Well-being program using singing can improve quality of life and breathlessness after COVID-19

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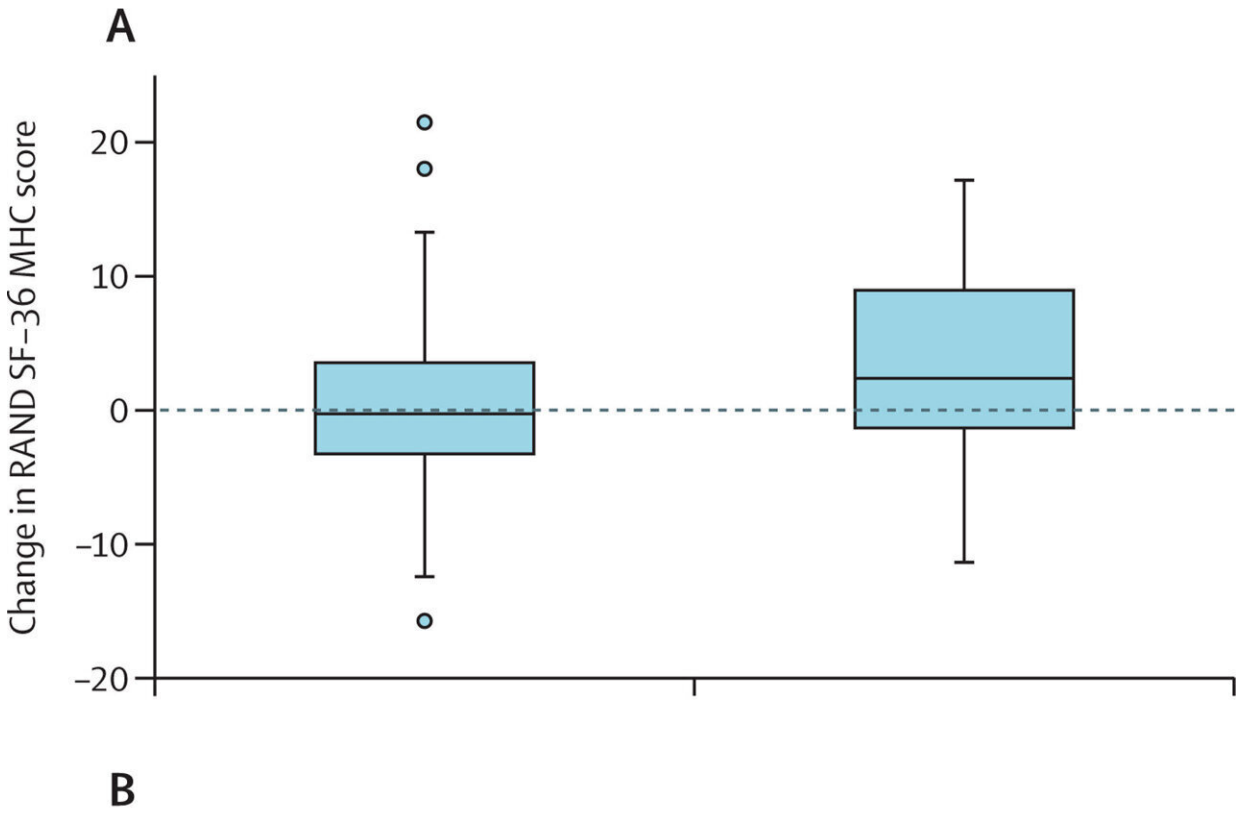

Change in RAND SF-36 scores from baseline to week 6 follow-up. (A) Change in RAND SF-36 MHC score. (B) Change in RAND SF-36 PHC score. Boxes indicate 25th to 75th percentile, central line is the median, whiskers are upper and lower adjacent values, outliers are values beyond the upper and lower adjacent values. ENO=English National Opera. MHC=mental health composite. PHC=physical health composite. SF-36=36-item short form survey instrument.

Credit: *The Lancet Respiratory Medicine* (2022). DOI: 10.1016/S2213-2600(22)00125-4

An online breathing and well-being program helps improve quality of life and breathlessness for people recovering from COVID-19, according to a new study.

This is one of the first clinical trials to report an effective intervention for people with post-COVID syndrome, also known as long COVID. The study is published in *The Lancet Respiratory Medicine*.

The "ENO Breathe" program has been developed by the English National Opera (ENO) and respiratory clinicians at Imperial College Healthcare NHS Trust. It uses singing techniques to improve well-being for patients with persistent breathlessness due to COVID-19. The social prescribing program has been providing support to people in London and across England since September 2020 and is led by ENO Engage, the ENO's learning and participation department.

Patients are referred to ENO Breathe via specialist NHS post-COVID assessment services following a review of their condition and medical treatments. 70 services are now referring to ENO Breathe across London and England. This includes areas that Arts Council England and the Department for Culture, Media and Sport have identified as Leveling up for Culture places such as Blackpool, Peterborough, North Somerset, and Stoke on Trent. The six-week program is delivered online, starting with a one-to-one session, once-weekly group sessions, and a range of online resources throughout the program. To date, over 1,000 participants have accessed the free program.

A clinical trial of 150 participants, with ongoing breathlessness for an

average of 320 days since the onset of COVID-19 symptoms, has been conducted by researchers at Imperial College London alongside the program team at Imperial College Healthcare. The study found that ENO Breathe participants experienced a 10.48 point (out of 100) reduction in breathlessness while running, compared to people who just continued with usual care alone. They also experienced a 2.42 point improvement in the mental component of quality of life, as measured by a validated online questionnaire.

These health improvements were explained in more detail using focus groups and questionnaires, which showed that ENO Breathe participants reported experiencing improvements in their symptoms, felt the program complemented other care they were receiving, and that using singing techniques and music suited their needs. Additional analyses focusing on participants that went to all the sessions, found improvements in a wider range of respiratory symptoms, anxiety, and had larger quality of life improvements. For example, 40 percent of ENO Breathe participants experienced a five-point improvement in the mental component of quality of life, compared with 17 percent in the usual care group. This suggests the participants who engaged most with the program got the biggest benefit. Though the physical component of quality of life did not improve more in either group.

ENO Breathe uses weekly group online sessions and digital resources, developed with the support of healthcare professionals, to empower participants with tools and techniques to improve the way they breathe and how they engage with their breathing. The program is led by professional singers from the ENO and focuses on breathing retraining through singing techniques, using lullabies as its musical starting point. No experience or interest in singing is required.

Breathlessness is one of the most common symptoms in people with long COVID. Many factors can contribute, including damage to the lungs and

supporting tissues, impact on the nervous system and other ongoing symptoms such as fatigue and cough. Anxiety around breathing can exacerbate breathlessness and all these factors can influence how people breathe after COVID-19 infection, potentially worsening their quality of life. As of January 2022, it is estimated that 1.5 million people in the UK may be experiencing long COVID symptoms.

Lead author of the study, Dr. Keir Phillip, Clinical Research Fellow at the National Heart and Lung Institute at Imperial College London, said:

"We urgently need evidence-based treatments and interventions for people with long COVID, which currently affects approximately 1 in 50 people in the UK. Our study suggests that arts-in-health interventions can be effective tools for carefully selected participants, especially when successfully integrated with clinical services."

"Our study suggests that the improvements in symptoms experienced by participants, resulted from both practical breathing techniques learnt, but also the creative, humane, and positive way the program is delivered."

Senior author, Dr. Sarah Elkin, consultant lead for the program and a respiratory consultant at Imperial College Healthcare NHS Trust, said:

"As we continue to recover from the impact of the pandemic, it's vital we find ways to support people with long COVID who are experiencing debilitating symptoms long after recovering from their initial COVID-19 infection. It is extremely important to build an evidence base for programs such as ENO Breathe, so we can continue to understand how best to support people with long COVID and make improvements that can lead to better outcomes."

Professor Nicholas Hopkinson, co-senior author and Professor of Respiratory Medicine at Imperial College London, said:

"Breathlessness is one of the most common symptoms that people with long COVID experience. The ENO Breathe program is designed to help people with the condition to learn how to control their breathing better. Our research shows that it is effective, and the program has already benefitted more than 1000 people recruited from post-COVID clinics across the UK."

Dr. Harry Brunjes, Chair of the English National Opera, said:

"We are extremely proud that ENO Breathe has been evidenced to aid the recovery of the people with long-COVID it has been designed to help. Research like this demonstrates the enormous benefit the arts can have when applied in a medical context. We're enormously grateful to our partners at Imperial College Healthcare NHS Trust for their dedicated work in developing this program with us, and to Imperial College's phenomenal team for their painstaking research."

James Sanderson, CEO of The National Academy for Social Prescribing (NASP), said:

"At NASP we believe that social prescribing can transform people's health, so it is exciting to see clinical evidence published which demonstrates the effectiveness of a social prescribing program. We are delighted to be able to support ENO's "Breathe' classes that are improving the lives of hundreds of people living with long COVID."

Trial participants were all recovering from COVID-19 with ongoing breathlessness, either with or without associated anxiety, and had been referred from post-COVID assessment clinics after appropriate investigations and treatment. The majority of participants (81 percent) were female, which is broadly representative of the wider population of patients with long COVID.

Participants were split into two groups. One group (74 people) took part in the six-week ENO Breathe program and a control group (76 people) continued with their usual care as directed by their post-COVID assessment clinic. Both groups were assessed after six weeks, when the control group were then also offered the opportunity to take part in the program.

The researchers collected information about participants' health and well-being via online questionnaires, and used focus groups and feedback questions to assess participant experience. They measured mental and physical components of a validated "Health-Related Quality of Life" tool that assesses key indicators of quality of life, including difficulties resulting from health problems, social impacts, pain and impact on daily activities. The researchers also assessed other disease impacts including breathlessness, anxiety, and a range of other symptoms.

There were also three common qualitative themes regarding participant experience—an improvement in symptoms, a feeling that the program complemented the care they were receiving, and that singing and breathing suited their needs.

More information: Keir E J Philip et al, An online breathing and wellbeing programme (ENO Breathe) for people with persistent symptoms following COVID-19: a parallel-group, single-blind, randomised controlled trial, *The Lancet Respiratory Medicine* (2022). DOI: 10.1016/S2213-2600(22)00125-4

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