



CREaTE

Canterbury Research and Theses Environment

Canterbury Christ Church University's repository of research outputs

<http://create.canterbury.ac.uk>

Please cite this publication as follows:

Skingley, A., Clift, S. M., Hurley, S., Price, S. and Stephens, L. (2018) Community singing groups for people with chronic obstructive pulmonary disease: participant perspectives. *Perspectives in Public Health*, 138 (1). pp. 66-75. ISSN 1757-9139.

Link to official URL (if available):

<http://doi.org/10.1177/1757913917740930>

This version is made available in accordance with publishers' policies. All material made available by CReaTE is protected by intellectual property law, including copyright law. Any use made of the contents should comply with the relevant law.

Contact: create.library@canterbury.ac.uk



Community singing groups for people with chronic obstructive pulmonary disease (COPD): participant perspectives

Abstract

Aim

Chronic obstructive pulmonary disease (COPD) is a major public health issue which is irreversible and progressive, but previous research suggests that singing may have beneficial effects. The aim of this study was to establish the views of participants with COPD taking part in a singing for better breathing programme.

Methods

This was a descriptive qualitative study nested within a single-cohort feasibility study which included measures of lung function and wellbeing. Participants (n=37) were interviewed following a community singing programme that ran over ten months in South East England.

Results

Findings support those from previous studies regarding the impact of singing on respiratory wellbeing. These included: the teaching on breath control, relaxation and the breathing exercises; singing as a means to deflect attention away from breathing problems, leading to increased activity levels; and the mutual support for respiratory problems. Beyond the impact on breathing, the singing was also seen as fun, and provided friendship and a 'feel-good' factor which led to motivation to participate in further activities. For some it was the highlight of the week, and singing together in a group was felt to be central to the benefits experienced. Findings are compared with the quantitative measures within the same study.

Conclusions

The majority of participants reported improvements in respiratory symptoms as well as mental and social wellbeing following the programme. The study contributes to the evidence base in supporting and highlighting the consistently positive experiences of a large sample of participants, despite variable outcomes in clinical measures.

Introduction

Chronic obstructive pulmonary disease (COPD) is a major public health issue. The prevalence of diagnosis in England in 2014-15 was 1.82%, which equates to over one million people¹. This places a considerable burden on the healthcare system as well as on the individuals living with the disease².

COPD is a common, preventable disease characterized by persistent respiratory symptoms and airflow limitation³. The most common symptoms include breathlessness and cough with sputum. The most common causes are smoking, air pollution and other environmental exposures.

While COPD is progressive and not fully reversible, it can be managed. Recommended treatment includes bronchodilator therapy and pulmonary rehabilitation (PR), which can improve exercise capacity, dyspnoea and psychological wellbeing⁴. In addition, the British Thoracic Society recommends that exercise should be sustained by patients graduating from PR programmes and that adjunct interventions should be introduced in order to maintain benefits gained⁵.

One intervention, which has recently gained attention as a possible addition to medical management of long term conditions, is participative singing. For example, studies have reported clinically significant improvements for mental health service users⁶ and better engagement and wellbeing for people living with dementia and their carers⁷. More broadly, singing in a group has been found to have an impact on emotional, interpersonal and cognitive wellbeing for participants in the absence of specific clinical conditions⁸.

In the area of COPD four small trials^{9,10,11,12} have found mixed, and generally non-significant, results in objective physiological measures (breath hold, walk test, exercise capacity) following singing programmes. These studies were based on small samples, meaning they are likely to be underpowered for detecting real changes, though Bonilha⁹ did note some differences between the

intervention and control groups, with a statistically significant difference in maximal expiratory pressure favouring the singing group. Morrison¹³ also found significant improvements in respiratory measures, in a non-randomised, pretest-posttest study.

In addition to physiological measures, researchers have also explored wider aspects of health and wellbeing for people with COPD. Lord et al.^{10,11} reported positive findings from health status measures, in particular a significant reduction in anxiety, a finding which was replicated in other studies^{14,15}. While this is a positive finding where sample numbers are adequate, Engstrom et al¹⁶ have suggested that generic self-assessment questionnaires are of limited value in detecting the early effects of COPD. Indeed, they have questioned whether the concept of wellbeing is amenable to measurement in traditional clinical studies, since it tends to be related more to factors outside the clinical condition (such as coping). This is in line with the definition put forward by Dodge et al.¹⁷, in which wellbeing is seen as the balance point between an individual's psychological, social and physical resources and the challenges faced. Such an individualised concept is difficult to measure, leading Cooke et al¹⁸ to comment that it may be best to avoid difficult definition issues and allow respondents to use whatever intuitive factors are meaningful to them.

Some studies have adopted this non-definitional approach by including written comments from participants within surveys which may capture broader dimensions than physiological measures and standardised questionnaires alone. Goodridge¹², in a study of singing as an adjunct to pulmonary rehabilitation, reported feedback from the 14 members of a therapeutic singing group which highlighted feelings of pleasure, being uplifted, relaxation, learning to manage breathing and social benefits. A larger study by the authors of this paper¹⁹, drawing on written comments from participants (n=97), taking part in a singing for breathing programme indicated perceived improvements in very similar domains to the findings of Goodridge.

The need to include participant perceptions in such arts-based research may be supported by findings from studies which include interview data. Lord et al.^{10,11} undertook interviews with participants (n=8 and 9 in the respective studies of 2010 and 2012). Although limited in number, interviewees reported improvements in breathing, general wellbeing, posture, social support and achievement. In a further study¹⁴ interview or focus group data yielded four themes which subsumed specific physical, social and psychological benefits to those participating in singing groups.

This apparent mismatch between physiological and experiential findings is also apparent in the McNaughton et al. papers^{15,20} which reported a relatively small cohort study comprising standardised respiratory and quality of life measures, together with interviews (n=12) and a focus group discussion (n=11). Themes emerging from the qualitative data included improvements to breathing and emphasised the importance of the social aspects of the singing group, whereas few of the quantitative measures showed changes. Such evidence suggests a need to integrate participant perspectives within studies, but there is also a need for larger samples than the interview studies cited and a more in-depth and focused approach than written comments might provide.

This paper reports the findings from interviews with participants taking part in a singing for better breathing programme in two South London boroughs. Three groups ran for ten months and a fourth group for six months. The interviews served to complement more objective measures (spirometry, walk test, standardised self-report quality of life questionnaires) which were also recorded. This approach was intended to address the limitations in the research discussed above thus strengthening the evidence base for wellbeing as perceived by those living with COPD.

Methods

This was a descriptive qualitative study²¹ nested within a prospective single cohort design which tracked changes in objective and subjective measures of health and wellbeing over time. The full study is reported on elsewhere.²²

Aim

The aim of the interview component of the research described here was to assess the effects of regular participation in group singing on the perceived physical and psychosocial wellbeing of COPD patients in two South London boroughs.

Recruitment and sample

GPs within the area of interest were sent letters to distribute to all patients on their COPD registers inviting participation. Talks were held with Practice Nurses, the Pulmonary Rehabilitation team and also the local British Lung Foundation Breathe Easy Group for the same purpose. Inclusion criteria included a diagnosis of COPD, ability to travel to one of the four venues and a willingness to participate over the timescale. The only exclusions were severe cognitive impairment, rendering consent problematical, and severe co-morbidities which would contra-indicate participation on advice from participants' GPs.

Since this failed to recruit to target, further advertising took place with leaflets and posters distributed in various community venues inviting people with COPD to join the research singing groups. Three groups proved viable initially, with a fourth commencing later, whose singing programme lasted for six, instead of ten months. This was a much smaller group than the original three, and so yielded less data.

A total of 60 people took part in the evaluation at baseline, which included spirometry and questionnaires. Some members dropped out along the way, due to a range of factors, mainly health

issues or family responsibilities, with 44 people completing questionnaires on follow-up and 42 completing the spirometry and exercise assessments. Of these, only 31 were found to meet the GOLD³ criterion for airways obstruction and a diagnosis of COPD at baseline, which is $FEV_1/FVC < 0.7$ (where FEV_1 is forced expiratory volume in one second and FVC is forced vital capacity). Thirty-seven individuals, drawn from all four groups agreed to take part in recorded interviews. All but 6 of these met the diagnostic criterion, the remainder were noted on the assessment as ‘normal spirometry’ or ‘criteria not met’. Irrespective of diagnosis, it was decided that all 37 who volunteered should be interviewed (table 1).

Table 1. Profile of research participants

Location	Group 1	Group 2	Group 3	Group 4	Total
Total in group included in research	18	14	9	3	44
Number interviewed	16	10	8	3	37
Number with diagnosed COPD	14	8	6	3	31
Male:female interviewed	5:11	1:9	2:6	1:2	9:28
Facilitator*	F1	F1	F2	F2	
Age range:					
50-59	1	1	2	0	4
60-69	7	4	1	1	13
70-79	7	2	3	1	13
80-89	0	3	1	1	5
Unknown**	1		1		2

*F1=facilitator 1; F2=facilitator 2. The two facilitators occasionally worked together and also jointly prepared participants for an end-of-project performance.

**These participants did not wish to take part in the research other than the interview.

Intervention programme

Singing groups were led by two principal skilled and experienced singing facilitators, with support from a project musical director and two additional facilitators who could stand in where needed. All facilitators underwent training and were in regular contact with one another and the musical director throughout the project to ensure a consistent approach and similar repertoire. The musical

director also provided a handbook as a common point of reference for all facilitators involved in running groups (Figure 1).

Each weekly meeting lasted 90 minutes, with 15 minutes at the start for arrival, administrative tasks and settling down and 15 minutes at the end for any further administration and leaving. During the hour of the session, singing was preceded by exercises to encourage relaxation, good posture, effective breathing and warming up the voice. A wide repertoire of familiar and new songs was used. Keeping the programme fresh, enjoyable, stimulating and challenging was essential for the project given that it ran over the course of ten months. Songs were taught by ear and generally sung either without instrumental accompaniment or with a guitar. During the course of the project the groups combined to give a number of performances (Figure 2).

Data collection

A semi-structured interview schedule was constructed by the four members of the research team, based on existing research evidence, experience of feedback from a previously conducted study¹⁹ and informal discussions with people with COPD (Box 1). The questions sought information about participants' breathing issues and their reasons for joining the singing groups. Because much of the literature suggests an impact on wellbeing beyond that on breathing, questions included participant perspectives on physical, psychological and social impact of the singing experience. The term 'wellbeing' itself was left to participants to interpret intuitively, as suggested by Cooke et al¹⁸, using their own words, whether positive or negative. The acceptability of the singing programme and the research was also explored.

Interviews took place between 4th and 25th April 2016 in the venues where the groups were held, at given times around the actual programme. Three of the research team, all experienced in working with people with COPD, conducted the interviews, following the schedule but allowing for, and

encouraging, additional points to be made. While some of the respondents were very fluent and covered topics on the schedule prior to questions being asked, for others, considerable prompting was required. Interviews, which generally lasted 15-30 minutes, were digitally recorded with consent and transcribed remotely.

Box 1: Participant interview schedule

1. Looking back, could you tell me how you got to hear about the singing group and why you were interested to join?
2. Could you tell me about your lung problem – how it started and what effects it has had on your life?
3. What help have you received in managing your condition?
4. In terms of your physical health and your lungs, has being part of this project made any difference?
 - a. Has it made a difference for your breathing?
 - b. Has it made a difference to how active you are?
 - c. Has it affected the support you have needed from your GP, the surgery and other health services?
 - d. Has it affected your use of medication?
5. Has the group made any difference to your mental and social wellbeing and health? In what ways?
6. Have there been any aspects of the group and the singing activities that you haven't enjoyed or could have been improved?
7. We have evaluated this project by asking participants to complete lung function and exercise tasks and also complete questionnaires. Do you have any views on how we have tried to assess the project?
8. Do you have anything else you would like to add about your involvement in this project or any questions for me?

Ethics

The project proposal was subject to proportionate ethical review and approval was granted by the Yorkshire & The Humber - Leeds East NHS Ethics Committee (REC reference 15/YH/0101).

Compliance with the University Faculty Research Ethics Committee guidelines was also confirmed.

All participants were provided with an information sheet and signed a consent form prior to participating.

Data analysis

Interview transcripts were imported into NVivo v.11, a qualitative data analysis programme (©QSR International Ltd.) to aid analysis and the extraction of illustrative quotations. Analysis, which followed a two-stage process, was initiated by one of the researchers then shared and discussed with the others in the team. Firstly, content was explored using template analysis²³, which is used where a sufficient amount of evidence already exists to justify the use of *a priori* codes under which to group responses, while allowing for the creation of new codes or subcodes where new material emerges. Transcripts were therefore examined by question, which constituted the initial coding template, focusing particularly on the areas related to any physical or psychosocial changes experienced by participants following the programme (questions 4 and 5) with contextual information added as appropriate. This involved looking beyond the affirmative or negative responses to any specific examples of changes or explanations offered by participants. Secondly, using realistic evaluation theory²⁴ as a sensitising framework, findings were broadly grouped under the context/input-mechanism-outcome framework, with the addition of a category labelled 'outputs' (shorter term effects than outcomes). This facilitated the summarising of the data.

Findings

Impact of singing on breathing and physical wellbeing

Participants described having lived with serious lung problems over a number of years – over 30 years in one case but generally between five and ten years. Nearly all related how having COPD had limited their activities considerably. Learning about the research from various sources, a number joined in the hope of having some effect on their condition. When asked whether singing had made a difference to their breathing, 27 of the 37 responding replied affirmatively, including all 6 of the participants not diagnosed with COPD. Most were able to describe positive differences such as

opening the lungs and loosening breathing and no responses indicated a negative impact. A further 5 participants thought there might have been a difference with 3 stating probably not and 2 not sure.

Some ten people interviewed mentioned particular aspects of the programme which they considered influential in improving their breathing. The teaching from the facilitators was considered to be crucial and included: how to breathe correctly, breath control, relaxation, warming up and knowing your body, all of which were integrated into the facilitators' teaching:

It tells you how to control, teaches you how to control. We all think we've got to keep gulping in all this air all the time, 'cause we're feeling a bit sort of tight and things and instead of breathing it all in, we should be letting some of it out and that's what it's taught us. Female, 71, group 1.

Also considered to be important was the exercise component of the sessions, which some participants likened to a 'workout', most likely in terms of the emphasis on improving aerobic capacity in physical exercise regimes :

...an hour's continuous exercise here, my lungs feel like they've had a better workout than an hour in the gym. This is erm, yeah, I was quite surprised coming here to find out how much of an exercise it was for my lungs. Male, 67, group 1

In terms of the mechanisms of changes resulting from singing, seven participants talked about a subconscious effect of relaxing, of 'getting over' the breathing and of forgetting about the breathing problems as one concentrates on getting the songs right. This was seen to be one advantage the singing had over the exercises performed in pulmonary rehabilitation classes:

And also, interestingly, you're not worried about, in the gym you're worried about heart rate and all the rest of it, but when you're singing here you just, sort of, you forget that you're here for the lungs 'cause you get involved in singing and you're trying to remember the words and do the singing. So psychologically that's rather good. It's distracting the mind, isn't it? And so you're, I just feel so much better. Male, 66, group 2

Ten of the interviewees talked about how they continued with either the exercises or the singing at home. In most of these cases, this was seen to definitely lead to improvement:

Because I know when I sit down, I can practise that breathing and just calm myself down and it's amazing that. It's just become second nature to me, you know. And I think in singing I've learnt without even realising it how to control my breathing. Female, 55, group 3

However a minority of those interviewed found trying to transfer the breathing and singing exercises into the home setting was not easy, or required motivation and encouragement, suggesting that guidance may be needed:

I do try to do breathing exercises indoors, but it's not, it's not like when the instructor ... he does it with such enthusiasm you know? That I follow as hard as I can but when I'm at home I don't think I do it quite as good. Female, 76, group 1

Some participants also talked about learning that took place within the sessions, and this mirrored the teaching input. This learning covered how to breathe, breath control and being aware of what had been taught.

It's excellent for learning to control not being out of breath, when you are out of breath how to get back to normal breathing again. It's excellent, yeah. Female, 58, group 2

Many participants also provided concrete illustrations of what they could do following the project that they could not before:

Yes, in fact my doctor was so pleased for me, he made me blow into the puffer and I've actually gone down and he was over the moon. He was very, very pleased with what's been happening to me. Female, 65, group 1

Although the medical details here are not clear (as with a number of participants regarding technical knowledge of their diagnosis), it is assumed here that the participant is referring to the degree of severity of the condition. Others, though, gave examples in terms of medication use:

Well, my breathing has improved because I don't now take the blue pump at all, since I've been here.

Interviewer: And how often were you taking it before?

All the time, if I was going uphill or walking up a slope, or walking the stairs. I had to - before I went here, I wouldn't go on a walk even. Female, 65, group 1

There were also many illustrations of changed activity levels such as having more energy, feeling more like doing things, and being more confident walking upstairs:

It has you know. I bought new trainers. Yeah, what I did is, instead of just doing the singing I've started walking. I sort of go to Brockwell Park or near off there, and I walk around it, and

I do my breathing at the same time. And you know, it's sort of really helped to improve my breathing. So I am trying to be proactive. Female, 55, group 3

Of the six respondents replying negatively to this question, on further elaboration there were reasons given for this such as being active anyway (so levels had not changed), having confidence 'knocked back' because of a recent hospital admission and having to work long hours which left little time for consciously becoming more active. One respondent from the more recently formed group 4 commented that this might be because she had not been coming long enough, which suggests a minimum amount of singing time may be important in detecting any impact experienced.

Impact of singing on psychological and social wellbeing

All but two of the 37 respondents, one of whom had normal spirometry, found no difficulty in articulating a positive response to this question. Responses were coded under the following headings: the 'feel-good factor'; motivation to action; having fun; the highlight of the week; camaraderie and friendship; support for COPD, and singing together.

A large number of participants spoke of how the group makes them feel more positive through phrases such as 'feel-good factor', 'picks/cheers me up', 'lifts your mood', 'lifting spirits', 'feel happier':

Lifts your mind a bit, and all the rest of it, I would say, yes, yeah. 'Cause since I've been attending this group, I haven't experienced, what I call, anything negative as such. Male, 55, group 3

For some, this contrasted with previous negative mental health experiences:

And you do feel better, you do. You haven't got that depression that COPD gives you, honestly. Female, 65, group 1

Related to feeling better was the motivation to attend the singing group and also to begin activities in other areas which some participants related:

It makes you feel happier and gives you more, like you feel more like doing stuff you know and that. Like this, makes you feel like carrying on, don't it? Not sitting at home worrying about it. It's best to get out and enjoy it. Female, 72, group 2

[insert picture 2 about here]

There were a number of references to laughter within the responses, often connected to comments about their own inability to sing and the fact that 'getting things wrong' actually added to the enjoyment, since the emphasis was on wellbeing rather than the standard of the singing:

I mean we do laugh a lot which is quite good and you can laugh at yourself 'cause I don't think anybody pretends to be a singer. But the noise we make sometimes can be quite amusing. And the fact you can't, you know, you can't follow a pattern or you can't come in the right time or so forth, so we spend quite a lot of time laughing which is good. Yeah, you laugh on a Tuesday afternoon, I suppose, opposed to not laughing on a Tuesday afternoon. Female, 75, group 2

Some of the participants talked about living alone and not having an opportunity to meet with others, making the singing group one of the few opportunities they had to socialise and something they looked forward to:

Socially certainly, and you know it's turned into quite a highlight of the week. Actually, you know, meeting up with people and 'cause we always start gossiping the moment we meet up again, you know we actually start a bit earlier than we're meant to so we can have a bit of a gossip before we start singing, which is really nice. Female, 63, group 3

Many participants spoke about the friendliness of the groups, with the performance events serving to further cement relationships. Chatting together had become part of the format in at least one group which arranged to either meet earlier or stay later to continue socialising. One group had also taken to meeting up outside of the singing sessions, while for some individuals the group served to counteract the isolating effects of COPD:

The atmosphere has been so welcoming. Everybody helps everybody else, you know? Like a group of friends. Because any time I see them shopping, they go 'Oh hello see you Tuesday!' And when you get to seventy, it's amazing to make even one new friend. But from this group, I would say if it finished, I would take away maybe two or three really good friends from it anyway. Female, 70, group 1

The fact that participants were living with breathing difficulties was of importance for some of the group members. This mutual experience may have accounted at least in part for the strength of the group effect since it reduced any feelings of embarrassment and isolation and increased the feeling of being supported through the condition:

I think that's really important. There's something about coming together as a group and doing an activity as a group and knowing that everybody else has got a lung condition. So, you're not querying 'Oh why are they gasping or coughing?' or whatever. Male, 66, group 2

But though the shared group experience of having COPD was important, it was also clear that the singing itself within a group was important since it seemed to have the power to bring people together and to instil confidence. When questioned about the singing programme there was almost unanimous support for the content, venue, timing and especially the two facilitators. Some even felt that their singing had improved, for example they could hold a note for longer:

Well, I suppose it's really nice to feel part of a singing group because, even though sometimes, you don't have a lot in common with people and you don't come from the same walk of life. Singing really brings you together. Female, 76, group 2

This sentiment was echoed in answer to the final question in the expressions of hope that the groups would continue, with some 17 asking about this or commenting in other ways.

Finally, the difficulties of living with COPD and the positive effect felt in coming to the group are illustrated in the reflections of one participant:

There have been times where I thought 'Oh I really don't want to go.' But it's not because of that class, it's just because, you know, it's just difficult. I don't wanna struggle today. But once I've got myself up and doing it I'm glad I did. And I must admit that every time I leave here, I have this feeling of almost jubilation you know. But it's a lovely feeling. You feel that you've done something, you've achieved something, and you hope that you've helped someone else along. Female, 75, group 3

Stage 2 analysis using the evaluation framework

In describing their experiences, participants talked variously of the elements (inputs) of the singing sessions they considered important; the mechanisms they considered to be explanations for any

improvements; the outputs, in terms of what they themselves do outside the sessions concurrent to the programme; and outcomes, in terms of what had changed or what they could do now that they couldn't do before. These are illustrated in Box 2, together with examples of responses which diverged from the majority.

Box 2 Summary of findings within an evaluative framework (n=37 respondents)

Emerging themes	Divergent responses
<p>Inputs – elements of the singing programme</p> <ul style="list-style-type: none"> • Teaching • Exercises • Fun approach <p>Mechanisms – how singing affects breathing and wellbeing</p> <ul style="list-style-type: none"> • Psychological <ul style="list-style-type: none"> Distraction from breathing problems Relaxation Positive feelings/reduces depression Motivation More energy so improved activity • Physiological <ul style="list-style-type: none"> Opens lungs Loosens breathing • Learning/cognitive <ul style="list-style-type: none"> Breath control • Social <ul style="list-style-type: none"> Meeting people Counteracting loneliness Support for COPD • Singing <ul style="list-style-type: none"> Brings people together Instils confidence Improves musical ability <p>Outputs – what participants do concurrent to the programme</p> <ul style="list-style-type: none"> • Exercise practice and increasing activity • Singing practice • Meeting with other participants outside sessions <p>Outcomes – changes noted at the end of the project</p> <ul style="list-style-type: none"> • Improvements noted by GP • Less use of inhaler • Holding a note for longer/taking fewer breaths • Fewer chest infections 	<p>Unsure if it makes/might make a difference (n=7). Probably makes no difference (n=3).</p> <p>No change to activity levels (n=6) as already active/reduced confidence/in hospital/work precludes.</p> <p>Difficult to practice on own (n=2) as no motivation/some exercises not helpful</p>

Discussion

This study adds to the growing evidence base for the benefits of singing for people with COPD.

Although the singing programme itself is the prime focus, and core 'input', other elements which are similar across studies, such as teaching breathing techniques^{10,11,12,19,20}, must be acknowledged.

While limiting the ability to attribute improvements solely to the singing, this does suggest this to be an important component of the programme in terms of the learning gained. Imparting such knowledge in a fun way may be seen as promoting wellbeing in the sense of providing participants with the resources to cope with the challenges that living with COPD present^{16,17}.

Beyond improved breathing technique, participants described other mechanisms at play, which together may also be seen as promoting wellbeing. Although the concept of wellbeing is interpreted in different ways, the psychological, physiological, cognitive and social explanations expressed in these interviews are in line with Carlisle's²⁵ view that wellbeing is a subjective concept related to individual values. The dimensions, as described by participants, appear to be interrelated; for example breathing problems (a physical dimension) are seen to be lessened through distraction (psychological) and through support offered by the singing group (social). Interestingly, these participant explanations are not without supporting theory; it is known that group singing triggers endorphin release²⁶, which is a physiological mechanism, giving rise to a psychological lift and to social bonding. Further, singing together (other than in a performance context) is also associated with a decrease in cortisol production, which lowers stress levels²⁷. The theory of interrelated mechanisms has also been put forward in previous work. Lord^{10,11}, for example, has suggested that perceived improvements in breathing may be largely psychologically mediated, which participants here seemed aware of.

The 'outputs' described by participants included the application of learned breathing exercises to their daily lives. In some cases this was combined with other activities, such as walking. In contrast,

the walk test, one of the functional measures used in the quantitative evaluation, showed no overall improvement at the end of the project. Other researchers^{9,10,11,12,15} have also found divergent findings when comparing concurrent quantitative and qualitative forms of evidence. However, these findings are often complementary rather than contradictory, and measure different components – in this case, the objective distance walked over time (walk test), versus the subjective experience of walking as an activity. Both types of data are important in evaluating complex interventions such as group singing²⁸.

This complementarity of measures may also be illustrated in the ‘outcome’ measures. Whereas there were no statistically significant changes on the lung function measures at follow-up, both the self-report measures of health status and the interview data imply fewer symptoms than at baseline. This finding applied to the total sample, as well as those who specifically met the GOLD criterion (that is, were diagnosed with COPD). This, again, raises the question posed by Engstrom¹⁶ of the appropriateness of different outcome measures for such studies, given different contexts and research conditions, which may affect data. One obvious difference between the studies reviewed in this area is the different geographical settings (UK, Brazil, New Zealand, Canada), but even within the UK the difference between settings (hospital vs. community) is of note. In the current study the baseline and follow-up testing took place at different times of the year, with the latter taking place on two of the hottest days of the year. It is known that weather conditions can affect activity levels in people with COPD²⁹. This may have had more of an effect on the functional measures, taken as they were over a short period of time, than on participant testimonies which looked back over the whole programme. This suggests a need to incorporate such evidence into future studies, including any randomised controlled trials.

Study limitations

The study aimed to adhere to sound research principles, however a number of limitations are apparent. Findings relate to a specific sociodemographic profile in the South London area, which could limit generalisability. As noted above, similar findings, in terms of participant experiences, have emerged from previous studies carried out in different areas in the UK and elsewhere in the world, which serves to offset this. In addition, participants largely referred themselves into the study, suggesting the possibility of attracting individuals predisposed to believing that singing could benefit their condition, thus biasing the sample. Finally, not all participants were interviewed, with the possibility that those most inclined to be positive volunteered to speak with researchers. However, only a minority (7 out of 44) were not included, suggesting that the findings are largely representative of the group.

Conclusions

The study contributes to the evidence base in supporting and highlighting the consistently positive experiences of participants despite variable outcomes in clinical measures. These experiences contribute to knowledge about wellbeing, and what people value, while living with COPD and are therefore relevant to public health.²⁵ While most of the benefits described have been noted in previous literature, the total number of interviews (37) is many more than in other interview studies. This may strengthen the credibility and transferability of the research.

Recommendations

Despite the growing literature on the potential value of singing for people with respiratory illnesses, there are still gaps in the evidence base and there remains a need for a large community-based, pragmatic, randomised controlled trial. This should include the views of participants themselves.

References

1. Royal College of Physicians & Royal College of General Practitioners *COPD in England – finding the measure of success (national COPD audit programme)*. London: RCP, 2016.
2. Department of Health. Consultation on a strategy for services for chronic obstructive pulmonary disease (COPD) in England. London: Department of Health, 2010. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213840/dh_113279.pdf
3. Global Initiative for Chronic Obstructive Lung Disease (GOLD). *Pocket guide to COPD diagnosis, management and prevention*. GOLD, 2017.
4. NICE. *Chronic obstructive pulmonary disease in adults: quality statement (updated February 2016)*. London: National Institute for Health and Care Excellence, 2016.
5. British Thoracic Society. Guidelines on pulmonary rehabilitation in adults. *Thorax* 68, 1. London: BTS, 2013.
6. Clift S and Morrison I. Group singing fosters mental health and wellbeing: findings from the East Kent 'singing for health' network project. *Mental Health and Social Inclusion* 2011; 15, 2: 88-97.
7. Camic P M, Williams C M and Meeten F. Does a 'singing together group' improve the quality of life of people with a dementia and their carers? A pilot evaluation. *Dementia* 2011; 12,2: 157-176.

8. Bailey B A and Davidson J.W Effects of group singing and performance for marginalized and middle class singers. *Psychology of Music* 2005; 33,3: 269-303.

9. Bonilha AG, Onofre F, Vieira L M. et al. Effects of singing classes on pulmonary function and quality of life of COPD patients. *International Journal of COPD* 2008; 4,1: 1-8.

10. Lord VM, Cave P, Hume V. et al. Singing teaching as a therapy for chronic respiratory disease – randomised controlled trial and qualitative evaluation, *BMC Pulmonary Medicine* 2010; 10: 41.

Available at: <http://www.biomedcentral.com/1471-2466/10/41>

11. Lord VM, Hume VJ, Kelly JL. et al. Singing classes for chronic obstructive pulmonary disease: a randomized controlled trial, *BMC Pulmonary Medicine* 2012; 12: 69. Available at:

<http://www.biomedcentral.com/1471-2466/12/69>

12. Goodridge D, Nicol J, Horvey K and Butcher S. Therapeutic singing as an adjunct for pulmonary rehabilitation participants with COPD: outcomes of a feasibility study. *Music and Medicine* 2013; 5, 3: 169-176.

13. Morrison I, Clift S, Page S. et al. A UK feasibility study on the value of singing for people with chronic obstructive pulmonary disease (COPD). *UNESCO Observatory Multi-Disciplinary Journal in the Arts* 2013: 3, 3:1-19.

14. British Lung Foundation (BLF). *BLF singing project report*. London: BLF, 2017.

15. McNaughton A, Weatherall M, Williams M. et al. Sing Your Lungs Out: a community singing group for chronic obstructive pulmonary disease: a 1-year pilot study. *BMJ Open* 2017; 7: 1-8. Doi:10.1136/bmjopen-2016-014151.
16. Engstrom CP, Persson L-O, Larsson S. et al. Functional status and well being in chronic obstructive pulmonary disease with regard to clinical parameters and smoking: a descriptive and comparative study. *Thorax* 1996; 51: 825-830.
17. Dodge R, Daly A P, Huyton J and Saunders L D. The challenges of defining wellbeing. *International Journal of Wellbeing* 2012; 2, 3:222-235.
18. Cooke P J, Melchert T P and Connor K. Measuring wellbeing: a review of instruments. *The Counselling Psychologist* 2016; 44, 5:730-757.
19. Skingley A, Page S, Clift S. et al. 'Singing for Breathing': participants' perceptions of a group singing programme for people with COPD. *Arts & Health* 2014; 6, 1:59-74.
20. McNaughton A, Aldington S, Williams G. et al. Sing Your Lungs Out: a qualitative study of a community singing group for people with chronic obstructive pulmonary disease (COPD). *BMJ Open* 2016; 6: 1-7. Doi:10.1136/bmjopen-2016-012521.
21. Sandelowski M. Whatever happened to qualitative description? *Research in Nursing & Health* 2000; 23: 334-340.
- 22 . Clift S, Skingley A, Page S. et al. Singing for Better Breathing: findings from the Lambeth and Southwark singing and COPD project. Canterbury: Canterbury Christ Church University, 2017.

Available from: <http://www.canterbury.ac.uk/health-and-wellbeing/sidney-de-haan-research-centre/sidney-de-haan-research-centre.aspx>

23. Waring T and Wainwright D. Issues and challenges in the use of template analysis: two comparative case studies from the field. *The Electronic Journal of Business Research Methods* 2008; 6, 1:85-94.

24. Pawson R and Tilley N. *Realistic Evaluation*. 1997. London: Sage Publications Ltd.

25. Carlisle S and Hanlon P. 'Well-being' as a focus for public health? A critique and defence. *Critical Public Health* 2007; 18, 3:263-270.

26. Dunbar R I M, Kakatis K and MacDonald I. Performance of music elevates pain threshold and positive affect: implications for evolutionary function of music. *Evolutionary Psychology* 2012; 10, 4:688-702.

27. Fancourt D, Aufegger L and Williamon A. Low-stress and high-stress singing have contrasting effects on glucocorticoid response. *Frontiers in Psychology* 2015; 6, 1242:1-5.

28. Craig P, Dieppe P, Macintyre S et al. Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ* 2008;337:a1665. Doi:10.1136/bmj.o1665.

29. Alahmari A D, Mackay A J, Patel A R C et al. Influence of weather and atmospheric pollution on physical activity in patients with COPD. *BMC Respiratory Research* 2015; 16; 71. Doi: 10.1186/s12931-015-0229-z.

Figure 1: One of the groups in action



Figure 2: The combined groups giving a performance

