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Skingley, A., Price, Sonia, Clift, S. M., Morrison, I., Coulton, S., Treadwell, P., Vella-Burrows, T., Shipton, M. and Salisbury, I. (2013) "Singing for breathing": participants' perceptions of a group singing programme for people with COPD. *Arts & Health*, 6 (1). pp. 59-74. ISSN 1753-3015.

Link to official URL (if available):

<https://doi.org/10.1080/17533015.2013.840853>

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**‘Singing for Breathing’ groups for people with COPD: participants’ experiences.**

**Ann Skingley<sup>1\*</sup>, Sonia Page<sup>1</sup>, Stephen Clift<sup>1</sup>, Ian Morrison<sup>1</sup>, Simon Coulton<sup>2</sup>, Pauline Treadwell<sup>3§</sup>, Trish Vella-Burrows<sup>1</sup>, Matthew Shipton<sup>1</sup>, Isobel Salisbury<sup>1</sup>**

**Ann Skingley, Senior Researcher ([ann.skingley@canterbury.ac.uk](mailto:ann.skingley@canterbury.ac.uk))**

**Sonia Page, Musical Director ([sonia.page@canterbury.ac.uk](mailto:sonia.page@canterbury.ac.uk))**

**Stephen Clift, Director of Research ([stephen.clift@canterbury.ac.uk](mailto:stephen.clift@canterbury.ac.uk))**

**Ian Morrison, Senior Researcher ([ian.morrison@canterbury.ac.uk](mailto:ian.morrison@canterbury.ac.uk))**

**Simon Coulton, Professor of Health Services Research ([s.coulton@kent.ac.uk](mailto:s.coulton@kent.ac.uk))**

**Pauline Treadwell, Principal Nurse, Respiratory ([pauline.treadwell@nhs.net](mailto:pauline.treadwell@nhs.net))**

**Trish Vella-Burrows, Assistant Director ([trish.vella-burrows@canterbury.ac.uk](mailto:trish.vella-burrows@canterbury.ac.uk))**

**Matthew Shipton, Lecturer and Researcher ([matthew.shipton@canterbury.ac.uk](mailto:matthew.shipton@canterbury.ac.uk))**

**Isobel Salisbury, Centre Administrator ([isobel.salisbury@canterbury.ac.uk](mailto:isobel.salisbury@canterbury.ac.uk))**

**<sup>1</sup> Sidney De Haan Research Centre for Arts and Health, Canterbury Christ Church University, University Centre Folkestone, Folkestone, Kent CT20 1JG Tel 01303 220870**

**<sup>2</sup>Centre for Health Services Studies, University of Kent, Canterbury, Kent CT2 7NF Tel 01227 824535**

**<sup>3</sup>Kent Community Health NHS Trust, Hermitage Lane, Maidstone, Kent ME16 9NT Tel 01622 211900**

**\*Corresponding author**

**§Currently Registered Nurse, Critical Care Unit, East Kent Hospitals University Foundation NHS Trust, William Harvey Hospital, Ashford, Kent TN24 0LZ**

# **‘Singing for Breathing’: participants’ perceptions of a group singing programme for people with COPD.**

## **Abstract**

### **Objective**

To examine the perceived feasibility, acceptability and effectiveness of regular singing for people with COPD.

### **Design**

Qualitative element within a pre-test, post-test feasibility study.

### **Methods**

Written comments collected at baseline, mid-point and end-point from participants engaged in a 36 week singing programme.

### **Findings**

Participants noted limitations due to their respiratory condition but a large number expressed beliefs that singing had led to improvement and this appeared to be incremental over the time of the project. Other comments related to positive effects on physical health more broadly, on psychological wellbeing and on the social support gained through meeting others with COPD. Comments relating to the overall programme and the research itself were overwhelmingly positive.

### **Conclusions**

Findings suggest that singing is perceived as both acceptable and beneficial to people with COPD. Evidence from participants served as a useful supplement to the quantitative findings.

Keywords: singing, COPD, wellbeing, qualitative data.

## **Introduction**

Recent years have seen a developing interest in the idea that singing can help improve people's health and wellbeing. This has led to a number of research studies exploring its potential benefits for different groups of people, for example professional and amateur singers (Grape, Sandgren, Hansson, Ericson & Theorell, 2003), older people (Hillman, 2002), and marginalized and middle class singers (Bailey & Davidson, 2005). Singing groups have also been set up for people with specific long term health conditions such as dementia (Camic, Williams & Meeten, 2011) and Parkinson's (McCall, 2008) with encouraging feedback. These studies highlight the different mechanisms whereby both physical and mental health improvement might take place. Because of the obvious link between singing and breathing, there is a plausible potential for singing to improve respiratory health for people with chronic obstructive pulmonary disease (COPD) and this is the focus of the study reported here.

### **COPD - Nature, Prevalence and Human Cost**

COPD is a treatable, although incurable, lung disease characterised by progressive airflow obstruction which is not fully reversible and which remains largely unchanged over several months (National Institute for Health and Clinical Excellence [NICE], 2010). Primarily associated with chronic respiratory diseases such as emphysema and chronic bronchitis, symptoms include dyspnoea, cough and sputum and are potentially disabling, impacting upon quality of life and reliance upon health care services (Westwood et al., 2011).

Diagnosis of COPD requires thorough history-taking, physical examination and confirmation of airflow obstruction using spirometry, which measures air expired by individuals and allows categorisation of severity into one of four stages; mild, moderate, severe or very severe (NICE, 2010). Diagnostic indices derived from spirometry are:

- FEV<sub>1</sub>: forced expired volume of air from lungs in one second

- FVC: forced vital capacity (total volume of air that can be forcibly exhaled from maximum inhalation to maximum exhalation)
- FEV<sub>1</sub>/FVC: FEV<sub>1</sub> expressed as a percentage or ratio of the FVC (Kaufman, 2013)

Breathlessness is perhaps the most debilitating symptom of COPD, commonly resulting in loss of independence, isolation and reduced activity, each compounded by the fact that COPD is associated with psychological co-morbidities such as anxiety and depression (Maurer et al., 2008).

Vestbo, Hurd and Rodriguez-Roisin (2012) determined that by 2020 COPD will be the third leading cause of global mortality and the fifth major source of disease burden. While the incidence of COPD is difficult to determine due to the insidious nature of symptoms, at present approximately 835,000 people have a diagnosis of COPD in England. However, an estimated two million remain undiagnosed, increasing the likely prevalence to nearer three million in the UK (NICE, 2011)

Smoking remains the primary cause of COPD (Meldrum, Rawbone, Curran & Fishwick, 2005), which is therefore largely preventable (World Health Organisation [WHO], 2012). This is acknowledged in the Department of Health consultation on a strategy for COPD in England (Department of Health [DH], 2010), which emphasises the need to improve prevention efforts as well as early identification of disease and effective pharmacological management. The benefits of pulmonary rehabilitation, for example, are well documented (GOLD, 2013), although improvement in exercise capacity, which may continue for up to 12 months following programme completion, relies heavily upon continued adherence to physical activity (British Thoracic Society [BTS], 2001).

### **Singing and COPD**

There is some evidence that group singing may be beneficial for people with chronic respiratory disease by modifying breathing patterns, reducing breathlessness, and improving quality of life and social and psychological wellbeing. Bonilha, Onofre, Vieira, Prado and Martinez (2008) reported a small randomised controlled trial assessing the impact of singing groups on lung function and quality of life among patients diagnosed with COPD. Forty-three patients were randomised to a 24 week programme of singing or handcraft classes. Fifteen participants in each group completed 24

sessions and were comparable at baseline in their mean FEV<sub>1</sub> per cent predicted values. The singing group showed a small improvement in a measure of maximal expiratory pressure at the end of the study, while the control group showed a decline, with the difference being statistically significant. Both groups showed increased quality of life scores with no significant difference, suggesting the benefits of group participation for perceived quality of life.

Lord et al. (2010, 2012) have also undertaken two small randomized controlled trials with mixed results. In the first trial (Lord et al, 2010), patients with COPD (n=15) took part in a six-week course of twice weekly singing and compared with a control (usual care) group (n=13). The authors reported that the singing group showed improvement in quality of life and anxiety measures but not in control of breathing measures or functional capacity. The control group failed to show any improvement. However, qualitative interviews with eight individuals showed positive effects were experienced in physical and general wellbeing, community and social support and in sense of achievement.

The second study (Lord et al., 2012) included patients with COPD and an active control group (n=11) who engaged in a weekly film club over 8 weeks, while the singing group (n=13) took part in twice weekly singing sessions. Findings were similar to the above, with a significant difference in the physical component of the quality of life measure when compared to the control group. At the same time, there was no difference in the mental component, breathing control measures, exercise capacity or daily physical activity. The participants in the singing group who were interviewed (n=5) described positive effects in wellbeing, social support and sense of achievement.

The evidence to date, while suggesting that there may be benefits arising from singing for people with COPD, is limited in terms of small sample sizes, with the attendant risk of a type II error, and also by the short duration of singing interventions. Qualitative evidence from interviews on the other hand, is strongly suggestive of perceived improvements in different dimensions of wellbeing,

though, again, sample numbers have been small. There is a need to address these weaknesses in building up the body of knowledge in this area.

The Sidney De Haan Research Centre for Arts and Health has pursued a progressive research programme on the benefits of singing since 2005. In 2009 the Centre established a pilot ‘Singing for Breathing Group’ in East Kent to see if people with breathing difficulties would be interested in taking part in regular singing activity, and would find it helpful in managing their condition. Participants’ reports of perceived benefits encouraged further research, specifically a mixed methods study of the feasibility, acceptability, potential effectiveness, and economic benefit of regular singing for people with chronic obstructive pulmonary disease (COPD).

## **Method**

### **Aim**

To examine the perceived feasibility, acceptability and effectiveness of regular singing for people with COPD.

### **Design**

Qualitative data were generated as part of a mixed methods study (Clift et al., 2013 ) that used pre and post-test measures of spirometry, standardized self-report measures, and an open response questionnaire completed at three points during the study. The advantage of this mixed methods approach is that a combination of quantitative and qualitative data provides a better understanding of the research issue than either approach alone (Cresswell & Plano Clark, 2007). Questionnaires were completed at baseline (to capture any comments on the recruitment process), at mid-point (after five months) and at the end of the study (after another five months). Data from the qualitative phase of the research are reported here.

### **Ethical approval**



Ethical approval was given by an NHS Research Ethics Committee (REC Ref.11/SC/0115) and the Canterbury Christ Church University Faculty of Health and Social Care Research Ethics Committee. The study was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2001) and Medical Research Council good practice guidelines (Medical Research Council [MRC], 2005).

### **Recruitment**

Recruitment involved a variety of methods including newspaper advertisements, direct contact with three local support groups for people with breathing difficulties (British Lung Foundation Breathe Easy Groups) and a mailed invitation to patients on the COPD registers within GP practices throughout East Kent, England. Those considering involvement were invited to ‘taster’ sessions which provided opportunities to find out more about the research as well as sample the type of singing which would take place. Inclusion criteria comprised those with varying degrees of severity of COPD but able to travel to the venues and to complete questionnaires. We aimed to recruit 100 participants based on a calculation of the number needed to enable us to measure the potential effectiveness of the intervention (Clift et al., 2013).

### **The intervention**

Six singing groups were set up and led by skilled and experienced singing leaders (facilitators). These facilitators received five days training by the second author and met regularly throughout the project to ensure consistency in approach. Singing sessions were weekly from September 2011 – June 2012 with breaks for Christmas and Easter and a Christmas party. Sessions were held in community halls which were booked specifically for the event and were delivered to groups ranging in size from 20 to 50, including supporters (40% of group members were supporters on average, including care staff, friends and family). Singing groups took place over a total of 36 weeks including workshop/performance events at the end of each ‘term’. Sessions were a total of 90 minutes. Thirty minutes were for socialising during the ‘meeting and greeting’ phase, and clearing away after singing. The 60 minute singing session commenced with 20 minutes of relaxation, posture, breathing and

vocal exercises followed by 40 minutes singing. A wide common repertoire of familiar and new songs was available in a high quality song book. Participants also steered the musical direction of their group according to their interests. Songs were taught by ear and were sung mainly without accompaniment (Robb, Burns & Carpenter, 2011). Picture 1 is an image of members of the COPD singing group established in Whitstable.

### **Data collection**

The self-report questionnaires included the St George's Respiratory Questionnaire (SGRQ, 2008), Medical Research Council (MRC) breathlessness scale (Bestal et al., 1999; Stenton 2008), the York SF12 (Iglesias, Birks & Torgerson, 2001), which is a health related quality of life scale with physical and mental health subscales and the EQ5D, a health utility measure (Euroqol Group, 1990). The questionnaire also invited responses to the headings 'I feel the following things went well' and 'I feel the following things didn't go so well' and asked for any further comments on health or participation in the project. Data collection at the three time points took place in the community halls where the singing groups were held. Participants were given allocated times to attend for spirometry measures and for completion of the questionnaires (plus demographic data and consent at baseline). Researchers were on hand to answer any questions or clarify issues at each data collection point. Those unable to attend the venues were sent the questionnaires via post and invited to return the completed forms in a prepaid envelope.

### **Data analysis**

All written comments were transcribed and imported into NVivo9® (QSR International, 2010), a qualitative data analysis programme. Analysis proceeded as a two-stage operation. Initially, following familiarisation of the content through reading the whole text, the complete data set was subjected to a broad content analysis, to allow reduction of data into categories linked to simple quantification (Breakwell, Hammond, Fife-Shaw & Smith, 2006). This was guided by an analysis of word frequencies as generated by the software, when particular terms were highlighted. For example,

it was anticipated that participants would comment on breathing, as all had respiratory problems, so we ran a text search query for 'breathing' and similar matches through the use of a wildcard (breath\*) to indicate the addition of any other characters (e.g. 'breathe' 'breathing'). Breathing then became one category (or 'node' as it is termed in NVivo). Becoming familiar with the text allowed the initial identification of a further four major categories: physical health (other than breathing); psychological health; social wellbeing; and comments on the project and singing programme. This was achieved by two researchers working independently and then resolving any minor differences emerging.

Following this, the categories were overlaid with a thematic analysis, which involved a more interpretive approach to the data through careful examination of the language used. A theme may be defined as a data extract (an individual chunk of coded data) which captures something important in relation to the overall research question (Braun & Clarke, 2006). The questions in this qualitative part of the study related to assessing acceptability and effectiveness of the singing programme and the research procedures as perceived by participants. Therefore we interrogated the comments for qualitative statements (positive or negative indicators of acceptability); for terms indicative of attribution of any change in wellbeing to the singing intervention (indicators of effectiveness); and also for whether perceptions changed over time, that is, over the three administrations of the questionnaire (baseline, mid-study, end of study). A visual representation of how this was conceptualised is provided in Fig 1. A quantitative element was retained for this stage of the analysis, since we felt it was useful to explore any change in terms of the number of data extracts expressing positive, negative or attribution comments over the course of the research intervention. Data extracts were 'counted' if they pertained to a comment by the same individual at different data collection periods, but not to more than one comment repeated within the same questionnaire.

## **Findings**

Comments were received from 97 individuals (out of the total sample of 106) over the course of the project, with 66 comments at baseline, 77 at mid-study follow-up and 73 at final follow-up

(total number of comments 216). The mean age of the sample was 69.5 (SD 7.64) with a third being male. Ninety-nine percent considered themselves white and 51.4 per cent had continued in education, with over a third holding a degree or equivalent qualification. Mean mental health score on the SF-12 was similar to the population norm, but physical health was poor. As expected, baseline comments were very much briefer than the later ones. Presentation of findings based on these comments is guided by the broad categories as described above (breathing, physical health, psychological health, social wellbeing, comments on the project and singing programme), and, within them, where relevant, the dimensions of quality (positive-negative), strength of any attribution of change to intervention, and timing.

### **Breathing**

Baseline spirometry measures confirmed that participants were diagnosed with COPD (Mild 15%, Moderate 45%, Severe 30%, Very Severe 10%). Overall the data generated 97 extracts related to breathing. General comments relating to on-going respiratory conditions were overwhelmingly negatively framed and broadly distributed across all three time bands. These provided a fuller picture of additional respiratory diagnoses (asthma, chest infection, pneumonia, bronchiectasis - 7 individuals) as well as how participants experienced their respiratory limitations, in terms of being out of breath or wheezy, having chest problems, having poor lung power, drug side-effects or having to use medication pumps more frequently:

‘I have noticed that my breathing is poor when walking and talking simultaneously. A chest infection leaves me ‘voiceless’, the longest being 9½ weeks. I am under the care of Dr [name] – chest consultant and have bronchiectasis.’ (Female, age 76)

A few individuals commented in more positive terms on their existing health. For example two participants noted that their current medication was controlling their condition. The majority of breathing-related comments from the second and third data collection periods concerned improvements noted by participants since the singing groups started. Although most just stated that

breathing had improved, many individuals were able to identify particular mechanisms through which these were achieved (Box 1). Moreover, a large number of the comments (63) expressed strong beliefs that the singing was the reason for improvement noted:

‘I believe that the project is teaching me how to understand my breathing and how to control it. This is very useful; it stops me hyperventilating when my breathing is under pressure i.e. climbing a steep hill.’ (Female, age 74 )

In two cases there was an inference that the intervention had led to reduced uptake of health services:

‘Since first time in joining the singing group I have not had to spend time in casualty this winter or spring for COPD.’ (Female, age 64)

Looking at the distribution of the comments on breathing (26 at second data collection; 37 at third data collection) it may be that participants experienced incremental gain in respiratory health over the intervention period. Fourteen individuals commented at both of these time periods and, while some simply reiterated statements made earlier, in others the strength of attribution appears from the language to have increased. For example:

( Female, age 71):

‘I feel that I will benefit from all the singing and breathing techniques that I have been taught.’ (Data collection time 2)

‘I feel that the benefits I have had from the course has been great, my breathing has improved no end.’ (Data collection time 3)

Three participants made anticipatory statements in the baseline questionnaire, expressing hope that singing would improve their COPD, looking forward to seeing improvement and in one case being ‘convinced’ that the singing would bring benefit. This suggests that some of our sample embarked on the project with certain expectations, though the extent to which this might have affected later responses is unknown as, too, is the number of other individuals who may have held, but not expressed, similar views.

Not all participants were so convinced of the effectiveness of the intervention. Twelve statements (mostly from time 2) referred to being unsure of benefits, as yet not able to judge, not noticing vast improvement, maintaining an open mind, effectiveness being hard to evaluate, noting change may be a coincidence or not feeling worse. For three of these individuals later comments at time 3 indicated a more certain attribution:

Female, age 77

‘As yet, any health/breathing improvement has not been apparent.’ (Data collection time 2)

‘It certainly appears to have helped with my general breathing.’ (Data collection time 3)

### **Physical health**

A number of individuals (n=26) commented on their existing physical health status, supplementing the baseline standardised research measures and providing a detailed picture of how this affected their everyday lives. These were expressed in largely negative terms, indicating that, for many, co-morbidities existed alongside their primary diagnosis. Physical health issues related to poor mobility, general tiredness and sleep problems, episodes of flu, voice problems, pain, cancer, stroke and general ‘poor health’. Some of these health problems, often unrelated to COPD, kept people away from the singing groups:

‘Due to flu, “maybe Asian flu” I have had to have 4-6 weeks away so I am still suffering the

“dregs” of the infection...’ (Female, age 66)

A large number of comments also reported improvements to physical health (other than breathing) at either mid-term (n=5 ) or end point (n=11). These included comments related to more positive energy levels, vocal capacity, mobility, physiotherapy being easier post-singing and general physical health improvement, and most of these improvements were explicitly ascribed to the singing intervention:

‘I love coming to COPD Singing Research Project and I always feel much better physically and emotionally afterwards.’ (Female, age 70)

All those commenting on the benefits to physical health appeared to have no doubt that it was the singing that had given rise to this.

### **Psychological health**

A few participants commented on pre-existing psychological health issues in terms of anxiety, feeling down and depressed and panic attacks. While for some this was unattributed, a focus among others was on the psychological sequelae of COPD:

‘You need to understand that being severely out of breath ALL THE TIME can be so emotionally draining, you cannot do anything energetic. You need to stay away from any environment where the air is less than really fresh, you have to think about everything. Fit and healthy people don’t understand, so you can’t talk to them.’ (Male, age 58 ).

For a few individuals, mental health issues were unconnected to their respiratory diagnosis:

‘ I suffer from emotional and slight depression. This is due mainly because my son died 4 years ago for no obvious reason.’ (Male, age 56)

‘My husband is ill at the present time so I am a little preoccupied and probably not quite as cheerful as per normal’ (Female, age 77)

The fact that these comments were made across all data collection periods suggests that certain states of health were not amenable to improvement over the timescale of the research. However, much more numerous were comments relating to areas where psychological health was perceived to have improved as a result of the singing groups. Ninety-one data extracts alone referred to ‘enjoyment’ or a derivative of the term, and a further 18 to ‘fun’. Notably, this sense of enjoyment was maintained throughout the whole duration of the project and was even mentioned by a few individuals in relation to the taster sessions, so may have served as a contributor to the retention rate within the groups.

Of greater importance for understanding the mechanisms through which psychological health was felt to improve were more specific comments than those relating to enjoyment alone. The range of areas referred to is illustrated in Box 2 in general order of frequency. Once again, comments were incremental over the three data collection points, adding credence to the suggestion that a longer exposure to the singing groups led to greater perception of benefit. Once again, too, baseline comments revealed a positive expectation on the part of some individuals:

‘I have recently lost my husband and therefore have been very low and run down. I am sure that this course will help me and I shall benefit as we progress.’ (Female, age 71)

In other respects, comments on psychological health differed from those related to breathing, in the absence of any doubt that the singing groups were responsible for improvements. This may be because there was a pre-existing suggestion (given that COPD was a major focus) that singing may alleviate breathing problems, whereas there was no reference to potential psychological benefits (therefore no reason to comment on lack of effect). However, looking at those who responded at



different times in relation to psychological health illustrates a confirmation of on-going benefit and sometimes a marked tendency for greater detail of particular improvements to emerge:

Female, age 64:

‘I am looking forward to seeing an improvement with both my breathing and wellbeing.’

(Baseline feedback)

‘I always feel better after the singing session.’ (Midpoint feedback)

‘I now have 3 friends as supporters and they also enjoy singing. One friend has dementia and he really ‘comes alive’ during the session.’ (Final feedback).

This final quotation provides a clue to the popularity of the groups in that the focus is not just on the individual and his/her health status but on the fact that the singing took place in a social context. This was remarked upon by a large number of participants.

### **Social wellbeing**

In total, 110 data extracts made reference to the social aspects of the singing groups and these were universally positive in nature. This exceeded the number of comments related to breathing and content broadly pertained to either friendship and company generally, or to the support gained from meeting those similarly experiencing COPD. Distribution across data collection points suggested some expectation at baseline (n=7 comments) moving to establishment and sustaining of social interaction at mid and end-points (n=50 and 53 respectively). This relative stability from time 2 to 3 suggests that the same friendships may have been maintained over the course of the intervention period.

Looking more closely at content, the most frequently used word was ‘friend’ (or associated words). This was followed closely by references to the social side, the company, camaraderie, the group/’bunch’ or meeting other people:

‘the friendship, team spirit etc. is wonderful ...personally I have benefitted (sic) from seeing friends, which makes me feel cheery.’ (Female, age 62)

‘as I am retired, the social ‘get together’ has been wonderful.’ (Male, age 77)

Other comments related the social/group side to the singing itself, indicating the importance of the fact that, through this, they were becoming part of something to be proud of:

‘group has become very friendly and we seem to becoming a ‘choir’ under excellent guidance.’ (Male, age 68)

A total of 33 data extracts specifically mentioned the social/group aspect vis-à-vis the unifying factor of a COPD diagnosis. Again comments were all positive and spread across the timescale, including some expectation at baseline:

‘would be good to meet with other people to see how they cope with people that think you are alright.’ (Female, age 70)

Benefits of meeting others with the same diagnosis included: sharing and discussing experiences and learning, being with people who understand, feeling someone cares, being able to care for each other, mutual support and bonding, receiving reassurance, meeting people in a worse condition, and feeling less isolated:

‘COPD is socially isolating and the singing class has allowed me to share experiences about my condition and pick up tips from others on how to cope. There’s always a welcoming comforting atmosphere at singing, it’s the one place I don’t feel unusual or different from other folk and you don’t get comments or looks from those around you if you experience discomfort as they understand your condition and its limitations.’ (Male, age 70)

### **Comments on the project and singing programme**

Participants were explicitly invited to comment on positive experiences during the project as well as areas which could be improved. Seventy-nine individuals chose to do so, with roughly equal distribution across all three data collection points but with positive comments outweighing others in a ratio of five to one. Comments related to the following areas: facilitation and leading; organisation and administration; the topic of the research; the programme and content of the sessions; the venue and environment; and the ending of the project and future plans.

While a number of comments related to facilitation simply used words such as ‘brilliant’, ‘superb’ or ‘excellent’, others provided an indication of the qualities appreciated by participants in running the singing groups (Box 3). Predictably the competence and knowledge of facilitators were seen as important, however equal, if not greater, value was put on social and emotional intelligence:

‘The ‘facilitators’ (sic) ...were excellent. They made sessions light-hearted as well as instructive. In particular they did well to encourage folk like me, who hadn’t sung since he was 8 years old except at church services, to overcome a natural reluctance to dare to make a noise.’ (Male, age 79)

The majority of comments on administration and organisation appeared within the baseline questionnaires and related to the recruitment procedures (quality of instructions, the questionnaire itself or contacting the Centre). Three quarters of these comments were very positive:

‘not having attended any preliminary sessions, I am impressed by service when I phoned for information at almost the last day before a singing session. Joining instructions were concise and complete.’ (Male, age 79)

A small minority made less favourable comments, finding communication with the Research Centre problematical, the questions in the questionnaire difficult, too many forms to complete or insufficient information provided.

Some individuals commented on the general topic of the research. Not surprisingly, because they had volunteered to take part, these comments were very supportive. Although a number just noted finding the subject interesting or intriguing, others expressed a hope that some benefit would come out of the project, either personally, or more generally in terms of medical research. This sense of altruism, which has already been noted in previous research literature (Robinson et al., 2005) is worth emphasising in recruitment strategies:

‘the more research into lung disease and also publicity will help people of the future generation.’ (Female, age 66)

With regard to the singing programme, there was much approval of the range of songs with both old and new items introduced, and only a few individuals commented negatively in terms of not liking songs which were sung at school or not coping with the pitch (too high for one, too low for another). There was a similar disagreement about the warm-up exercises (very good for one, not worked hard enough for another), with a corresponding split over the emphasis on breathing. Other areas of approval were the structure of the programme, the inclusion of harmonising and the Christmas party! Other suggestions included wanting longer sessions or the whole project run continuously rather than in terms, while a few felt that the singing of Christmas carols began too early.

Positive comments on the environment referred to a welcoming, relaxing or friendly atmosphere and the quality of the venue with ample parking. However four of the venues attracted comments that they felt cold in the winter months and for three venues individuals drew attention to poor audibility. Other comments concerned the distance travelled to the venue and a problem with parking.

Finally, in data collection times 2 and (increasingly) 3, some 40 comments referred to the approaching ending of the research project. Some simply stated that they would be sorry, disappointed or sadly miss the singing, but one individual wrote more negatively about being 'left out in the cold at the very end with no director or future, felt dumped' (Female, age 64). More numerous, however, were those expressing hope that the singing groups could continue, some volunteering to contribute to this end, either financially or in other ways:

'I have come to regard the social get together and singing as an important part of my life, which in other circumstances I wouldn't have got involved in and I intend to help in any way to keep our 'choir' going after the end of the project' (Male, age 77).

The ultimate end for many of those expressing such hope was that the findings of the research would be positive and so be disseminated sufficiently widely to effect a change in the management of people with COPD like themselves:

'I wish the project would carry on as it has been a great help to me. I hope in future all doctors and respiratory nurses will find a way of getting people with lung problems to start another project in singing.' (Female, age 66)

## **Discussion**

This paper presents the analysis of 216 written comments from 97 individuals participating in singing groups for people with COPD. Wording on the questionnaires was purposely broad, asking about experiences of participation in the project, but with two sections steering respondents to making positive and negative points. The main contributions from this phase of the research were:

- To provide a more comprehensive picture of the overall health profile of the sample.
- To generate complementary, as well as confirmatory, evidence to supplement the quantitative element of the study.
- To contribute to the evidence base already existing in this area in terms of previous research.

Participants were included in the project by virtue of their diagnosis of COPD, a long-term, progressive and potentially disabling condition. However, as the literature suggests (Maurer et al., 2008), both physical and psychological co-morbidities were found to be present at baseline in a number of participants who chose to share this information with researchers. While, for some, this entailed concomitant respiratory diagnoses, the list of (largely unrelated) physical conditions was striking. In addition and also linked by some to the COPD, there were examples of expressed anxiety and depression. Overall, a picture of a somewhat diverse sample emerged with regard to pre-existing health; the general profile of good mental health demonstrated in the quantitative data was obviously subject to exceptions as demonstrated in participant perceptions, while evidence of overall poor physical health was supported and well illustrated.

Where there was an overlap in content matter, qualitative data broadly supported that derived from the structured measures. Spirometry showed a mean significant improvement in forced expiratory volume in one second (FEV<sub>1</sub>) and forced vital capacity (FVC) as a percentage of expected values at final follow-up, along with significant improvement in the St George's Respiratory Questionnaire (SGRQ) scores, although minimal change was found on the SGRQ at midpoint. Participant comments, however, suggested that improvements in respiratory symptoms were clearly experienced by the midpoint data collection date and, increasingly, by the endpoint. They also

provided evidence of how this improvement was experienced (see Box 1), therefore yielding a more nuanced picture of the impact of singing on COPD than that derived from quantitative data alone.

No change was detected in the generic mental or physical components of quality of life from the quantitative analysis (SF12) at the end of the study. This contrasted with the benefits, especially in mental health, being experienced by participants and a clear attribution to the singing programme as the cause. It may be that the instruments used were insufficiently sensitive to detect this experienced change in health status or it may be, bearing in mind that some individuals expressed difficulty in completing the questionnaires, that the limited response format of the instruments failed to capture what they wished to convey. There is also the finding that, on the mental health component, scores were close to the population mean at baseline. For the physical health component, in contrast, mean scores were low and the lack of change may indicate that the intervention, while positive in specific ways, was not sufficient to improve general physical health status.

One area not well reflected in the quantitative evidence related to the social benefits which participants experienced as a result of the singing groups. This appeared as an important and sustaining motivation for continuing to attend and a reason for the enjoyment expressed by many, with comments outnumbering those related to breathing. This benefit clearly relates to coping with an otherwise isolating condition.

The evidence from participant comments in our study adds to the research base on singing for breathing. Improvements in breathing, in physical health more generally and in mental wellbeing, experienced by our sample as a result of singing, is supported in the responses to interviews conducted in the two studies by Lord et al. (2010; 2012). In addition, the Lord studies also reported social benefits and support from the group nature of the intervention, adding credence to our findings.

The varying degrees of certainty with which our respondents attributed improvements in physical health and breathing to singing is echoed in a study conducted with choral singers (Clift et al., 2009).

In that study, where recruitment was not based on any physical condition, a ‘tentativeness-certainty’ spectrum of attribution was created and it was noted that those experiencing acute or chronic health conditions (especially affecting breathing) were more likely to be convinced that singing had been beneficial. The authors suggested that this was because individuals who already had relatively healthy profiles would not expect to see further improvement so were unable to say whether singing made a difference.

### **Conclusion**

The research reported here aimed to explore the perceived feasibility, acceptability and effectiveness of singing for breathing as experienced by people with COPD. The majority of participants chose to write comments to supplement quantitative information resulting in a broader picture of individuals’ pre-existing state of health and subjective accounts of any health benefits accruing from the singing to supplement our quantitative measures. Findings suggest that singing is perceived as both acceptable and beneficial to this group, not only for breathing but also in relation to general physical, psychological and social wellbeing. Participants were able to identify various mechanisms whereby benefits were accrued and also commented on aspects of the programme which were more and less favoured. Such information is useful for the future planning of such groups.

### **Limitations**

The study took place in a limited area in the South East of England, therefore is not necessarily representative of the population of people with COPD. Results should therefore be treated with caution when considering generalizability. Participants in the study were volunteers who purposely chose to become involved and often with some expectation of benefit. This may limit the validity of the findings. As with most studies, there is a potential for a social desirability response bias – though this is less likely where, as here, data collection is anonymous, rather than merely confidential (where the respondent known to the researcher as in an interview). Finally, though the



thematic analysis was based on a rigorous process, it necessarily involved a degree of inference, which might have been minimised through additional measures such as member checking.

### **Implications for future research**

Following on from this research we would suggest the inclusion of qualitative/experiential data in studies investigating the effects of singing on wellbeing, since this has the potential to pick up complementary areas of impact (such as those noted in this study). There is also a need to build on existing knowledge through a large or multi-site randomised controlled trial to identify more reliably whether significant changes result from the singing intervention, to support external validity and to enable a cost effectiveness calculation. Lastly, research may benefit from recruitment through a system of referral from healthcare staff, rather than relying solely on volunteers, who may come with certain expectations of outcome from the study and therefore lead to some bias in reporting.

### **Acknowledgements**

This paper presents independent research commissioned by The Dunhill Medical Trust (grant ref. R176/1110). The views expressed here are those of the authors and do not necessarily reflect those of the funder.

## References

- Bailey, B.A. & Davidson, J.W. (2005). Effects of group singing and performance for marginalized and middle-class singers. *Psychology of Music*, 33(3), 269-303.
- Bestall, J.C., Paul, E.A., Garrod, R., Garnham, R., Jones, P. & Wedzicha, J. (1999). Usefulness of the Medical Research Council (MRC) dyspnoea scale as a measure of disability in patients with chronic obstructive pulmonary disease. *Thorax*, 54, 581-586.
- Bonilha, A.G., Onofre, F., Vieira, L. M., Prado M.Y. & Martinez J.A (2008). Effects of singing Classes on pulmonary function and quality of life of COPD patients. *International Journal of COPD*, 4(1), 1-8.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2), 77-101.
- Breakwell, G.M., Hammond, S., Fife-Shaw, C. & Smith, J.A. (2006). *Research methods on Psychology* (3<sup>rd</sup> edition). London: Sage.
- British Thoracic Society standards of care subcommittee on pulmonary rehabilitation (2001). *Pulmonary rehabilitation statement*. *Thorax*, 56(11), 827-834.
- Camici, P.M., Williams, C.M. & Meeten, F. (2011) Does a 'Singing Together Group' improve the Quality of life of people with a dementia and their carers? A pilot evaluation study. *Dementia*, 12(2),157-176.

Clift, S., Hancox, G., Morrison, I., Hess, B., Kreutz, G. & Stewart, D. (2009). What do singers say about the effects of choral singing on physical health? Findings from a survey of choristers in Australia, England and Germany. Proceedings from the 7<sup>th</sup> Triennial Conference of European Society for the Cognitive Sciences of Music (ESCOM 2009). Jyväskylä, Finland.  
Retrieved from:  
<http://urn.fi/URN:NBN:fi:jyu-2009411238> (Last accessed 29.7.2013)

Clift, S., Morrison, I., Coulton, S., Treadwell, P., Page, S., Vella-Burrows, T., Salisbury, I., Shipton, M. & Skingley, A. (2013). A feasibility study on the health benefits of a participative community singing programme for older people with Chronic Obstructive Pulmonary Disease (COPD). Sidney De Haan Research Centre for Arts and Health, Canterbury Christ Church University, UK.

Cresswell, J.W. & Plano Clark, V.L. (2007). Designing and conducting mixed methods research. Thousand Oaks: Sage.

Department of Health (2010). Consultation on a Strategy for Services for Chronic Obstructive Pulmonary Disease (COPD) in England. London: Department of Health.  
Retrieved from:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/135922/dh\\_113279.pdf.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/135922/dh_113279.pdf.pdf) (last accessed 29.4.13).

Euroqol Group (1990). Euroqol – a new facility for the measurement of health-related quality of life. Health Policy, 16, 199-208.

GOLD (2013) Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease. Global Initiative for Chronic Obstructive Lung Disease.

Grape, C., Sandgren, M., Hansson, L-O., Ericson, M. & Theorell, T. (2003) Does singing promote well-being? An empirical study of professional and amateur singers during a singing lesson. *Integrative Physiological and Behavioural Science*, 38(1), 65-74.

Hillman, S. (2002) Participatory singing for older people: a perception of benefit. *Health Education* 102(4), 163-171.

Iglesias, C.P., Birks, Y.F & Torgerson, D.J. (2001) Improving the measurement of quality of life in older people: the York SF-12. *Quarterly Journal of Medicine* 94, 695-698.

Kaufman, G. (2013) Chronic obstructive pulmonary disease: diagnosis and management. *Nursing Standard* 27(21), 53-62.

Lord, V., Cave, P., Hume, V., Flude, E., Evans, A., Kelly, J., Polkey, M. & Hopkinson, N. (2010) Singing teaching as a therapy for chronic respiratory disease – a randomised controlled trial and qualitative evaluation. *BMC Pulmonary Medicine* 10(41) doi:10.1186/1471-2466-10-41

Lord, V., Hume, V., Kelly, J., Cave, P., Silver, J., Waldman, M., White, C., Smith, C., Tanner, R., Sanchez, M., Man, W., Polkey, M. & Hopkinson, N. (2012) Singing classes for chronic obstructive pulmonary disease: a randomised controlled trial. *BMC Pulmonary Medicine* 12(69) doi:10.1186/1471-2466-12-69

Medical Research Council (2005) *Good Research Practice*, London: Medical Research Council.

Maurer, J., Rebbepagada, V., Borson, S., Goldstein R., Kunik, M.E., Yohannes, S. & Hanania, N.A.

(2008) Anxiety and depression in COPD: current understanding, unanswered questions, and research needs. *Chest* 134(4 Suppl), 43S-56S.

McCall, B. (2008) Quivers and Quavers: Bridget McCall describes an exciting voice therapy initiative. *European Parkinson's Nurse Network Journal*, 12, 16-17.

Meldrum, M., Rawbone, R., Curran, A. & Fishwick, D. (2005) The role of occupation in the development of chronic obstructive pulmonary disease (COPD) *Environ Med* 62, 212–214.

National Institute for Health and Clinical Excellence [NICE] (2010) Chronic Obstructive Pulmonary Disease Clinical Guidelines 101. London: NICE. Retrieved from: <http://guidance.nice.org.uk/CG101/NICEGuidance/pdf/English> (last accessed 29.4.13).

NICE (2011). Chronic obstructive pulmonary disease costing report: implementing NICE guidance. London: NICE. Retrieved from: <http://www.nice.org.uk/nicemedia/live/13029/53292/53292.pdf> (last accessed 29.4.13).

QSR International (2010) NVivo 9. Warrington: QSR International.

Robb, S. L., Burns, D. S. & Carpenter J. S. (2011) Reporting guidelines for music-based interventions, *Music and Medicine*, 3, 271-279.

Robinson, E., Kerr, C., Stevens, A., Lilford, R., Braunholtz, D., Edwards, S., Beck, S. & Rowley, M. (2005) Lay public's understanding of equipoise and randomisation in randomised controlled trials. *Health Technology Assessment* 9(8), 1-92.

SGRQ (2008) *St George's Respiratory Questionnaire Manual, Version 2.2*, March 2008, Retrieved

from: <http://www.healthstatus.sgul.ac.uk/> (last accessed 29.4.13).

Stenton, M. (2008) The MRC breathlessness scale, *Occupational Medicine*, 58, 226-227.

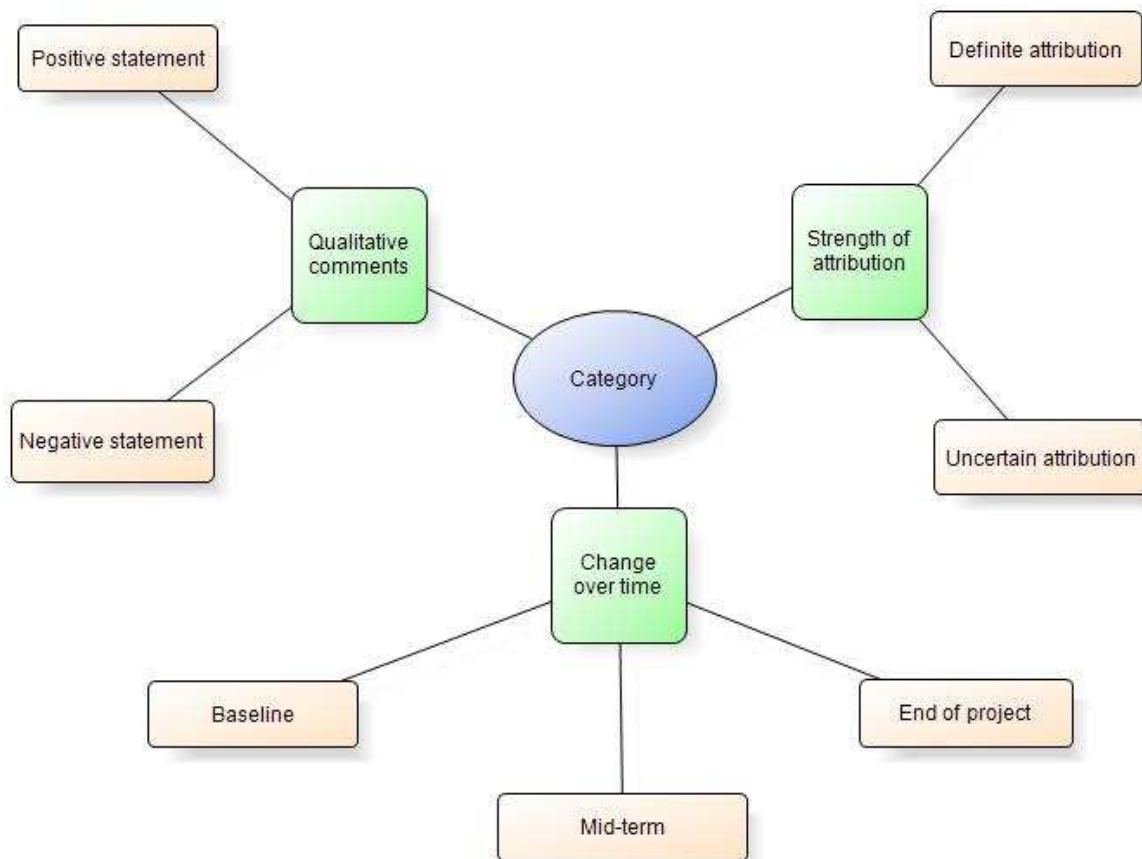
Vestbo, J., Hurd, S. & Rodriguez-Roisin, R. (2012) The 2011 revision of the global strategy for the diagnosis, management and prevention of COPD (GOLD) – why and what? *The Clinical Respiratory Journal* 6(4), 208-214.

Westwood, M., Bourbeau, J., Jones, P., Cerulli, A., Capkun-Niggli, G. & Worthy, G. (2011) Relationship between FEV<sub>1</sub> change and patient-reported outcomes in randomised trials of inhaled bronchodilators for stable COPD: a systematic review. *Respiratory Research* 12(1), 40. doi: [10.1186/1465-9921-12-40](https://doi.org/10.1186/1465-9921-12-40)

World Health Organisation (2012) Prevention and control of noncommunicable diseases: guidelines for primary health care in low resource settings. COPD Factsheet No.315. Retrieved from: [www.who.int/mediacentre/factsheets/fs315/en/index.html](http://www.who.int/mediacentre/factsheets/fs315/en/index.html) (last accessed 29.4.13).

World Medical Association (2001) Declaration of Helsinki. *Bulletin of the World Health Organization* 79(4). Retrieved from: [http://www.who.int/bulletin/archives/79\(4\)373.pdf](http://www.who.int/bulletin/archives/79(4)373.pdf) (last accessed 29.4.13).

Figure 1 Conceptual framework for data analysis



### Box 1 Areas of perceived benefit to breathing

- Promotes learning for breathing properly (including breath control, techniques for daily activities, muscle control, understanding, monitoring and awareness of breathing)
- Improves posture
- Promotes relaxation
- Helps concentration/provides distraction
- Provides a good workout/more energy
- Opens lungs/increases lung capacity
- Makes physiotherapy easier
- Helps prevent panic/hyperventilation



## Box 2 Areas of perceived benefits to psychological health

- Lifts spirits (feel uplifted, contributes to spiritual health)
- Promotes general psychological/mental/emotional wellbeing/feeling better/therapeutic
- Boosts confidence/provides sense of achievement and pride
- Provides a feel-good factor/adrenaline buzz
- Provides a purpose in life/reason to get out of the house/something to look forward to
- Helps relaxation
- Promotes a positive attitude/feeling upbeat/counteracts feeling low
- Helps coping/dealing with illness
- Reduces anxiety and depression
- Encourages self-help

### Box 3 Facilitator qualities valued by participants

- Encouraging, 'can do' attitude
- Enthusiasm
- Motivational/inspirational
- Sense of humour/fun
- Caring, understanding, kind, helpful
- Sociable, good rapport, friendly
- Welcoming
- Dedicated
- Good leadership
- Knowledgeable
- Professional and competent
- Able to maintain interest
- 'No pressure'

