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Singing and COPD: Development, implementation and evaluation of a resource to support home practice and disease self-management

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Abstract

Aim

To explore the use of a singing for health self-management resource for home practice within a programme of regular group singing for people with COPD.

Rationale

Research suggests that perceived symptoms of COPD can be improved through promoting self-efficacy and self-management of the condition. Previous literature on singing for breathing includes little detailed reference to any resources used to contribute to such improvement. This paper describes and evaluates a resource designed to address this.

Approach

The Singing for Better Breathing (SfBB) resource comprises a DVD of 13 films and accompanying handbook. It was developed as a practical tool for participants to use at home, as an adjunct to health education provided in an existing singing for COPD research project. The films progress through physical and vocal warm-ups plus songs which gradually demand greater vocal production and breath control. Participants were encouraged to keep diaries to record their experiences of using the resource. These were analysed using thematic analysis, supplemented by individual telephone interviews following the final session. With the onset of the Covid-19 pandemic, the resource was made available online.

Findings

Ten participants completed diary entries and were interviewed. All spoke positively regarding the format of the resource, and the majority found the songs to be engaging and uplifting. The use of singing as an exercise to promote breath control was reflected in a desire to demonstrate their achievements as well as the songs they had been able to sing at home.

Discussion and conclusion

The resource has continued to be popular, evidenced by its online uptake globally. Future related research should include a more detailed exploration of how those living with long-term health conditions might engage with and benefit from a singing for health resource to promote self-management.

1. Introduction

Chronic respiratory diseases are among the leading causes of death worldwide (World Health Organization [WHO], 2017), with hundreds of millions of people suffering from chronic respiratory symptoms each day. Chronic obstructive pulmonary disease (COPD) was the third leading cause of death worldwide in 2016, with approximately 349,000 deaths in the European region alone (WHO, 2019). The disease is characterized by persistent respiratory symptoms including breathlessness on exertion and productive cough, and airflow limitation that is not fully reversible. Chronic inflammation results in structural changes to the small airways and diminished lung elasticity, with reduced ability to remain open in expiration. Described in the 2019 GOLD report as a 'common, preventable and treatable disease' (p.4), the costs to the National Health Service (NHS) in the UK are estimated to be £1.9 billion each year (Trueman, Woodcock & Hancock, 2017).

Progression of COPD leads to an increase in the severity and magnitude of symptoms, resulting in significant disability and negative effect on quality of life, with high rates of anxiety and depression, even in moderate disease (Xiao, Qui, Chen, Zhou et al, 2018). But, despite advances in symptom treatment and exacerbation prevention, little progress has been made to mitigate the progression of the disease or reduce mortality (Rabe & Watz, 2018). Although pulmonary rehabilitation (PR) has been shown to produce clinically significant improvements in health-related quality of life, as well as exercise capacity (McCarthy, Casey, Devane, Murphy et al, 2015), PR programmes are of limited duration and waiting lists often long. Mather, Fastholm, Lange and Larson (2017) also found that PR does not always fit with participants' perceptions of health.

Perceptions of health (and illness) are thought to be important predictors of an individual achieving their desired outcomes in relation to a long-term condition (Fischer, Scharloo, Abbink, van't Hull et al, 2010). In a condition such as COPD, where cure is not possible, an ability to employ adaptive, coping strategies may be more important to the individual as an outcome than improvements in objective measures of respiratory function. Using the Illness Perception Questionnaire-Revised (IPQ-R) (Moss-Morris, Weinman, Petrie, Horne et al 2002), Fischer et al (2010) tested this theory with individuals following a programme of PR. They found that if, after PR, individuals were more convinced that participation in the programme led to desired outcomes, they were less concerned about the negative consequences of their disease and had a stronger perception of personal control and coping with their condition. Appraisal of the intervention (PR) was therefore seen as crucial, suggesting that the way any intervention is presented should emphasize such control and self-efficacy.

This theory has been supported in the findings from an in-depth interview study of participants recruited to a singing group for people with COPD (Lane, Cooke and Skingley, 2022). Here participants reported changes in self-efficacy and control following an intervention which included elements of teaching on breathing techniques and how to manage breathlessness through vocal control. Self-efficacy is central to the concept of self-management (Barlow, Wright, Sheasby, Turner and Hainsworth et al, 2002), which Lorig and Holman (2003) describe as a dynamic, interactive engagement by individuals living with chronic illness. Research suggests that, when compared to standard treatment, a self-management approach may provide benefits to people living with COPD (Barlow et al, 2002) and can improve quality of life and reduce levels of anxiety, depression and mood (Turner, Anderson, Wallace and Bourne, 2015).

Health-related interventions within a self-management model of care need to be sufficiently attractive to the individual and have the potential to be sustained beyond the programme itself. One such intervention, for which there is evidence of considerable enthusiasm, is singing. Group singing has been an integral element in research projects exploring its value for people living with a range of long-term conditions such as Parkinson's Disease and enduring mental health problems (Stegemöller, Radig, Hibbing, Wingate & Sapienza, 2017; Clift & Morrison, 2011). There is evidence that singing may be beneficial to people living with COPD through a positive influence on lung function as well as personal

and social wellbeing (Skingley, Page, Clift, Morrison et al. 2013; Clift, Gilbert, & Vella-Burrows, 2017; Skingley, Clift, Hurley, Price & Stephens, 2018) and could be delivered alongside interventions such as pulmonary rehabilitation. Group singing has been shown to produce positive effects on anxiety, depression and mood (Williams, Dingle & Clift, 2018) as well as social bonding and wellbeing (Pearce, Launay, Machin & Dunbar, 2016).

To date, research projects exploring the value of singing for people living with COPD employ a model based on weekly singing sessions of one hour, including breathing exercises at the start and end of each session (Bonilha, Onofre, Vieira, Prado & Martinez, 2009; Skingley et al. 2013; McNaughton et al. 2017). Participants are advised to continue breathing exercises and singing at home between sessions, but little reference is made to resources designed to support home-based practice. The potential value of such a self-management resource was identified by singing group facilitators in previous research conducted by the Sidney De Haan Research Centre, who felt that participants could be supported between weekly sessions via access to a virtual singing session. It would also be in keeping with the theory identified above.

2. Programme rationale and goals

In September 2019, participants were recruited from a population of COPD patients supported by Medway Community Healthcare in South East England into a single-blind, pragmatic randomized control trial (RCT) (Clift, Skingley, Dickinson and Meadows, 2022). The RCT compared participation in one of two structured singing groups with a 'treatment as usual' (TAU) group. Although few significant differences were detected between TAU and singing groups in the quantitative (lung function) findings, subsequent in-depth interviews with five participants (Lane et al, 2022) demonstrated many positive benefits were experienced by the group members. In order to explore whether these benefits could be retained between and beyond sessions, the intervention (singing) groups' programme included use of a novel self-management tool for home practice - The Singing for Better Breathing Self-Management Resource (Page, undated). This paper focuses on the development, implementation and evaluation of the resource and its potential application to wider practice.

The Singing for Better Breathing Self-Management Resource (SfBB Resource), as the name suggests, was developed as a practical tool for participants to use at home between singing sessions. While conceived originally as an intervention for use within a research project on singing and COPD, reference to a specific health condition was ultimately avoided, thus widening its potential application. Pre-development scoping identified contemporary technologies currently being used to deliver self-management interventions in the home, including an online pulmonary rehabilitation programme for people living with COPD (Burkow, Vognild, Johnsen, Risberg et al, 2015) and the NHS-approved myCOPD mobile app for educational and motivational content (my mhealth Limited, 2019). Few guidelines exist regarding the design of apps for older adults (Matthew-Maich, Harris, Ploeg, Markle-Reid et al, 2016), and cognitive, motor and perceptual limitations experienced by older adults may influence their engagement with mobile-based technologies (Czaja, Boot, Charness & Rogers, 2019). The widespread availability and ease of use of the digital video disk (DVD) is reflected in its popularity as a delivery medium (Fanning, Wick, Wojcicki, Gothe et al, 2015), and influenced the choice of product for this project.

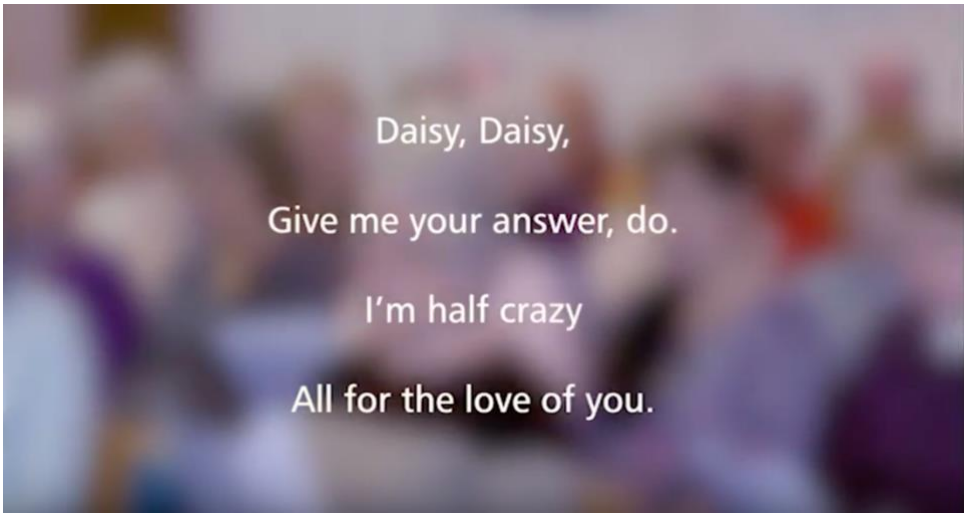
The DVD resource included thirteen short films, each featuring a group of singers providing audio and visual guidance for the viewer. The first film led the viewer through a series of physical and vocal warm-ups (see Figure 1) guided by a narrator and demonstrated by the singers.

Figure 1. SfBB Resource: singers warming up.

Each subsequent film provided the audio of a song with scrolling lyrics, behind which the faces of singers could be seen in soft focus (see Figure 2). Songs were chosen to gradually demand greater vocal production and breath control, and a handbook was provided with the DVD which included printed lyrics as an alternative format to those on the screen.

The handbook accompanying the video resource (Page, undated) also included information about the singers in the films, all of whom were volunteers from a local singing for health choir. The volunteers were keen to capture their experiences on film to enhance the resource and make it accessible to others. It was important to them that users would be encouraged by the material and could relate to the people they saw and heard from in the films. With this in mind, ten singers discussed individually the impact of singing on their health and wellbeing in short film clips at the end of selected songs.

Figure 2. Screenshot of lyrics from the SfBB Resource



I have felt such a lot of benefit myself from doing this singing, so I thought it would be nice to enable the sharing with other people. Diane, singer on the resource.

A lot of people who want to sing are housebound, so I thought this would be a good resource for them to take home and use. Marilyn, singer on the resource.

Careful consideration was given to the songs included on the resource, which were selected for their appeal to singers and their potential to develop breath control and vocal production (see Table 1). In this instance, preparation to sing was entirely dependent upon the individual's engagement with the warm-up film, with no additional reassurance or instruction from a conductor while singing one of the songs. Repertoire was thus chosen with a focus on familiarity as perceived by the developer, and in collaboration with group facilitators involved in the RCT, to avoid potential tension and anxiety associated with learning an unfamiliar song. Where required by copyright law, permission was obtained to reproduce lyrics and record audio, and a licence was obtained to use specific songs for the purpose and scope of this resource.

To develop breath control and confidence, shorter songs, such as the popular chorus from Daisy Bell (Dacre, 1892), provided a familiar tune with short, concise phrasing. Conversely, What A Wonderful World (Thiele & Weiss, 1967) demanded consideration of phrasing, open articulation and considerable breath control - challenges faced by any singer, let alone those living with breathlessness and reduced lung function.

Table 1. Songs used in the SfBB Resource

Songs in graded order of difficulty	Composers/Lyricists
Song 1 - Daisy Bell	Harry Dacre
Song 2 - Moon River	Henry Mancini
Song 3 - Kookaburra	Marion Sinclair
Song 4 - I'd Like To Teach The World To Sing	Cook, Greenaway, Backer & Davis
Song 5 - My Bonnie Lies Over the Ocean	Trad.
Song 6 - Consider Yourself	Lionel Bart
Song 7 - Train Is A-Comin'	Trad.
Song 8 - Happy Talk	Rodgers & Hammerstein
Song 9 - Some Enchanted Evening	Richard Rodgers
Song 10 - Charlie is My Darling	Trad.
Song 11 - The Wild Mountain Thyme	Francis McPeake
Song 12 - What A Wonderful World	Bob Thiele & George David Weiss

During the ten-week programme, participants in one of the two singing groups (n=10) were encouraged to use the DVD resource at least once weekly between singing sessions. In addition, participants were able to access the films online via a dedicated YouTube channel.

3. Project evaluation

3.2. Aim

To explore the use of a singing for health self-management resource for home practice within a programme of regular group singing for COPD.

3.3. Method

A template diary sheet was devised for participants to record their use of the resource on a regular basis during the intervention phase of the research. The diary sheets were designed to capture participants' frequency of engagement with the resource, how they chose to access it (DVD or online via YouTube), their opinion of the warm-up film and song repertoire, and wider thoughts concerning their overall experience of using the resource. In addition, interviews were conducted with eight participants and one facilitator after the final singing session. Thematic analysis was identified as a suitable approach to identify and extract patterns of meaning, since the small sample size (n=10) and overwhelmingly qualitative nature of the data reduced the likelihood of missing nuances. As this was part of a larger

research project (Clift et al, 2022) separate ethical approval was not needed. Participants were assured of confidentiality and pseudonyms were used in data collection and reporting.

3.4. Results

Of the ten participants who completed diary entries on a weekly basis, nine spoke positively regarding the format of the resource. One was unable to watch the films due to a lack of DVD player, however they used the handbook to sing through the songs unaccompanied at home. Two participants appreciated the visual impact of the DVD format but preferred to access the content via the YouTube channel, primarily because they could skip forwards and backwards through the content more easily.

> I preferred to access the songs on the internet. I'm comfortable with computers for everything so it was easy for me to use YouTube. Male participant.

Frequency of use varied considerably from one hour per week to several times per day, with five participants reporting that they chose the more difficult songs from the start, rather than working through gradually over the course of the project. Two participants stopped using the resource after a few weeks, with one explaining that she did not like the choice of songs or the sound of the singers on the DVD. However, the majority found the songs to be engaging and uplifting, commenting favourably on the vocal range and repertoire, and the experience of being able to sing along with the choir.

> It's easier to sing along with (them) than on your own. It helps to follow the exercises when you've got the choir doing them too. Female participant.

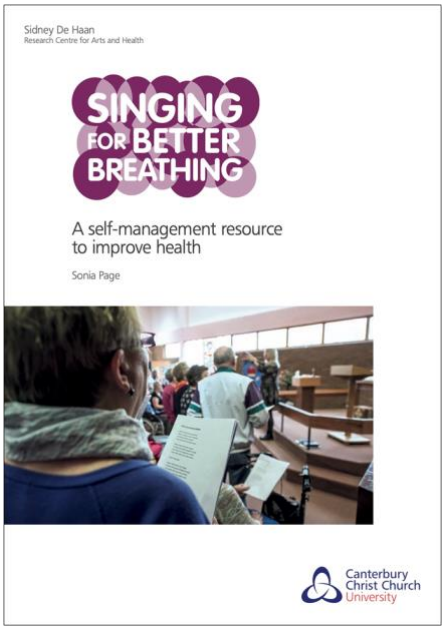
The inclusion of singers' stories in the form of short films at the end of specific songs proved divisive. Most participants agreed that hearing from the singers was inspiring and encouraging but became irritating with constant repetition. Two expressed the idea of having a separate film of the singers discussing their experiences, enhancing viewer control and choice over engagement with this element of the resource.

Camera placement included a static device facing the singers, with an additional hand-held camera capturing closer, individual shots (see Figure 3). While the majority of participants enjoyed viewing the singers directly, one expressed a desire to have the camera facing the conductor rather than the singers in order to benefit from their direction during the warm-up exercises and singing. This sentiment was echoed by a second participant who wanted the experience of being conducted while singing, specifically at the end of phrases and the start of new verses.

Figure 3. Example of close-up camera shot in the SfBB Resource.

A further appraisal of the DVD resource was made by the singing group facilitators, reflecting feedback during the weekly singing sessions and their previous experience of directing singing for health research choirs. They noted that the visual design and overall quality of the resource clearly mattered to the participants, promoting a sense of belonging to a 'brand' and enhancing the group identity and purpose.

Figure 4. Front cover of the SfBB Resource



The facilitators realized the need to allow participants to discuss their use of the resource informally each week, in addition to the structure of completing a diary entry. Through this informal discussion, participants demonstrated a sense of purpose in using the SfBB Resource alongside their weekly singing session, and an appreciation that they were part of the randomized arm and that others did not have access to the material - a sentiment not usually expressed by group members within the facilitators' previous experience.

> They really seemed to understand they were part of a randomized group, that others weren't singing yet and they wanted to show how well they could do. Singing group facilitator.

The sense of purpose - of the use of singing as an exercise to promote breath control - was reflected in the desire by some to demonstrate their achievements and the songs they had been able to sing at home. However, despite apparent understanding of the structured nature of the resource and the intention to develop vocal strength and breath control over time, enthusiasm occasionally resulted in requests that were not appropriate for the whole group.

> It was difficult sometimes when someone would ask to sing What A Wonderful World because they'd done it at home with the resource, but we had to say not this week as it was a step too far for others at the moment. Singing group facilitator.

Participants grew to love and request many songs used in the singing sessions which were not included on the SfBB Resource. Both facilitators felt that all songs used in the singing sessions should be available on the DVD, not only to provide a supportive resource that more closely reflected the weekly singing experience, but to enable participants to practise at home every song used during a session.

4. Discussion and recommendations

The evaluation found that use of the Singing for Better Breathing Self-Management Resource enabled participants to engage in structured breathing exercises and singing between weekly sessions, enhancing their overall experience and extending any benefits beyond the singing programme. The DVD and accompanying lyric booklet provided an aesthetically pleasing medium which most participants clearly valued, and the option of online accessibility to the films enhanced engagement.

It is striking that none of the participants mentioned COPD when commenting on their use of the resource or linked their use of it to self-management of their condition. They focused on their singing, the choice of songs, ease of use and the visual presentation, rather than whether it had an impact on specific symptoms. This resembles the technique of distraction, which forms a component of self-management programmes (Turner et al, 2015), demonstrating its successful use here, though in this case the intervention (singing) does not make this explicit. However, participants' desire to participate in research exploring the value of a supportive intervention such as singing demonstrates an acknowledgment on their part that they are engaging in self-management.

Participants chose to use the resource in a variety of ways, not always anticipated by its designer, for example using the handbook for unaccompanied singing, expressing a preference for the You Tube version or differing frequency of use. This demonstrates an element of personal control and self-determination in choice of how to use the resource, supported in the self-management literature (Barlow et al, 2002). Having a sense of purpose and achievement, along with the social benefits, noted by the facilitator, are also consistent with this approach and were further expressed as positive outcomes of the singing programme itself (Lane et al, 2022). The resource therefore presents an opportunity to extend these outcomes beyond the time of follow-up measures of the RCT (Clift et al, 2022).

Given the existing evidence for the positive impact of singing for people living with long-term conditions, the findings suggest that this resource may be of value to anyone wishing to use singing to promote their wellbeing. The deliberate avoidance of condition-related terminology promotes its potential for use within any adult care pathway and area of clinical practice. Further, in keeping with the theories noted above, the involvement of participants in future developments of the resource will be crucial to ensure that subsequent versions reflect the experiences and opinion of the target group. This is particularly important where, as Yoeli, Durant, McClusky and MacNaughton (2021) found, local culture plays a role in song and songwriting choices.

Future plans for creativity include making the resource more accessible to those with visual impairment, as well as exploring the option of a superimposed view of the conductor, similar to that used for sign language interpretation in television programmes. Additionally, development of an audio compact disk (CD) plus lyric booklet may widen user-engagement options. Where personal stories are included, these could be collated and presented as a separate film or audio track to give the user greater control and choice. The rapid move to online sessions experienced by many during the Covid-19 lockdowns reflects the value of platforms such as Facebook, WhatsApp and Zoom in the delivery of group singing sessions (Price et al, 2021). Collaboration with app and website developers for future versions of the SfBB resource, including development of a larger 'pick and mix' library of songs, may result in a more personalized, interactive product, one that promotes inclusivity and has the potential to be used alongside face to face singing sessions.

To encourage greater engagement with diary-keeping, an additional element to a future platform might be the inclusion of a journaling area, with activities incorporating quick-fire emoticon responses as well as deeper, guided reflection. The option to personalize elements of this area might promote a sense of ownership of the journaling aspect for participants and encourage reflection on personal progress relating to use of the resource.

In response to the restrictions necessitated by the COVID-19 lockdown, the SfBB Resource was made freely available online via YouTube and advertised on Twitter and Facebook. Over a 28-day period it received 3614 views, with the warm-up video proving by far the most popular, with 1018 plays. Geographically, people engaged with the online resource from locations as diverse as Hong Kong and the Shetland Islands. Enquiries were received from musicians leading varying types of singing groups, including those living with specific conditions such as dementia and those in assisted-living and care facilities. Greater analysis of data available via YouTube analytics is required to establish further engagement statistics, but these initial figures are an encouraging sign that an online version is an appropriate and well-received resource for many.

This small study has limitations, particularly in view of the number of participants completing diaries and taking part in interviews. In order to test for generalizability of the findings, a larger research study would need to be undertaken with the intervention scaled up considerably. However, this may require adoption of additional or alternative approaches to analysis of a larger amount of data - for example, interpretative phenomenological analysis, given its suitability to examination of topics which may be emotionally laden as well as interactive.

5. Conclusion

There is clearly an appetite for the Singing for Better Breathing Self-Management Resource, particularly, perhaps, during a time when face-to-face interventions were not possible. Feedback from project participants and interest from online users suggests that users value access to a resource for use at home, and that structured warm-up activities and exercises are particularly helpful. Recent enquiries by users of the online version suggest that interest extends beyond those living with respiratory conditions. However, a range of formats - particularly DVD and online availability - is required to encourage wider engagement and maximize accessibility.

There may be a case for including more songs on a revised version. Multiple DVDs would be required to capture the entire curriculum used by singing for health choirs, which has cost implications for production and potential purchase. As previously mentioned, one option might be development of an online library of films from which individuals and choirs could download and generate their own DVD or save in an app - something requested recently by a health charity. Future research about this project will include further collaboration and co-production with facilitators and users, with continued exploration of how a singing for health resource can best be designed and implemented for those living with long-term health conditions in order to promote self-management.

Notes

This is the third 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 form 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 that they have no conflicts of interest.

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References

Barlow, J., Wright, C., Sheasby, J., Turner, A. and Hainsworth, J. (2002) Self-management approaches for people with chronic conditions: a review. *Patient Education and Counseling*, 48(2), 177-187.

Bonilha, A. G., Onofre, F., Vieira, M. L., Prado, M. Y., & Martinez, J. A. (2009). Effects of singing classes on pulmonary function and quality of life of COPD patients. *International journal of chronic obstructive pulmonary disease*, *4*, 1–8.

Burkow, t., Vognild, L., Johnsen, E., Risberg, M., Bratvold, A., Breivik, E., Hjalmarsen, A. (2015) 'Comprehensive Pulmonary Rehabilitation in Home-Based Online groups: A Mixed method Pilot Study in COPD', *BMC Research Notes,* 8(766), 1-11.

Clift, S., Gilbert, R., & Vella-Burrows, T. (2017) Health and well-being benefits of singing for older people. In Sutherland N., Lewandowski, N., Bendrups, D. & Bartleet, B. -L. (Eds) *Music, Health*

and Wellbeing: Exploring music for health equity and social justice. London: Palgrave Macmillan.

Clift, S. & Morrison, I. (2011) Group singing fosters mental health and wellbeing: findings from the East Kent ‘‘singing for health’’ network project. *Mental Health and Social Inclusion.* 15 (2), pp. 88-97. https://doi.org/10.1108/20428301111140930

Clift, S., Skingley, A., Dickinson, D. & Meadows, S. (2022) Singing and COPD: a pilot randomised controlled trial of wellbeing and respiratory outcomes. *Music, Health and Wellbeing*

Czaja, S., Boot, W., Charness, N., Rogers, W. (2019). Designing for Older Adults. Boca Raton: CRC Press, https://doi.org/10.1201/b22189

Dacre, H (1892) *Daisy Bell*, London: Francis, Day & Hunter

Fanning, J., Wick, A., Wojcicki, T., Gothe. N., Roberts, S., Ehiers, D., McAuley, E. (2015) 'Effects of a DVD-Delivered Exercise Intervention on Maintenance of Physical Activity in Older Adults', *Journal of Physical Activity and Health*, 13(6), 594-598.

Fischer, M., Scharloo, M., Abbink, J., van’t Hul, A., van Ranst, D., Rudolphus, A., Weinman, J., Rabek, K., and Kaptein, A.A. (2010. The dynamics of illness perceptions: testing assumptions of Leventhal’s common-sense model in a pulmonary rehabilitation setting. *British Journal of Health Psychology* 15, 887-903. doi: 10.1348/135910710X492693

GOLD, (2019). *Strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease.* Retrieved from https://goldcopd.org/wp-content/uploads/2018/11/GOLD-2019-v1.7-FINAL-14Nov2018-WMS.pdf

Lane, I., Cooke, D. & Skingley, A. (2022) Singing and COPD: exploring the experiences of people attending a group activity. *Music, Health and Wellbeing*

Lorig, K. and Holman, H. (2003) Self-management education: History, definition, outcome and mechanisms. *Annals of Behavioral Medicine*, 26(1), 1–7

Mather, H., Fastholm, P., Lange, P. & Sandholm Larson, N. (2017) Why do patients decline participation in offered pulmonary rehabilitation? A qualitative study. *Clinical Rehabilitation* 31(12), 1674-1683.

Matthew-Maich, N., Harris, L., Ploeg, J., Markle-Reid, M., Valaitis, R., Ibrahim, S., … Isaacs, S. (2016). Designing, Implementing, and Evaluating Mobile Health Technologies for Managing Chronic Conditions in Older Adults: A Scoping Review. *JMIR mHealth and uHealth*, *4*(2), e29. doi:10.2196/mhealth.5127 Retrieved from: https://mhealth.jmir.org/2016/2/e29

McCarthy, B., Casey, D., Devane, D., Murphy, K., Murphy, E. and Lacasse, Y. (2015). Pulmonary rehabilitation for chronic obstructive pulmonary disease (review). Cochrane Database of Systematic Reviews. Retrieved from: https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD003793.pub3/full

McNaughton, A., Weatherall, M., Williams, M., McNaughton, H., Aldington, S. Williams, G. & Beasley, R. (2017). Sing Your Lungs Out – a community singing group for chronic obstructive pulmonary disease: a 1-year pilot study. *BMJ Open*, 7, 1-8, doi: 10.1136/bmjopen-2016-014151. Retrieved from: https://bmjopen.bmj.com/content/bmjopen/7/1/e014151.full.pdf

my health Limited (2019) myCOPD. Retrieved from: https://mymhealth.com/mycopd

Moss-Morris, R., Weinman, J., Petrie, K., Horne, R., Camerson, L. & Buick, D. (2002) The Revised Illness Perception Questionnaire (IPQ-R). *Psychology & Health* 17(1) 1-16.

Page, S. (undated) Singing for better breathing: a self-management resource to improve health. Folkestone: Canterbury Christ Church University. Retrieved from: https://research.canterbury.ac.uk/sidney-de-haan-research-centre-for-arts-and-health/wp-content/uploads/sites/17/2022/02/Medway-COPD-RCT-song-book-FULL-FINAL-VERSION-27-March.pdf

Pearce, E., Launay, J., Machin, A. and Dunbar, R. (2016) 'Is Group Singing Special? Health, Well-Being and Social Bonds in Community-Based Adult Education Classes', *Journal of Community and Applied Social Psychology*, 26, 518-533

Price, S. Phillips, J., Tallent, J. and Clift, S. (2021) 'Singing group leaders’ experiences of online singing sessions during the COVID-19 pandemic: a rapid survey', *Journal of Music, Health, and Wellbeing*, pp. 1-17.Retrieved from https://storage.googleapis.com/wzukusers/user-20563976/documents/70a39f34e9624c13925281b002d8ddf4/Price%2C%20S.%2C%20Phillips%2C%20J.%2C%20Tallent%2C%20J.%20and%20Clift%2C%20S..pdf

Rabe, K. and Watz, H. (2018) 'Chronic Obstructive Pulmonary Disease', *The Lancet*, 389, 1930-14

Skingley, A., Page, S., Clift, S., Morrison, I., Coulton, S., Treadwell, P., … Shipton, M. (2013). “Singing for Breathing”: Participants’ perceptions of a group singing programme for people with COPD. *Arts & Health*, *6*(1), 59–74. doi: 10.1080/17533015.2013.840853

Skingley, A., Clift, S., 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), 66-75

Stegemöller, E.L., Radig, H., Hibbing, P., Wingate, J. & Sapienza, C. (2017) Effects of singing on voice, respiratory control and quality of life in persons with Parkinson's disease. *Disability Rehabilitation*, 39(6), 594-600

Thiele, B. & Weiss, G.D (1967) What A Wonderful World (Recorded by Louis Armstrong) On *What A Wonderful World* (Record), Chicago: ABC

Trueman, D., Woodcock, F. and Hancock, E. (2017) *Estimating the Economic Burden of Respiratory Illness in the UK*, British Lung Foundation.

Turner, A., Anderson, J.K., Wallace, L.M. & Bourne, C. (2015) An evaluation of a self-management program for patients with long-term conditions. *Patient Education and Counselling* 98, 213-219.

WHO (2017) Chronic obstructive pulmonary disease (COPD). Retrieved from *https://www.who.int/en/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd)*

WHO (2019) Top 10 Causes of Death. Retrieved from *https://www.who.int/gho/mortality_burden_disease/causes_death/top_10/en/*

Williams, E., Dingle, G.A. & Clift, S. (2018) A systematic review of mental health and wellbeing outcomes of group singing for adults with a mental health condition, *European Journal of Public Health*, 1:28(6), 1035-1042

Xiao, T., Qiu, H., Chen, Y., Zhou, X., Wu, K., Ruan, X., Wang, N & Fu, C. (2018) Prevalence of anxiety and depression symptoms and their associated factors in mild COPD patients from community settings, Shanghai, China: a cross-sectional study. *BMC Psychiatry* 8:89. Doi.org/10.1186/s12888-018-1671-5. Retrieved from: https://bmcpsychiatry.biomedcentral.com//articles/10.1186/s12888-018-1671-5 Last accessed 7.10.21

Yoeli, H., Durant, S., McClusky, S. & MacNaughton, J. (2021) 'We're all in the same boat': How participatory songwriting might enhance singing for breathing's psychosocial benefits. *Journal of Applied Arts and Health* 12(2), 125-144. Doi.org/10.1386/jaah_00060.