



## 1. Introduction

An estimated 1.2 million people in the UK are living with Chronic Obstructive Pulmonary Disease (COPD) (National Institute for Health and Care Excellence (NICE), 2018). The condition, which affects the respiratory system, is a progressive condition which is irreversible. NICE guidance for COPD (2018), details a number of treatment interventions including inhalers, medications and psycho-social interventions. Following diagnosis, most service users with COPD are medically managed by healthcare professionals within the community and individuals are encouraged to self-manage their condition through smoking cessation, education programmes and attendance at Pulmonary Rehabilitation (PR).

In order to provide additional and ongoing support to this population, a number of strategies have been developed and researched to help service users manage the symptoms of COPD, for example yoga (Donesky-Cuenco, Nguyen, Paul et al., 2009) and singing (McNamara, Epsley, Coren, et al., 2018). Singing requires a degree of breath control, using diaphragmatic breathing to increase lung volume (Sundberg, 1993) and using posture to facilitate efficient breathing (Staes, Jansen, Vilette, et al., 2011). The techniques associated with learning to sing, such as diaphragmatic breathing, have been shown to be effective in relieving breathlessness in people with COPD (Lewis, Cave, Stern, et al, 2016). Gosselink (2004) suggested that breathing techniques are helpful for people with respiratory conditions, due to increasing strength and endurance of the respiratory muscles, improved diaphragm function, reducing dynamic hyperinflation of the rib cage and improving gas exchange. It has also been suggested that singing (both in terms of individual singing or singing in a group) has potential benefits alongside learning physical techniques for people with COPD (Lewis Cave, Stern et al, 2016).

There appears to be no mandated number of weeks over which singing groups for people with COPD are run in order for significant change to occur, though the minimum found in the literature was the six weeks of twice weekly practice in the study by Lord, Cave, Hume, Flude, Evans, Kelly, Polkey, and Hopkinson (2010). Components of an intervention may include breathing exercises, exercises to engage vocal mechanisms and to warm up the voice, teaching and singing a range of different songs and then a cool down, including a guided meditation (Lewis et al., 2016). Through being taught the breathing exercises, participants learn how to manage their breathlessness when it begins to impact their daily lives (Lewis et al., 2016).

There have been mixed findings regarding any physiological changes in randomized controlled trials of research into singing for COPD, with few statistically significant findings and much evidence shown to be of low quality and/or small sample sizes (McNamara et al., 2017). For example, the preceding paper to this (Clift et al, 2022) found no significant differences between singing and control groups, except for one item related to activity and a major limitation which possibly contributed to this was the failure to recruit to target. In addition, the studies included in this review did not include any long-term follow up. Quantitative studies of singing as an intervention without a control have involved larger sample sizes but have also shown mixed results (Lord, Hume, Kelly et al., 2012; Lewis et al., 2016), with significant findings limited to individual scale items within questionnaires of individual studies.

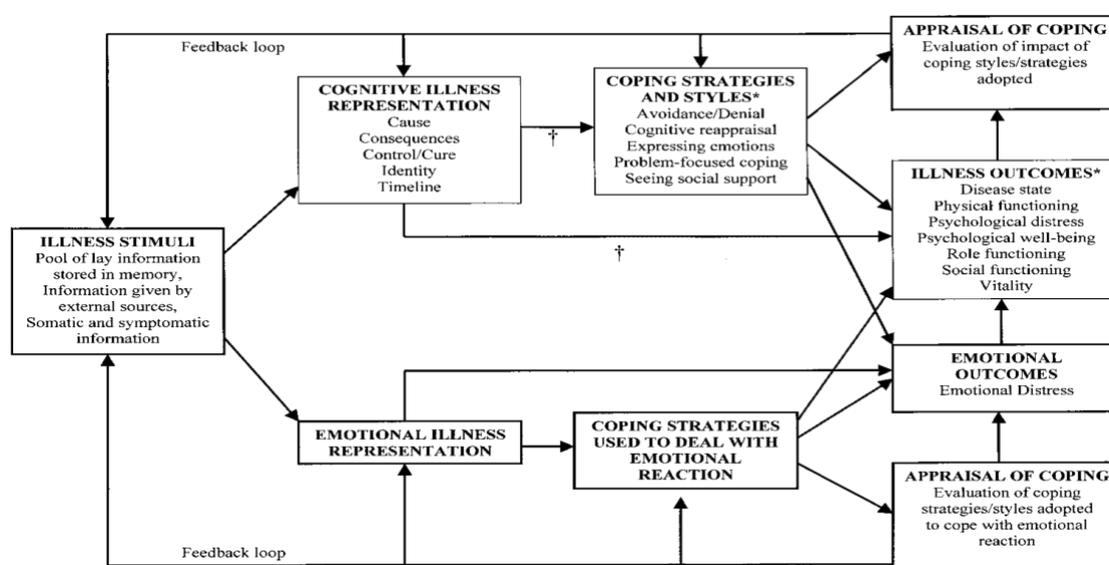
Data gathered from qualitative studies of singing groups for service users with COPD have usually involved either written comments from the participants or semi-structured interviews. In contrast to the quantitative research discussed above, all studies found participants reported benefits to attending the groups and there are common themes across the studies, including social benefits, improved posture, and wellbeing (e.g., Lord et al., 2012; Skingley, Page, Clift et al., 2014). However, even here, few studies conducted longitudinal data, so it is unknown if any benefits are lasting.

Yoeli & Macnaughton (2021) conducted a meta-ethnography of the literature of singing groups for individuals with COPD, which may help to explain these divergent findings from different methodologies. They suggested three phenomena of being together, being uplifted, and being involved, and that it is these aspects of the group experiences that lead to improvements in wellbeing. The study

reported that the groups originated in the Arts in Health and social prescribing movements which focus on strengthening wellbeing through collective identity and cohesion. This possible explanation of the mechanisms of singing groups for individuals with COPD contrasts with research focusing on respiratory function.

The mismatch between the qualitative and quantitative findings, with mixed evidence from quantitative findings, but consistently positive findings from qualitative research, could also be explained by Leventhal, Meyer and Nerenz's (1980) Common Sense Model of illness representations (Figure 1). The Common Sense Model states that the participants' perceptions of their condition influences how they experience the physiological symptoms of COPD alongside their emotional representations of the illness. Improvements in how they manage their condition may lead to participants perceiving physiological changes although there are no actual objective physiological changes to symptoms such as breathlessness.

**Figure 1.** Representation of Leventhal et al.'s (1980) Common Sense Model, as depicted by Hagger and Orbell (2003).



Fischer, Scharloo, Abbink, et al. (2010) researched the Common Sense Model within a population of participants with a diagnosis of COPD taking part in PR. Participants completed the Illness Perception Questionnaire (Moss-Morris, Weinman, Petrie, Horne et al (2002) before and after completing PR and rated the degree to which PR had led to their desired outcomes. They found that participants who were more convinced they had achieved their desired outcome because of PR were less concerned about the negative consequences of COPD and had a stronger perception of personal control over their condition (Fischer et al., 2010). They suggested that a participant's illness representations changed due to their appraisal of the intervention rather than any objective changes following the intervention. Positive illness representations have been shown to be associated with an increase in adaptive coping patterns, therefore a participant's perceptions of the intervention may be a key factor in the outcome of the intervention.

## 1. Aim and research questions

In view of the consistent differences between quantitative and qualitative findings in the research into singing interventions for patients with COPD, this study aims to provide some understanding of how patients perceive the changes they experience through attending a singing group and also to provide a longer-term follow-up than previous studies.

The research sought to address two related questions:

- How does a participant's experience of their COPD change throughout the time they are attending a singing group?
- How do participants make sense of the impact of attending the singing group on their experience of COPD?

## **2. Method**

The current study, based on a phenomenological approach, was nested within a larger pilot randomized controlled trial (RCT) (Clift et al, 2022) which used measures of respiratory function, exercise capacity and standardized self-report measures of mental wellbeing.

The intervention began in September 2019 and ran for 10 weeks, in the community, led by a skilled group facilitator trained in facilitating breathing and singing techniques for people with respiratory conditions. Assessments took place at the end of the intervention for the singing and control groups who completed a number of outcome measures. For further information regarding the intervention and participants, see Clift et al (2022).

The current study is a qualitative design and used in-depth telephone and online semi-structured interviews. Telephone and virtual interviews allow for more flexibility for the participants in comparison to face-to-face interviews (Hanna, 2012) and during the COVID-19 pandemic it allows research to continue, whilst reducing the risk to both participants and the researcher. An interview schedule was drafted and organized into groups of questions regarding the impact of the singing group and how participants explain the mechanisms that led to this impact. The interview schedule was designed in consultation with the RCT research team and a service user consultation group. These questions were designed to be open-ended and development of the interview schedule was an iterative process based on the interviews themselves. From March 2019 the UK lockdown in response to the Covid-19 pandemic meant that vulnerable individuals, including those with long-term conditions, were asked to stay at home and shield. In view of this major change for the research participants, it was decided to include participant experiences during lockdown, in the interview schedule.

The data gathered from the interviews was then analyzed using Interpretive Phenomenological Analysis (IPA). This was developed to explore how individuals make sense of their experiences and draws on the principles of phenomenology, hermeneutics and the idiographic perspective (Pietkiewicz & Smith, 2014). This research methodology has been used extensively in health psychology, particularly in the area of illness experience (Smith, 2010), and was chosen for this research as its goal was to understand how people make sense of their experiences of living with COPD and of the singing intervention. This is in contrast with a method such as thematic analysis which has fewer opportunities for interpretation of the data.

### **2.2. Ethics**

Ethical approval was sought from an NHS Research Ethics Committee via the Integrated Research Application System (REC reference: 20/NS/0047).

### **2.3. Sample and recruitment procedure**

During the follow-up phase of the RCT, a member of the research team asked participants if they were willing to be contacted regarding further research and to sign a consent form to be contacted. Following consent, their contact details were passed on to the researcher for this study via a secure cloud system. Inclusion criteria were based on participants having a diagnosis of COPD and attending at least one session of the singing intervention group. Exclusion criteria included participants not being able to speak English or having a severe cognitive impairment that meant they could not consent to participating in the study.

Participants who had consented were contacted via telephone and given information regarding the study, provided with an information sheet via email and given an opportunity to ask questions and asked whether they consented to participate. Once they agreed, an interview date and time was arranged. Participants were given the option of a telephone or video call for their interview. At the time of the interview, the researcher read through the participant consent form and answered any questions.

Seven participants agreed to be contacted for further research. The researcher was unable to contact one of the participants to discuss the study and unable to contact a further participant at the time of the interview. Five participants were then interviewed for this study, four female and one male. All the participants had been diagnosed with COPD prior to attending the group, though the amount of time they had lived with the diagnosis of COPD varied from a year to over 18 years. Four of the five participants had attended the majority of the singing group sessions. One participant reported having attended another singing group following the singing intervention and another reported continuing to use YouTube videos of breathing exercises following the singing intervention. One participant had only attended the first session before they had an accident and were unable to attend the remainder of the sessions. They then attended the follow-up session where outcome measures were collected. This study used pseudonyms to maintain the participants' confidentiality and, in order to further preserve anonymity, client demographics have not been provided.

### **3. Data collection and analysis**

#### **3.2. Interview Process**

Interviews were conducted via online platform Zoom or via the telephone and lasted between 30 and 65 minutes. The interview audio was recorded using Audacity® (digital recording software) and the audio was stored on an encrypted memory stick. Interviews were transcribed and anonymized by the principal researcher. Transcripts were stored on an encrypted memory stick.

#### **3.3. Data Analysis**

Data collected from the interviews were analyzed using IPA. The researcher read and re-read the transcripts and, in order to increase familiarity with the data, chose to transcribe the interviews by hand rather than using a computer programme or paying another individual to transcribe the data. Following this stage, the interviews were uploaded into NVIVO 12 (QSR International) software to aid line-by-line coding of the data. The researcher then developed an initial list of preliminary themes.

The next stage was grouping these themes into clusters by identifying connections between them (Pietkiewicz & Smith, 2014). The researcher initially developed clusters within each participant's accounts and then compared these clusters between individuals to allow for a cluster of themes to be developed between individuals. The clustered themes were then brought together into major themes. The researcher then went back to each of the major themes to check each text extract in the context of the interview data, to ensure the reported themes were still grounded in the data.

### **4. Results and Discussion**

Through the data analysis process, this study identified five themes (Table 2). These are discussed individually, in further detail below.

**Table 1.** Research Questions and Themes identified.

How does a participant's experience of their condition change, through the time they are attending the group?	Blame and the restrictive impact of COPD
	Changes in self-efficacy and a sense of control over COPD
How do they understand mechanisms of change?	Positive social connections within the group
	Positive emotional and cognitive changes during and after the group
	The value of breathing techniques

### How does a participant's experience of their condition change through the time they are attending the group?

#### Blame and the restrictive impact of COPD

A common experience between the participants is the impact of COPD on their lives. Four of the five participants reported that the breathlessness associated with COPD had led to them having to stop a number of activities.

I can't do as much as I used to... like the hoovering I could start to Hoover and then have to stop... it just goes... energy wise as well... we've got a Vax hoover and its quite heavy... so I can't use it as well as I used to... I tend to sort of err put off going up stairs too often... it [COPD] has changed my life... because I'm always thinking if, oh before the lockdown... if we were going out, is there any hills that I've got to walk up... and stuff like that because that, that's a killer to do that. (Justine)

Justine reported a slow change over time, as her life was increasingly impacted by COPD. Whilst she is able to do some things, she has been adjusting her life to account for breathlessness and which activities might trigger this. It has been found in patients with mild COPD that experiencing breathlessness often led to them avoiding activities or taking much longer with activities than they would like, and this can have an overall effect of reducing exercise tolerance (O'Donnell & Gebke, 2014).

The all-encompassing nature of a long-term condition is demonstrated by a quote from Peter:

It's been sort of quite, been at least eight or nine years now... and it seems like forever when I think back... I don't remember a time when I wasn't puffing and panting and... being aware of watching what I was going to do or whatever like its just err its become to second nature in me now to. (Peter)

Peter says it feels like *'forever'* that he has been experiencing symptoms and he does not remember a time when he was not *'puffing and panting'*. He described how it has been a long time since he has been experiencing the difficulties and that this adjustment has become second nature to him. Miravittles and Ribera (2017) reviewed the literature regarding the disease burden of COPD and reported that the symptoms vary across the day and the impact of COPD on physical activities and daily tasks. This all drives the high burden of the disease on the individual and this is likely to increase over time.

Alongside the breathlessness, patients with COPD can often become concerned by the cough and mucus produced (Cook, Gey, Oezel, et al., 2019) and Penny discussed the fear these symptoms could elicit.

I could I felt like I was drowning... it was just like sticky water... and all I kept doing was like bringing up this sticky water. There was no infection or anything like that... But the drowning bit I didn't like that... not being able to take a deep breath or anything. (Penny)

Cook et al. (2019) guided an online discussion regarding patients' experiences with COPD symptoms and also found participants reported 'drowning in mucus' and experiencing panic when waking up, when the mucus has built up. Whilst not all patients with COPD are impacted by the same symptoms to the same degree, all the symptoms of COPD can have a significant impact on someone's life. Cook et al. (2019) reported the symptoms of COPD could have an impact on social engagements, mood and anxiety, sleep and for some the ability to complete simple daily tasks.

Research has also reported feelings of shame or guilt associated with COPD suggesting this is related to the most common cause of COPD which is a history of smoking (Cook et al. 2019; Strang, Farrell, Larsson, et al., 2014). Within this study, participants suggested that the relationship between cause and effect was more complex:

The problem in my head was the smoking, you've smoked you pay and you're paying for it now sort of thing... but I mean, it's not it's not quite that clear cut either... I think there are people with conditions err that have, now we met a few, there were actually one or two people who didn't, who had never smoked. (Peter)

I have err back flow on the left, left side of the heart, whatever that thing is... because it, even as a kid at school I couldn't run very fast like for sports... because I used to get out of breath... So you see I err don't think it's all down to COPD although obviously you know they, they don't take everything else into consideration... you know we lived near the coal mines when I was a kid... and every year was... ill with chest problems. (Katherine)

Every participant mentioned some type of stigma or sense of blame that they experienced from healthcare professionals or from society generally with regards to their condition. Halting, Heggdal and Wahl, (2011) also found the participants felt blamed for their condition and felt, particularly once smoking had been identified, that this was the only explanation used to understand their condition and this came along with a sense of the condition being self-inflicted. Similar to the participants in this study, many of the participants wanted an opportunity to discuss other possible explanations for their condition but this was not available to them in standard healthcare.

### **Changes in self-efficacy and a sense of control over COPD**

As discussed above, the Common-Sense Model (CSM) (Levanthal et al., 1980) suggests that a patient's illness representation can impact the coping strategies patients use to manage their condition. The coping strategies then have an impact on the illness and emotional outcomes. Following intervention, for patients who begin to feel less negatively towards their condition, their ability to self-manage their condition can increase.

Before attending the singing group, the participants often had quite negative attitudes towards their condition, either due to the impact of the symptoms discussed above or following the information given to them by healthcare professionals, as shown by one quote from Katherine, below.

I think sometimes doctors and that can make it sounds an awful lot worse... like they told me it was severe... you know and the next step is err oxygen... so to be honest, I I honestly don't think I am at that stage... umm but they can, they can psychologically make you worse. (Katherine)

This suggests that the information given by medical professionals in the diagnosing process can leave patients feeling negatively about the prognosis of the condition, which may contrast with how they feel their condition is affecting them day to day.

Following attending the singing intervention, many of the participants reported a change in their attitudes towards their COPD, how it might affect them and their sense of control over the condition.

Even the breathing, just calming you down... with the breathing and the exercises although they seem umm silly, small, with the pff you know and the controlling the air coming out but I've done that, I've used those, what she's taught me I've used... I think it's a good thing if this for you to see whether you should be carrying on with it... keep it going cause its just so good and it is a way of finding out that this isn't going to kill you right away. Cause that's exactly how I felt at the beginning. (Penny)

Following attending the singing group, Penny felt a change in her original belief that COPD would “*kill [her] right away*”. As suggested by the CSM (Levanthal et al., 1980), a change in attitude towards COPD can lead to an increase in self-management skills and to participants better managing their condition and experiencing an improvement in health-related Quality of Life (QoL) factors. Penny reported she was using the techniques she had been taught and was finding them helpful with managing her breathing. Hagger, Koch, Chatzisarantis, et al. (2017) used a meta-analysis of studies using the Common Sense Model to understand the inter-correlations between the illness representations and outcomes associated with COPD, and how these were mediated by coping strategies. Hagger et al. (2017) found emotional representations and perceived control were related to illness-related and functional outcomes, via the use of coping strategies. Penny found during the singing intervention she could see her ability was greater than she believed, based on the prognosis given by the doctor who diagnosed her. A change in her attitude towards the consequences and control over COPD appeared to help her feel less distressed. This led to a cognitive reappraisal around her COPD, and changes in her attitudes led to a change in self-management and coping strategies leading in turn to improvements in the experience of the condition. As shown above, the CSM (Levanthal et al., 1980) model is cyclical and so changes in attitudes lead to changes in self-management strategies which in turn lead to changes in the illness experience e.g. ability to manage breathlessness, which then leads to changes in attitudes and so on. The work of Jolly, Majothi, Sitch, et al. (2016) supports this proposition in their systematic review of the literature, which found that attending a self-management intervention led to an increase in health related QoL factors as measured by the St George's Respiratory Questionnaire.

Research into singing interventions does not currently focus on long term follow up and so this study provides some evidence of an ongoing benefit from singing interventions. When the UK went into lockdown due to the COVID-19 pandemic all self-help groups were closed down. Some of the participants had attended groups following the intervention and others had not, but the lockdown meant none of the participants had been able to attend a group for at least four months. Therefore, this study is following up participants who have not been able to get any support from a group for at least four months. A few of the participants reported some ongoing changes to their attitudes towards COPD. For some, the attitudinal changes had been maintained following the intervention, as discussed by the participant below:

I mean I feel the same about the whole thing today as I did whatever six months ago whenever it finished... I am as positive about it now as I was then, err yeah, the the ease to my mind if

you like... has persisted yeah, that's true yeah... I didn't I hadn't realised that now until you said (laughs) it, yeah that's very true. (Peter)

Most of the participants reported some kind of change following attending the singing intervention. However, one participant who attended one session did not experience any changes.

I can't really say it had any impact because as I say I only ever attended the one session. (Lois)

Lois attributed the singing group not having an impact to only attending one session. However, Lois was also less positive towards singing before the group and so it maybe she did not value the group as strongly. Following the accident, she did not look for another singing group to attend, though there are some available in the area. Furthermore, Lois reported positive experience during this first session, reporting it to be welcoming and friendly, but the first session itself was not sufficient to make changes to her attitudes towards COPD or to her emotional or physical wellbeing.

The participants all reported negative effects from the condition before attending the group, including distress associated with their attitudes towards the condition. Penny, Justine, Katherine and Peter reported positive changes to their attitudes, regarding their ability to manage the condition and how much it will affect them, following the group and maintaining over time. This could be seen as the outcome of the group and this study is interested in what factors come together to create these attitude changes. This study also explored how participants understood how the group helped influence these changes and asked participants how they understood the mechanisms of change.

### **How do participants understand mechanisms of change?**

#### Positive social connections within the group

Generally, the participants did not think people in the general population understand COPD or how it might impact someone.

Despite the fact there's so many people with breathing problems and there's not much really understood about it really... if I could, there was more known about the thing... it would be better for everyone... because people understand then you come across someone who is not breathing right so people understand what their problem was... (Peter)

Peter appeared to indicate that becoming breathless in public is difficult because people in the general public do not understand the condition or why they might need to suddenly sit down or stop walking. Therefore, by meeting others with the condition, there is a shared level of understanding, and it can be comforting for people with COPD. The participants spoke about how the peers they met in the group helped them feel comfortable and supported. The shared understanding of COPD, between the participants, made the group a safe space.

I felt the comfort there. I felt, I felt good because there was, you need that support, you need the support of people with the same thing... and I think the singing is a good way because you're not going there to be miserable. (Penny)

Penny, Peter, Justine and Katherine reported finding the peer support helpful, particularly being able to share their experiences of having COPD. A literature review of peer support in patients with COPD found that informal peer support interactions between patients with COPD was important for feeling understood and improving outcomes, such as measures on quality of life (Michalovic, Deziel & Sweet, 2019). Furthermore, Halding, Wahl and Heggdal (2010) conducted interviews with 18 patients who had attended PR and an overarching theme of belonging was drawn from the data. The informal setting of the group was reported to make it feel like a pleasant atmosphere and facilitated communication. The patients

were able to also feel a sense of belonging through a shared understanding, sharing advice and offering and receiving support.

The social connections made in this group were all perceived favourably by the participants in this study and Peter described identifying with his peers and finding this helpful as it led to taking some responsibility for his health:

Firstly, like a social sort of element to it where you're meeting people with the same condition and that's always a bit of identification... and a bit of oh no I was this and I was that and I had this and I had that so that's always I find that enjoyable. Not too much for it, but a certain amount of that is good. I mean it sort of focuses your mind on the fact that you have a problem and you're actually doing something about it or something... which is encouraging like so (Peter)

Peter reported the social aspects of the group, sharing with others who have similar experiences was enjoyable and helped encourage him in his engagement in the group. The social cure approach to healthcare (Haslam, Jetten, Cruwys, et al., 2018) suggests that social identity is one of the key factors involved in good (and poor) health and the more the individual identifies with a social group the more likely they are to benefit from being a member of this group. Social Identity Theory (Tajfel, Turner, Austin et al., 1979) requires two processes for someone to develop group identity: categorisation – the individual becomes aware of similarities that connect the individuals in the group, and identification – valuing belonging to the group positively. The participants in this study reported enjoying the group and finding connections with the others in the group, through having the same diagnosis, rather than age or background. Williams, Dingle, Jetten, et al., (2019) conducted a one-year prospective study and found that attending an arts-based group was not enough to provide psychological benefits. If participants strongly identify with the group and viewed the group as an aspect of their identity, then participation in the group was more likely to provide a positive psychological impact. These participants being able to identify with each other during the singing group, due to sharing a diagnosis, enabled them to benefit more from the group, than if they did not identify with their peers in the group. This is also in line with the findings of the meta-ethnography conducted by Yoeli & Macnaughton (2020) discussed in the introduction. The authors suggested that consistent with other Arts in Health research, the main mechanism for the benefits seen in singing groups for those with COPD is social connectedness and cohesion. They concluded that singing groups for those with COPD would benefit from being designed to maximise the bonding and socialising within the group.

The social connections made in the group were not only between the participants but also with the group leader. Many of the participants spoke about the positive impact of the group leader and how they set the tone for a supportive group atmosphere. Participants found the group leader knowledgeable and enthusiastic about singing.

I think we all felt a bit silly to start with... cause not being singers you know...  
I think most of the part was that I really enjoyed [group leader]. You know she didn't, you know, there was no umm no expectations from her and she loved, she you could absolutely see she just loves music. (Penny)

In the research around social connections in the more general population, often the focus is on the relationships developed between the participants. The literature often speaks about the skills of the healthcare professionals or group leader but not the relationships developed with the group leader. Katherine reported the personal qualities of the group leader made the first session of the group feel safe and supportive.

You need the [singing group leader]... of this world... to boost you up and, and its from the word go... the minute you walked in that room over at umm [group location]... your heart lifted... it was great. (Katherine)

Important characteristics of the group leader identified were enthusiasm, flexibility and not forcing pre-established standards onto the individuals in the group, who may not have been able to achieve them. This was seen as particularly important at the beginning of the group, when participants felt apprehensive with regard to singing. McNaughton, Aldington, Williams and Levack (2016) reported a brief comment from participants that they appreciated the choir leader being skilled and being kind. However, the participants in the current study suggested the qualities of the group leader are a key aspect of what makes the group helpful.

The importance and qualities of the group leader appear to be something that has been reported in the literature but not explored in detail. There is a need for future research into the relationships between participants and group leaders and the qualities of group leaders which participants find helpful. It would be useful to understand what factors are helpful for encouraging participants to engage in groups aimed at supporting their health and for this information to be included in training for group leaders before they begin facilitating groups.

### **Positive emotional and cognitive changes during and after the group**

Participants found the emotional changes both during the group and the days in between, were beneficial. The participants reported generally being in a better mood, feeling more relaxed and having something to look forward to.

Honestly and truly it made me a better, it made me a happier person and a much more easier person to get on with... it made me more relaxed... I knew... that I could if I just relaxed I could breathe ok... not perfect obviously... it could calm me down a lot... it had a big impact really because it made me, it gave me something to look forward to... and I knew when I come out of there or even when I was going there... I was happy as a lamb. (Katherine)

Singing has been shown in clinical and non-clinical populations to produce emotional mental benefits. Coulton, Clift, Skingley et al., (2015) conducted a randomised controlled trial comparing attending a singing group and usual activities. The study found participants who attended the singing group reported significantly better quality of life, in comparison to those who attended usual activities. After three months, those who attended the singing group reported better quality of life, and lower anxiety and depression, compared to those who attended usual activities. The above research suggests that mental health difficulties may be likely in patients with COPD and interventions for COPD that improve mood are likely to have an effect on the physical condition. Katherine, Penny and Peter all reported improvements in their mental health following the group.

regardless of any scientific benefit that was there, that was happening in the lungs... in my own head, in my mentality I was err I definitely felt better after. (Peter)

The above quote from Peter, suggests he feels the emotional changes from the group were separate to any physical changes. This may also indicate he did not see as many physical changes but that the emotional changes were sufficient to help him feel better. Participants were not asked directly about what they see as the minimum benefits they need from a group, but this may be a useful focus for future research.

Furthermore, the learning from the group helped participants manage their anxiety about breathlessness, feel less panicky and they found they were able to do more.

It did make a difference to my breathing... because it was showing me how to control when I, when I couldn't get my breath... its showing you like don't panic. Control the breathing... Take those deep breaths and let it out slowly. (Penny)

People diagnosed with COPD often experience high levels of anxiety and high levels of anxiety in those with COPD are associated with poorer health outcomes (Eisner, Blanc, Yelin, et al., 2010). Therefore, experiencing a reduction in anxiety and panic following the group is likely to have a beneficial impact on a patient's ability to manage their condition.

As discussed above, due to the COVID-19 pandemic closing down all groups, the participants had not been able to attend any groups for around four months at the time they were interviewed. Some of the participants reported ongoing emotional benefits, such as not feeling as panicked when experiencing breathlessness, that has continued since the end of the group. This suggests that without the ongoing social support of attending a group, the emotional benefits maintain and therefore, this is a distinct benefit of the group, separate to the social benefits and attitude changes experienced.

### **The Value of Breathing Techniques**

A key intervention of the group is teaching the participants breathing techniques to help them manage their breathlessness. Breathlessness is one of the symptoms that often leads to individuals reducing their activity, and avoiding anything that might make them breathless.

The participants reported that the breathing techniques they learnt have had a positive impact on their breathing and have continued to do so even over the six months after the group has stopped.

The breathing exercises you can do, use all the time every single day... I do these breathing exercises and they do make one big heck of a difference. (Katherine)

Katherine was the only participant to report using the breathing techniques regularly, whereas Peter, Penny and Justine reported not practising the techniques regularly. However, the participants were able to recall the information and use the techniques when they needed to. COPD symptoms are not consistent across time, with breathlessness becoming worse often in the winter or during activity (Jolley & Moxham, 2009). The participants reported having a technique to use when their breathlessness becomes distressing which may indicate a long-term benefit of attending the group. This study is the first to provide evidence of long-term benefits to participants of a singing group.

However, Justine reported she found the symptoms of COPD impacted her ability to participate fully in the group and so the breathing techniques were not fully beneficial for her.

I think possibly... if I'd been able to do it properly, it used to make me cough...if I sort of had the cough and been able to sort of really concentrate... and belt and stuff like that I'd have enjoyed it a lot more. (Justine)

This also appears to be a novel finding in the literature. Research into singing for patients with COPD does make mention of physical illness preventing participants from attending sessions (eg Skingley et al., 2014). Skingley et al., (2014) mention the co-morbid conditions patients with COPD often experience. However, they do not reference any impact these conditions had on the sessions themselves. This would be a key factor to explore in future research. If conditions impact on a participant's ability to engage in the singing group, this needs to be understood and considered in how groups are offered.

## 5. Conclusion

This study has explored five individuals' experiences of a participatory singing group and how they perceived the mechanisms of change in the group. It also aimed to understand more about the difference between the previous quantitative findings and the current qualitative findings, from participant perspectives. It was found that participants experienced blame from others regarding their condition and that COPD had a restrictive impact on their daily lives. Following attending the singing group, the participants experienced a change in their attitudes towards their COPD, feeling more confident in managing the symptoms and feeling more positive towards their condition. The mechanisms of this change appeared to include the social interactions between their peers, experiencing emotional benefits from the group and learning breathing techniques.

Although the positive experiences of participants elicited in the study are not new, but rather consistent with previous qualitative research, interpreting and exploring the narratives within a strong theoretical framework (the Common Sense Model) has allowed for a more coherent explanation of the mechanisms at work than most previous qualitative studies, and may also help explain why quantitative findings from the literature do not always show many benefits from singing groups. While participants still reported breathlessness and difficulties in their daily lives, their attitudes changed following attending the group and their confidence in managing their breathlessness when it became distressing, improved. Additionally, the singing programme grounded, as it was, within a self-management ethos, helped to highlight factors not previously amenable to traditional researcher-driven methods of data collection.

The contrast between the findings of this paper and the previous companion paper (Clift et al, 2022) clearly demonstrate the need for qualitative research in the field of arts and health. The tendency towards relying solely on quantitative research to drive treatment options, whilst justified often on the grounds of being rigorous and reliable, could lead to those with the conditions missing out on treatments that could add to their psycho-social functioning, such as minimising distress in response to symptoms.

There were novel findings from this study regarding participants' experiences during the group. Although previous literature has suggested some positive influence of the group leader or healthcare professional, the participants in this study laid particular importance on the group leader's enthusiasm in supporting participants to engage, particularly in the early sessions.

Moreover, this study found that one participant reported their health condition impacted their ability to engage in the group and this may have impacted how much they were able to benefit. Whilst previous literature has reported the presence of co-morbid conditions and health conditions preventing participants attending the groups, there have been no findings regarding how the health conditions impact a participant's experience during the group. This would be a useful focus for future research.

This study also provided long-term follow-up of participants following the group and found there were two potential long-term benefits. Participants reported a positive change in attitude towards their condition that was maintained following attending the group for at least six months. Furthermore, this study found participants were able to recall and use breathing techniques they were taught during the group, without regularly practising the techniques. A subsequent paper in this set (Price and Skingley, 2022) builds on this potential for lasting benefits by exploring whether a resource might support individuals to maintain singing and related practices post group attendance. Therefore, whilst the research into singing for patients with COPD does not consistently show physiological changes, this study suggests that benefits, such as attitude changes and emotional changes can be seen as positive outcomes and can improve self-management, thereby supporting the evidence for ongoing provision of these groups.

## 6.1. Methodological Considerations

The current study has attempted to demonstrate the qualities desirable in qualitative research but is not without limitations which may have impacted upon its findings and the conclusions which can be drawn. In particular, the participants volunteered to be contacted for this study following the RCT and so they may have been more likely than other participants to attend more sessions of the group and find it beneficial. In addition, those who dropped out of the group, who also did not attend the follow-up session were not given the opportunity to be contacted for future research. Therefore, this study is likely to have a positive bias, with those who engaged with the intervention being more likely than others to find it beneficial and have a positive attitude towards it. The study chose to include one of the participants who had not attended all the sessions, due to an accident following the first session, so their inclusion brings in a different perspective of the group that may not have been identified otherwise. It should be noted that whilst this participant did not attend all the sessions, they indicated a hope it would have been helpful, had they been able to.

Semi-structured interviews and IPA analysis were chosen to explore the inconsistency between the quantitative and qualitative findings in this area, however, other methodologies may also offer in-depth insights into the broad findings of this study. For example, a subsequent paper, (Price and Skingley, 2022) using a thematic analysis of diary entries from participants, was able to offer in-depth insight into participant's experiences of that element of the research.

## 6.2. Implications for research and practice

This study provides some initial evidence for ongoing long-term benefits following the group without the participant receiving group support from elsewhere, despite the social benefits reported by participants. The UK's National Institute for Health and Care Excellence (NICE) guidelines suggestions for further research currently focus on medical treatments and quantitative outcomes for COPD and the guidelines for management of the condition only briefly mentions psychological interventions, in the context of Pulmonary Rehabilitation and identifying and managing anxiety and depression (NICE, 2018). The findings from this study suggest the psycho-social aspect to the condition, including attitudes and social support are important to those with the condition. Further research into the psycho-social aspects of the condition and the management of these and then following this the inclusion of psycho-social interventions, such as singing groups, into the guidelines, may provide additional options for those with COPD to be supported to manage their condition.

Within this (psychosocial) focus of research, different methods may need to be considered, since eliciting the voice of those who may feel reluctant to express their thoughts (for example because they feel 'blamed' for their condition, as in this study) may not fit with traditional data collection methods. These might usefully include the more auto-ethnographic approaches initiated by respondents, such as the use of diaries, as described in a subsequent paper (Price and Skingley, 2022).

Following the COVID-19 pandemic, there will likely be some hesitation to begin groups again, due to the difficulties of conducting these in a socially distanced way and the vulnerability of patients with COPD. Alternative forms of singing resources for individuals with COPD, which are not dependent on physical groups, may therefore be usefully introduced as part of the support available, and this has also been explored further in the subsequent paper (Price and Skingley, 2022).

## Notes

This is the second in a trio of papers. They present contrasting, but complementary, approaches to researching the effects of engaging in singing groups for people with chronic obstructive pulmonary disease (COPD). Previous research has suggested benefits may exist, but the variety of measures and

designs adopted has meant conclusions remain tentative. We present a theoretically based sequence of studies to contribute to this evidence gap.

Firstly, Clift et al present a traditional randomised controlled trial (RCT), comparing a treatment as usual (TAU) group with a TAU plus group singing intervention programme using standardised outcome measures (lung function, exercise capacity and self-report health status). The singing programme followed a developmental model, previously tested, which included educative elements around managing the condition. We aimed to recruit to a target calculated from previous studies but found both recruitment and retention challenging. While few significant differences were found between the groups or the within-group measures, we offer a number of possible explanations for this. We also argue that, despite the challenges in undertaking RCTs in this area, the method remains a valuable contributor to knowledge when measuring certain outcomes. Recommendations for future research are suggested, including strategies to overcome under-recruitment within this design.

A second paper (Lane et al) builds on these findings and on previous qualitative studies on singing for COPD, which have, in contrast to the above, found that participants report benefits to wellbeing from group singing. This approach overcomes the problem of sample size and retention inherent in RCTs. In-depth interviews, focusing on participants' explanations for any effects of singing in a group, were analysed using Interpretive Phenomenological Analysis (IPA), informed by the Common Sense Model of illness representation. The study identified five explanatory themes, with the overall finding that the experience of the singing group changed participants' largely negative response to COPD to a greater feeling of control over the disease and improved self-efficacy. These concepts are less amenable to detection in more quantitative approaches. In addition, the study contributes an equivalent to longitudinal follow-up, since the interviews indicated that participants recalled what they had been taught, and in some cases, continued to put learning into practice, some time after the intervention.

The third paper (Price and Skingley) further adds to these findings by describing the design, implementation and evaluation of a singing resource, based on the learning embedded in the singing programme, to encourage self-management of COPD. This approach puts into practice the theory proposed in the Common Sense Model that the ability to employ adaptive, coping strategies may be more important to the individual as an outcome than improvements in objective measures of respiratory function. The Singing for Better Breathing (SfBB) resource comprises a DVD of 13 films, and accompanying handbook. Participants were invited to complete diaries and attend interviews in order to evaluate the resource. A number of positive benefits were reported, and continued use of the resource, plus numbers accessing an online version, point to its effectiveness and support the guiding theory.

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### **Conflicts of interest**

The authors declare they have no conflicts of interest.

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