demonstrate the impact of the SFLH programme held at Theatr Clwyd on Monday afternoons in 2017. The evaluation period ran from June 2017 to November 2017. Please see Appendix Two, page 20 for a description of the measures used. Some of the evaluation measures were chosen as participants had already completed them as part of the pulmonary rehabilitation programme. It was considered useful to continue to monitor progress during and following the SFLH intervention. The measures included:

1. **MPT (Maximum Phonation Time)** This was measured at the start of the programme (end of June), a mid way point (end of September), and at the end of the evaluation period (November)
2. **The Medical Research Council (MRC) Dyspnoea Scale**
   An MRC baseline had already been established for most SFLH participants so an end measure was taken in November.
3. **COPD Assessment Test (CAT)**
   This was measured at the start of the programme (end of June), a mid way point (end of September), and at the end of the evaluation period (November).
4. **The Borg Dyspnoea Scale**
   This was measured before and after the weekly session. Please see Appendix One, page 19 for more information about this scale.
5. **The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)**
   This was measured at the start of the programme (end of June), a mid way point (end of September), and at the end of the evaluation period (November).
6. **One to one interviews with a selection of the participants of the SFLH group.**
   The data generated through the interviews identified common themes and insights arising from participants' perceptions of the SFLH programme. Interviews were conducted face to face with participants using the ORID method[1]. The data (or text) from notes and interviews was analysed using a combination of content analysis and approaches in grounded theory[2].
   Thematic results emerged from the data and these results have been used to inform the basis of this report. Results are not intended to be fully scientific.
7. **Diary of the Physical Instructor for Pulmonary Rehab**
   This was sent to the evaluator on a weekly basis.
8. **Interviews with key programme staff: the SFLH session leader - Ellie Diack; Sophie Haughton – Technical Instructor for Pulmonary Rehab and Michelle Owen - Advanced Physiotherapy Practitioner and Pulmonary Rehabilitation Coordinator.**
   The data generated through the interviews was analysed as in point 6 above.

[1] The ORID method is a focus group process that facilitates a structured discussion that can be used for one to one conversations and with small groups (up to 12 people). ORID stands for: Observation, Reflection, Insight & Decision

[2] This basically counts the number of times a particular theme was discussed thus indicating the relative importance of that particular theme (content analysis) and being non-directive so that the themes genuinely emerge from the text with minimal bias (grounded theory).

Sophie Haughton – Technical Instructor for Pulmonary Rehab, singing with the SFLH group.

INSIGHTS FROM QUALITATIVE DATA ANALYSIS

Four main themes emerged from the data:

Theme 1 – Improved breathing

The most common theme by far emerging from the data was that participants felt that their breathing had improved.

In 87.5% of the comments where participants said their breathing had improved, they attributed the improvement only to the singing. In the other 12.5% of comments participants attributed their improved breathing to both the singing and the pulmonary rehab programme.

"It feels like my singing can move my breath into my cavities. I have found it [the singing] has significantly helped my breathing." SFLH participant

Participants talked about how the singing and the breathing lessons had helped them. They had learnt how their bodies worked and how they could improve their breathing, lengthening their outbreath and making their outbreath more efficient.

"It has surprised me that I can control my diaphragm better. This is directly related to the singing." SFLH participant

"I notice the difference it makes to me to know how to get breath out." SFLH participant

All the participants felt the impact of their improved breathing was significant and improved their quality of life.

The subsequent impacts on their daily lives included:

- being able to walk for longer without as many rests
- improvements in other physical exercise
- general health improvements
- reduced illness and related GP appointments
- increased participation in another choir
- being able to walk upstairs
- increased mental health (see Theme 4 below p. 13)


“I can do more for myself, walk a little further. If I didn’t come to the singing or the physio I wouldn’t be able to walk up the stairs.”

Theme 2 – Having fun

Having fun and enjoying singing together was mentioned by all the participants. The experience for all seemed to be positive, light hearted, and the group enjoyed laughing and joking together. This was important for the participants. Enjoying singing together increased their wellbeing and encouraged them to participate in the group and attend the group as much as possible.

People living with chronic lung disease can suffer from low mood due to the impact of the condition on their daily lives. Breathlessness can significantly reduce what people can physically achieve, for example: walking upstairs, doing physical exercise or sport, attending social events and even in some cases walking even short distances can be difficult. These conditions can reduce people's ability to work and care for family members.

The impact of breathlessness on daily life is that they often don't have much fun in their lives. Depression and anxiety are common for people living with COPD or ILD. Therefore any experience where they have fun is highly valued. Some of the participants of SFLH felt it was an essential part of their weekly routine, keeping their mood buoyant, increasing their ability to cope with more difficult times in the week and giving them something to look forward to.

"We have a laugh and a joke. It makes me feel good inside for a long period afterwards and by the weekend I'm looking forward to the next session. It's the first time I've done any singing."

Theme 3 – Improving social activity

Many participants spoke about the social side of the group, they felt socialising with the other members of the group was beneficial to their overall wellbeing. They had made new friends since joining the group and had increased their social activities, for example a number of participants said they now meet up during the week outside the singing group.

Participants enjoyed meeting new people who have a similar condition to them. This was important to them, they felt they didn't have to explain the impact of their condition to group members, they felt they were understood by the others within the group as they all have similar problems.

"You couldn't join any old choir. Everyone here [at SFLH] has the same problems. You don't feel looked at and stupid. You are in a pool of peers which builds confidence." SFLH Participant

Breathlessness often limits people's social life and, therefore, people living with COPD and ILD are easily isolated. Activities that cater specifically for people living with COPD and ILD are very helpful for this client group. For example, it makes a significant difference to them when close parking and easy access has been considered so that people don't have to walk too far, or up many stairs. The SFLH weekly session was planned to this end. Theatr Clwyd arranged for the group to be able to park on the forecourt right outside the front doors of the theatre to make access as easy as possible for participants.

"You come in and she [Ellie] welcomes you. You talk to all your friends, you get friendly. That's as much of a help as what we are actually doing. I'm a believer in talking and chatting. Some of us used to get together and have a drink afterwards. It is a social thing as well and this is important to everyone you meet [at SFLH]. A lot of people feel quite isolated when they have a diagnosis."

Theme 4 – Improved wellbeing, with a specific focus on mental health

SFLH participants felt that the SFLH programme had positive impacts on their mental and physical health.

They felt singing together improved their mood, lifted their spirits and gave them 'a buzz'. They talked about how it made them feel good and cheered them up.

Participants and project partners also reflected on the increased confidence felt by participants as a result of the programme.

"The people who've been coming from the beginning they seem much more confident, more relaxed." Session Leader

As mentioned previously, many participants recognised the negative effects their conditions had on their mental health. People with COPD or ILD often feel limited in their daily life by their condition and this can lead to poor mental health. One participant's low mood was exacerbated by a slow referral:

"I was feeling very down; horrible things were going through my head. It took a year to get a referral to the pulmonary rehab in Holywell."

Participating in SFLH and the support he received from the pulmonary rehab team has had a significant impact on his mental health:

"The ladies in Holywell [at the pulmonary rehab unit] sorted me out. They got a consultant appointment for me. I haven't looked back since then. It [SFLH] really helps, I look forward to it every week. It has improved my mood. My appearance has changed because I come to the group. I didn't care about my appearance before but I do now because I am coming here [to SFLH]."

"The lady who runs the nordic walking class has noticed my improvement since I started 'Singing for Lung Health'. ***I relate my improvement to the singing."***

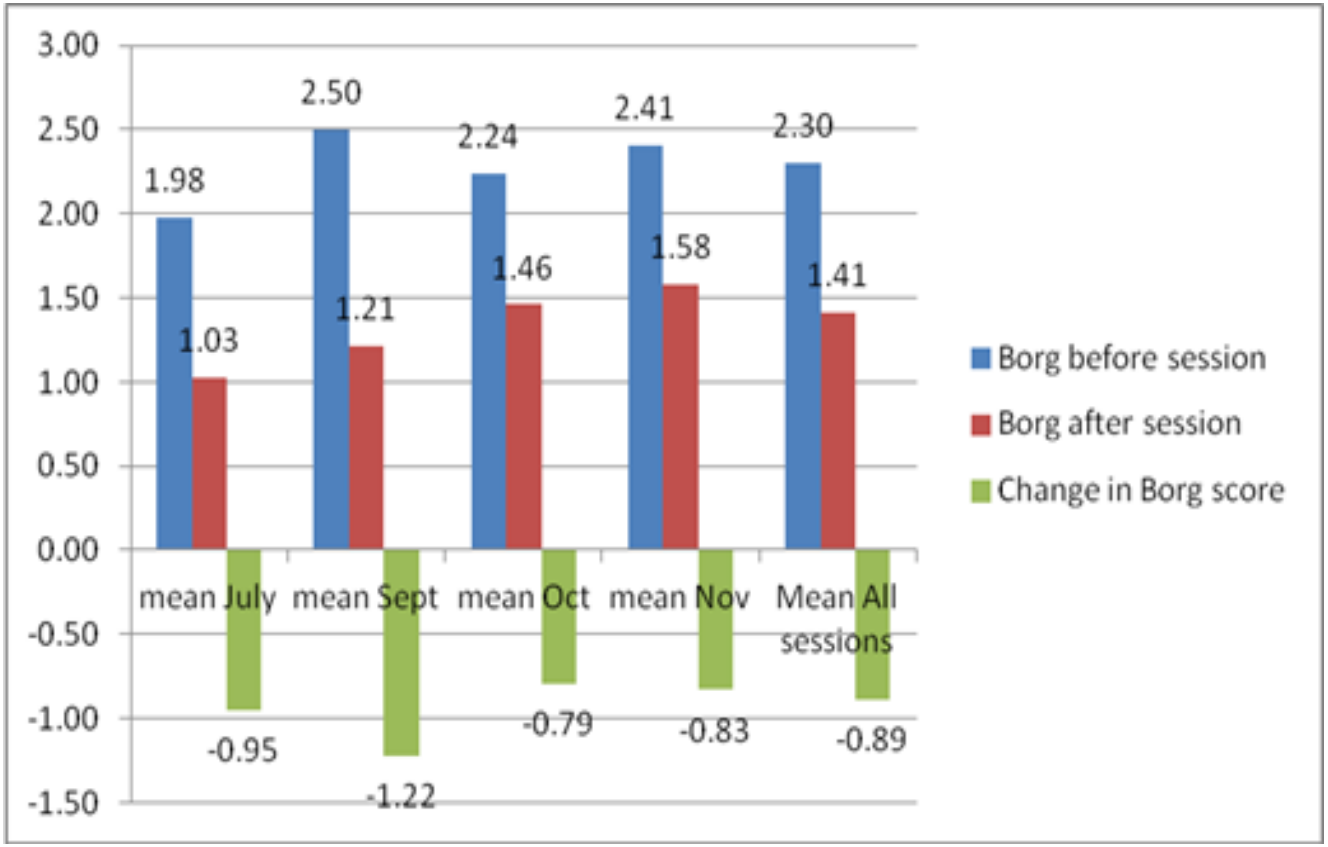
INSIGHTS FROM QUANTITATIVE DATA ANALYSIS

Unfortunately, there were no full sets of data collected within the evaluation period. Data collected for the CAT, MPT and WEMWBS measures did show trends towards improved quality of life however following discussions about the validity of the quantitative data it was felt that only the BORG and MRC data was valid to be used for analysis and to inform the findings of this report. This situation was due to the inconsistency of data collected, in part due to the variable attendance of this client group at the SFLH sessions due to ill health.

The Borg Dyspnoea Scale is a scale that asks the patient to rate the difficulty of their breathing. It starts at number 0 where their breathing is causing them no difficulty at all and progresses through to number 10 where their breathing difficulty is maximal. Please see Appendix One, page 19 for an example of the Borg scale. Breathlessness of SFLH participants was measured before and after the weekly SFLH session.

The data was grouped by month. Six to twelve patients attended three to four sessions each month. The mean Borg scores for the patients attending the sessions are shown before and after the sessions below.

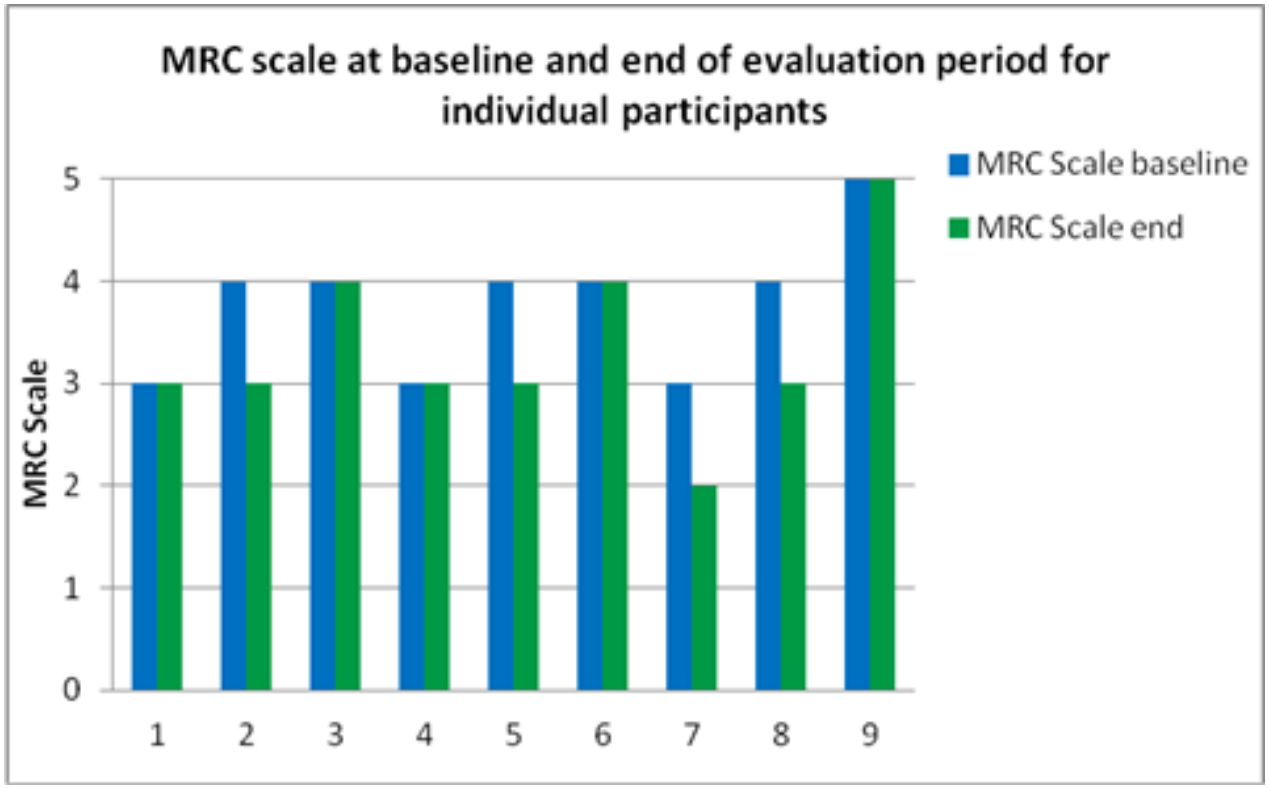
There was an improvement in mean breathlessness scores for all sessions (-0.89). A difference of between -0.9 to -1.0 is considered to be clinically significant.



This result shows that there was a general trend for participants reporting reduced breathlessness following the SFLH sessions. This change reached clinical significance for the group within the July (-0.95) and September sessions (-1.22).

The Medical Research Council (MRC) Dyspnoea Scale has been in use for many years for grading the effect of breathlessness on daily activities. This scale measures perceived respiratory disability and is used to stratify patient's impairment. Patients score themselves on a scale of one to five. A score of five means the patient scores themselves as *'too breathless to leave the house, or breathless when dressing or undressing'*. A score of one means the patient scores themselves as '*not troubled by breathlessness except on strenuous exercise*'. Please see Appendix Three, page 22 for a full interpretation of all the scores. A reduction of one point on the MRC scale is considered clinically significant.

MRC scores were collected for 18 patients at baseline and 9 patients at the end of the evaluation period. Four of the nine participants reported a clinically significant improvement in MRC score, three participants had an improvement in score from MRC 4 to MRC 3 and one participant had an improvement in score from MRC 3 to MRC 2. The mean MRC score at baseline was 3.8 and the mean MRC score at the end of the evaluation was 3.3.



These changes represent an improvement in the patients perceived respiratory ability but this change is not statistically significant due to the small numbers of scores collected.

"I can now do things I couldn't do before. On Saturday we collected money at the football ground. I said yes this time, when previously I had said no because I didn't think I could manage. I managed it fairly well. ***This is attributed to the singing****. I'm doing a number of things I wouldn't have done before. It is so positive."*

RECOMMENDATIONS

Overall the SFLH programme is working very effectively with the participants. When the participants were asked what they would like to change about the programme they were all clear that there was nothing significant that needed to alter. The comments below are minor issues for consideration.

1. Consider holding a group in or near Wrexham. A number of the participants come from the Wrexham area and most participants said they would welcome meeting closer to their home. Some participants were not able to drive and could only attend if getting a lift from another member of the group.

2. Consider the frequency of the sessions. One participant wanted the group to happen more frequently, for example, twice a week as he felt it helped him significantly. Would more frequent sessions further improve health and wellbeing outcomes?

3. Consider altering the length of time for the session. It was mentioned that some participants who weren't attending had felt that it was too long and they struggled to participate for an hour and a half.

4. Consider the evaluation measures and the timings for those measures.
    a. Which measures are most useful? How many measures should be used? For example, this evaluation used five quantitative measures alongside the qualitative data. It was felt this amount of measures could have compromised the quality of the data collected.
    b. Continue to use the BORG measure over a longer time period to understand seasonal trends in participant's breathlessness. It would be useful to understand if the changes shown by BORG are affected by the usual deteriorating health of this client group during the winter months.
    c. Continue to measure the MPT, measuring the outbreath of participants both before and after each session.
    d. When is the best time to evaluate? This client group are highly likely to attend infrequently due to their fluctuating health. Would it have been useful to let the group run for a few months before starting any evaluation to see if there is a regular pattern of attendance by enough individuals to support the evaluation?

5. Consider how and when participants will be informed about the continuation of the group. Participants were aware that there was funding for the group until February 2018 and all expressed anxiety about the sessions stopping. All participants wanted the group to continue due to the significant benefits they were gaining.

Ellie Diack, the session leader for SFLH

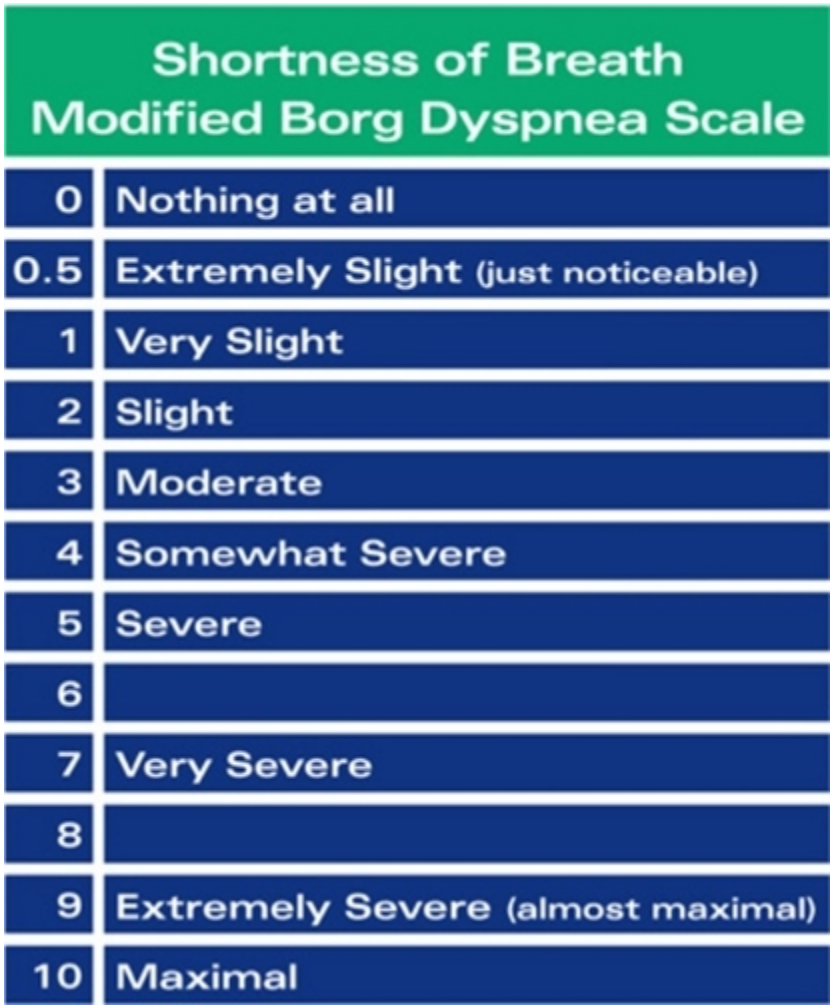
APPENDIX ONE – The Borg Dyspnea Scale

Use this scale to rate the difficulty of your breathing.

It starts at number 0 where your breathing is causing you no difficulty at all and progresses through to number 10 where your breathing difficulty is maximal.

How much difficulty is your breathing causing you right now?

Use the scale to rate how breathless you feel.



APPENDIX TWO – Description of evaluative measures used

1. **MPT (Maximum Phonation Time)** is the most widely used measure to assess the aerodynamic contribution to voice. MPT measures the length of out breath in phonation, which should increase when people learn to control their breathing with use of core abdominal muscles.

   This was measured at the start of the programme (end of June), a mid way point (end of September), and at the end of the evaluation period (November)

2. **The Medical Research Council (MRC) Dyspnoea Scale** has been in use for many years for grading the effect of breathlessness on daily activities. This scale measures perceived respiratory disability. The MRC dyspnoea scale is simple to administer as it allows the patients to indicate the extent to which their breathlessness affects their mobility. The 1-5 stage scale is used alongside the questionnaire to establish clinical grades of breathlessness and it is used within pulmonary rehabilitation.

   An MRC baseline had already been established for most SFLH participants so an end measure was taken in November.

3. **COPD Assessment Test (CAT)** is a questionnaire to help the patient and their healthcare professional measure the impact COPD (Chronic Obstructive Pulmonary Disease) is having on their wellbeing and daily life. The answers, and test score, can be used by the patient and their healthcare professional to help improve the management of their COPD and get the greatest benefit from treatment.

   This was measured at the start of the programme (end of June), a mid way point (end of September), and at the end of the evaluation period (November).

4. **The Borg Dyspnoea Scale** is a scale that asks the patient to rate the difficulty of their breathing. It starts at number 0 where their breathing is causing them no difficulty at all and progresses through to number 10 where their breathing difficulty is maximal. See Appendix One, page 19 for instructions showing how to use the scale.

   Breathlessness of SFLH participants was measured before and after the weekly intervention

5. **The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)** is a 14-item scale covering subjective wellbeing and psychological functioning, in which all items are worded positively and address aspects of positive mental health. The scale is scored by summing the response to each item answered on a 1 to 5 Likert scale. The minimum scale score is 14 and the maximum is 70.

This was measured at the start of the programme (end of June), a mid way point (end of September), and at the end of the evaluation period (November).

6. **One to one Interviews with a selection of the participants of the SFLH group.** The data generated through the interviews identified common themes and insights arising from participants' perceptions of the project. Interviews were face to face with participants using the ORID method[3]. The data (or text) from notes and interviews was analysed using a combination of content analysis and approaches in grounded theory[4]. Thematic results emerged from the data and these results have been used to inform the basis of this report. Results are not intended to be fully scientific.

7. **Diary of Physical Instructor for Pulmonary Rehab**. This was sent to the evaluator on a weekly basis.

8. **Interviews with key programme staff:**

   the SFLH session leader - Ellie Diack;
   Sophie Haughton – Technical Instructor for Pulmonary Rehab
   Michelle Owen - Advanced Physiotherapy Practitioner and Pulmonary Rehabilitation Coordinator.

   The data generated through the interviews was analysed as in 6 above.

[3] The ORID method is a focus group process that facilitates a structured discussion that can be used for one to one conversations and with small groups (up to 12 people). ORID stands for: Observation, Reflection, Insight & Decision

[4] This basically counts the number of times a particular theme was discussed thus indicating the relative importance of that particular theme (content analysis) and being non-directive so that the themes genuinely emerge from the text with minimal bias (grounded theory).

APPENDIX THREE – The Medical Research Council (MRC) Dyspnoea Scale

MRC 5 = Too breathless to leave the house, or breathless when dressing or undressing

MRC 4 = Stops for breath after walking about 100m or after a few minutes on level ground

MRC 3 = Walks slower than contemporaries on level ground or has to stop for breath when walking at own pace

MRC 2 = Short of breath when hurrying or walking up a slight hill

MRC 1 = Not troubled by breathlessness except on strenuous exercise

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