

Breath-Focused One-to-One Singing Sessions as a Means of Developing Authentic Voice in Females with Anxiety: An Exploratory Multiple-Case Study Grounded in Aspects of Compassion Focused Therapy and Polyvagal Theory

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ABSTRACT: Speech, singing, and vocal communication are fuelled by breath. Anxiety can impact breath and voice negatively, resulting in physiological constrictions that are bi-directionally related to psychological and emotional spheres. There is little theoretical and practical examination of anxiety-specific populations or the mechanistic role of respiration within singing for mental health (SFMH) literature. This interdisciplinary study draws from elements of voice pedagogy (VP), breathwork, compassion focused therapy (CFT) and polyvagal theory (PVT), seeking to evolve discussion and bridge gaps in the research. Additionally, SFMH research has an overriding focus on group interventions; in contrast, this study implemented a hermeneutic multiple-case study design that focused on one-to-one sessions, creating a pedagogically-based approach underpinned by psychological theory for females self-referring with anxiety. Throughout the study, authentic voice is considered in terms of physiological vocal authenticity, as well as connected psychological and emotional implications. The findings highlight that alleviation of breath and voice-related physiological tensions can in turn catalyse increased ease, freedom, and flexibility of voice. It was also found that as the sessions progressed, participants' relationship with their voice evolved to be more centred around compassion, joy, and curiosity. The findings are considered to indicate a rationale for further related research studies and to accentuate the need for more complex theoretical and practical understanding of the breath for females with anxiety, both within VP and SFMH disciplines.

KEYWORDS: Breathwork, singing, voice, compassion, polyvagal, anxiety

INTRODUCTION

Authenticity of voice is a concept that inextricably connects physiological, psychological, and emotional tenets (Monti & Austin, 2018); the singing voice is a point of convergence of these spheres (Heydon et al., 2020) and a means of expressive communication founded in human evolutionary phylogeny (Jordania, 2011). Authenticity is a complex construct that resists heuristic definition (Newman, 2019). Within psychological theory, authenticity is a key variable that indicates successful functioning (Waterman et al., 2021). Inauthenticity is correlated with the conscious and unconscious suppression of inner emotional and psychological experience; this is an emotion regulation strategy that can be associated with increasing anxiety (Troy et al., 2023) and creating a dichotomy between inner and outward expressions of self (Gross & John, 2003). Similar juxtaposition has been depicted within vocal psychotherapy (VPT) (Monti & Austin, 2018), music therapy (Baker & Uhlig, 2011) and voice pedagogy (VP) (Linklater, 2006), with physiological voice tensions being associated with emotional and psychological blocks and suppression of authentic self.

Breathing can be directly influenced by anxiety and can manifest in a number of ways, including restricted and hypoxic breathing patterns (Meuret et al., 2010; Ritz et al., 2013), connected

physical discomfort and higher muscle tension in relation to voice (Maiele et al., 2016). Facilitating authentic vocal expression is assisted by encouraging a natural, less constricted breath (Austin, 2009; Linklater, 2006). VPT contextualises such a process within vocal toning and improvisation techniques, which are fundamentally grounded in a therapeutic dialogue (Austin, 2009). Development of authentic voice via freeing the breath involves an intensive scheme of exercises in Linklater's VP program for voice professionals (Linklater, 2006). In contrast, this intervention, undertaken as part of the researcher-practitioner's (R/P) MA VP studies, explored the effect of pedagogical breath and voice techniques on adult females self-referring with anxiety, within a short series of one-to-one singing sessions. The current paper focuses specifically on elements related to the development of authentic voice, which was one of the findings of the original MA paper. To elucidate understanding of the project's rationale, as well as participant experience, this paper will briefly report, but not analyse, broader findings relating to anxiety.

While anxiety is a part of normal human behaviour (Nuss, 2015) associated with evolutionary protective fear responses (Bateson et al., 2011), when experienced as frequent and/or severe it can manifest as one or a combination of anxiety disorders (AD) (Toussaint et al., 2020). In 2019, over 301 million people globally were living with an AD (Yang et al., 2021). Furthermore, over eight million people in the UK experience an AD at any one time (Fineberg et al., 2013), with statistics likely to have increased due to the impact of COVID-19 (Disparities, 2022). Women are almost twice as likely to be affected by ADs than men; however, this is set within the understanding that they may be more likely to seek help and therefore be diagnosed (Remes et al., 2016). Comprehensive discernment of female anxiety is lacking, particularly in terms of epidemiology and efficaciousness of treatments (Farhane-Medina et al., 2022). Women tend to have more severe, long-lasting, and somatic symptoms (Hallers-Haalboom et al., 2020), resulting in a higher degree of debilitation in terms of functionality (Christiansen, 2015).

Compassion focused therapy (CFT)³ is a transdiagnostic and evolution-informed biopsychosocial approach to mental health (Gilbert 2020). It highlights human caring-compassion as a motivation that evolved to facilitate the social closeness and cooperation needed to survive and

thrive (Gilbert, 2021); this included new ways to balance the autonomic nervous system via vagal activity and a range of neurocircuits (Petrocchi et al., 2022; Vrtička et al., 2017). Relatedly, polyvagal theory (PVT) views the human need for care and cooperation as impinging on processes connected to vagal pathways (Porges, 2018). Broadly, CFT and PVT share similar perspectives of anxiety states in terms of being understood as imbalances within nervous system responses that limit capacity to co-regulate with caring others (Porges, 2022) or access parasympathetic, soothing states (Gilbert, 2020). As such, the study aimed to positively impact anxious states through the care and connection of a compassionate practitioner-participant relationship and implementation of breathing and singing practices that can balance nervous system activity via vagal activation (Petrocchi et al., 2022; Porges, 2017).

Anxiolytic pharmacological prescription for anxiety has increased substantially since 2003 (Archer et al., 2022); such treatment options can be effective but also poorly tolerated (Baldwin et al., 2011). Cognitive behavioural therapy (CBT) is the most effective psychological treatment for ADs (Otte, 2011); however, overall remission rates across ADs using CBT are in the region of 50% (Baker & Kirk-Wade, 2023; Salartash et al., 2022). Contextualised within this reality, breath-focused practices for anxiety have become of increasing academic and cultural interest (Leyro et al., 2021). Slow, deep breathwork has been shown to facilitate calm and restoration within anxiety and trauma populations (Gerbarg et al., 2019; Noble & Hochman, 2019) and increase heart rate variability (HRV) and parasympathetic nervous system activity (Fincham et al., 2023), patterns which are both associated with improvements in anxiety (Banushi et al., 2023). Such breathing methods are recommended as a coping mechanism for anxiety and panic within NHS guidance (2022). Females have been indicated as breathing more thoracically and less diaphragmatically than men (Lomauro & Aliverti, 2018); despite this mechanistic variation, breathwork, similarly to anxiety, is an area in which there is little exploration of gender difference in terms of underlying mechanisms, intervention efficacy, or best practice (Project et al., 2022).

Mechanisms through which singing can optimise respiration have been theoretically and practically evidenced within singing for lung health (Kaasgaard et al., 2021; Lewis et al., 2018) and singing for long COVID (Cahalan et al., 2022; Philip et al., 2022) research. Contrastingly, there is

³ See Appendix 1 for Glossary of Terms

a lack of detailed examination of respirations' mechanistic effect on anxiety within the SFMH literature, which seems juxtaposed to the increasing use of breathwork within anxiety treatment (Aideyan et al., 2020; Steffen et al., 2021). Recent SFMH disciplinary discussions have suggested the need to elucidate both underlying mechanisms (Dingle et al., 2019) and appropriateness of interventions for different mental health (MH) demographics (Williams et al., 2018). This project sought to evolve understanding of best practice for females with anxiety through implementation of an intervention that was condition-specific and underpinned by psychological theory. Diverging from the predominant group-based interventions in SFMH research, it builds upon the evidence-base of a minority of studies investigating one-to-one sessions (Grape et al., 2003; Schladt et al., 2017; Smith et al., 2021).

This project corresponds with similar interventions informed by psychological theory and delivered by a non-clinician singing teacher (Mahony et al., 2022; Shaw et al., 2020). Here, singing teachers undertook approximately eight hours of training in acceptance and commitment coaching, a non-clinical version of acceptance and commitment therapy, using this material to inform and direct sessions delivered to support student vocalists with music performance anxiety (MPA). Ethical justification for singing teachers undertaking such work was, in part, based around the premise that the issue of MPA frequently arises within teaching studios. Additionally, the empathetic and congruent relational qualities of the teacher-student relationship were highlighted. Similar relational qualities were also foundational in the development of the current intervention, which, rather than focusing on MPA, centred more broadly, exploring the impact of session content on anxiety, breath, and voice in participants self-referring with anxiety. Justification for the study's focus centres on the efficacy of slow breathwork for anxiety and the seeming coalescent relationship between breathwork and singing in terms of slowing and deepening the breath (Bernardi et al., 2017). Additionally, ethical justification is grounded in the understanding that singing teachers are frequently skilled at implementing pedagogical techniques to optimise breathing and develop elements of control over respiratory patterns (Nair, 2006). Breathing was taught from breathwork and VP perspectives, creating a program of exercises that aimed to lessen anxiety, develop a more authentic sense of interpersonal safety, and minimise the impact of anxiety on both breath and voice. While some elements of the work undertaken

hold similarity with VPT, practices were delivered in a structured, progressive, pedagogical format rather than through the vocal "dialogical interplay" (Monti & Austin, 2018, p. 1), vocal improvisation and primitive sounds of VPT.

DEVELOPMENT OF PLANNED INTERVENTION CONTENT

Accent method (AM) breathing has been used therapeutically within speech therapy (Burg et al., 2015) and is applied within VP (Morris, 2013) to enhance optimal airflow to the vocal cords. Slow breathwork correlates with AM in encouraging gentle flexibility in the abdomen on inhalation, promoting optimal descent of the diaphragm and increased thoracic capacity/lung expansion (Chapman & Morris, 2017; Gerbarg et al., 2019; Hidetaka, 2020). AM also coalesces with breathwork in promoting slow contraction of the abdominal muscles to facilitate extended exhalation (Liu et al., 2024; Thyme-Frokjaer & Frokjaer-Jenson, 2001). Slow AM-informed practices were implemented in sessions (see Appendix 2); faster-paced exercises were excluded due to their similarity with holotropic breathwork practices, which have the potential to trigger panic attacks and flashbacks (Banushi et al., 2023).

Breathwork modalities vary in approach regarding respiratory parameters of breathing rate, depth, ratio and method of inhalation and exhalation (Balban et al., 2023). Selection and application of breathwork practices within the project was determined by the following criteria: a) those evidenced as appropriate and efficacious in anxiety populations, and b) those that hold similarity with VP AM breathing methods. The following breathwork practices were implemented: coherent breathing (CB), sigh breaths (SB), nose inhalation (NI) and pursed-lips breathing (PLB). A brief overview of these methods is developed below and further explicated in Appendices 3–6.

CB slows breathing rate to 5–6 breaths per minute (0.1Hz), with equal inhale to exhale ratio (Brown et al., 2013; Streeter et al., 2017); it has been evidenced to reduce anxiety, increase relaxation, maximise HRV and provide optimal flexibility of the sympatho-vagal stress response (Banushi et al., 2023; Gerbarg et al., 2019; Hinterberger et al., 2019). Singing with a CB respiratory rate and ratio amplifies HRV in a similarly beneficial way (Bernardi et al., 2017b; Tanzmeister et al., 2022).

Sighs are "resetters of regulation" (Dana, 2018, p137) that promote parasympathetic nervous

system activity and have the capacity to release a variety of emotional expressions, including relief, exasperation, and yearning (Del Negro et al., 2018).

Scientific consensus suggests NI as optimal for health (Kang & Park, 2018; Zaccaro et al., 2022; Zelano et al., 2016), as it provides neuroprotective function (Calabrese et al., 2007) and more efficacious entrainment of neuronal activity (Zelano et al., 2016).

PLB is a technique requiring active exhalation (Valenza et al., 2014); it enables improved control of oxygenation and ventilation (Nguyen & Duong, 2023), and PLB at a rate of 0.1Hz can be subjectively calming (Gholamrezaei et al., 2021).

METHODS

Study background and design

The project implemented a hermeneutic multiple case study design, aiming to gain understanding of individual participant experience (Given, 2008) through examining participant's written and spoken words (Doucet et al., 2010). It used mixed methods but was weighted strongly towards qualitative methods and analysis; it sought to explore the real-world experience of a theoretically-informed intervention (Denscombe, 2003), fitting Yin's categorisation of an explanatory case study design (1984) as prescribed by Bassey (1999). Aligning with feminist research, it aimed to empower women by providing a voice for individual participant's experiences and potentially unearthing forms of oppression (Cresswell, 2014). Three case studies were undertaken; triangulation of data sources sought to enhance internal validity (Easterby-Smith et al., 2012).

Ethical considerations

Ethics approval was given by the University of Wales Trinity St David based on inclusion of participants with mild to moderate anxiety. Given the sensitive nature of the project, risk was mitigated through a series of processes. The initial recruitment poster outlined the R/P's role as a singing/breathwork teacher and project details and participant consent forms clarified that the R/P was not a qualified counsellor or therapist and that sessions would focus on practices within the R/P's skill set. Additionally, participants were sent a document of recommendations for supporting their health and wellbeing throughout the process. Furthermore, because of the strong prevalence

between ADs and comorbid post-traumatic stress disorder in women (Walter et al., 2022), a trauma-informed teaching style was implemented by using a gentle sensitive questioning style (Realpe & Wallace, 2010) and co-creating with each participant in terms of content and structure of sessions (Filipe et al., 2017). Four one-hour online R/P supervision sessions were also undertaken with a psychotherapeutic counsellor who has experience of supervising SFMH practitioners. These sessions were interspersed throughout the 6-week intervention period, providing psychological support for the R/P and enabling discussion of individual participant needs, with advice given as to the appropriateness of intervention content, best practice, and care.

The intervention R/P is a classically trained singer and singing teacher with an excess of twenty years' experience teaching predominantly female students. The R/P is experienced in teaching both one-to-one and group Breath-Body-Mind (BBM) sessions. BBM is a trauma-informed program of evidence-based conscious breathing practices (Brown et al., 2013; Gerbarg et al., 2019), and the R/P's training included an introductory workshop (12 hours), Level 1 (48 hours) and Level 2 (36 hours). The R/P completed an introduction to theory & practice of CFT (20 hours) and trained as a compassionate mind training (CMT) facilitator (37.5 hours), which equips participants with the theoretical and practical skills to deliver an eight-week CMT course (Irons & Heriot-Maitland, 2021). CMT is an integral part of CFT and is gaining evidence as a mental health intervention in its own right (Beaumont et al., 2021; Savari et al., 2021), as it can result in increased HRV, positive soothing emotions, and reduced anxiety and stress (Matos et al., 2017). CMT is primarily psychoeducational, rather than involving other therapeutic aspects of CFT (Gilbert, 2022). It incorporates vagal breathing exercises and body-mind training elements and has been applied in a number of education settings (Matos et al., 2021; Rose et al., 2018; Welford, 2017).

Sampling strategy

Participants were recruited using a purposive sampling method (see Appendix 7 for overview). A recruitment poster was shared via local community Facebook pages (Bell & Waters, 2018), delineating the following criteria:

- Female
- Aged 18+

- Self-referring with anxiety that is impacting daily life
- No requirement for previous singing or breathwork experience

Interested parties were replied to with an email containing further project details, a participant consent form, and an open invitation to ask questions. The next stage of recruitment involved completion of a short health questionnaire to indicate potential comorbidities; this was informed by the R/P's breathwork practitioner experience of implementing similar questionnaires. Generalised Anxiety Disorder-7 (GAD-7) (Johnson et al., 2019) was sent out for self-administration by participants pre- and post-intervention. Justification for use of GAD-7 centred around the need for ethical participant care, striving to ensure that candidates were within the mild to moderate anxiety levels approved by the ethics process and that appropriate resources could be recommended post-intervention if anxiety levels rose. Candidates who were not within the mild and moderate categories of anxiety, as revealed by GAD-7, were informed sensitively and referred on. Those who disclosed comorbidities were discussed with the R/P's tutor. Candidates with comorbidities that were deemed extensive were sent a detailed overview of the project to seek GP approval; those with minor comorbidities were requested to declare themselves fit for the project via email. Six prospective candidates were entered into a random selection procedure to ensure equal opportunity and to limit any potential selection bias (Cresswell, 2014), with three being selected.

Participant profiles

Participants were female, aged 39 to 54, and either employed or self-employed (see Appendix 8). Mitigation was undertaken to ensure planned breathwork practices were not contra-indicated with participant comorbidities.

Procedure, data collection and analytical processes

Six weekly sessions of one hour were undertaken with each participant. An initial session plan was formulated (see Appendix 9); subsequent session plans were informed by further review of literature, enabling adjustment of practices depending on participant's emergent needs. Recordings of tones to fit coherent breathing rate, composed by Claude Stein (2020), were used in the purely breathwork elements of sessions.

Participant creative journals were handed out in the first session and collected post-intervention, and an R/P reflective practice journal was kept, including notes taken during session conversations. GAD-7 was issued via Google forms and post-intervention results were taken the day following the final session. Semi-structured interviews were undertaken post-final session; an interview protocol was prepared and guided by relevant research (Jacob & Furgerson, 2015). Individualised guidance for practice and tools was created and sent two weeks after the last session, aiming to aid transition and provide ethical participant care (Denscombe, 2014). A short questionnaire was emailed eight weeks post-final intervention session.

Qualitative analysis took place initially within each case and subsequently across cases (Crowe et al., 2011; Yin, 2009). A first cycle of "in vivo" coding with a "splitter" strategy was employed (Saldana, 2016). Codes were subsequently refined and categorised within broad themes. Emotion coding was applied, with differentiation being given to emotions directly referred to by participants and those inferred through the R/P's analysis (Kouamé & Liu, 2021). The final stage of analysis accumulated data from the previous coding stages and compared refined themes and emotion codes between participants, seeking potential cross-case analytic generalisations (Denscombe, 2014).

FINDINGS

Quantitative data

Pre- to post GAD-7 results indicated two participants had a reduction of five points and one participant reduced by six points, all moving from the moderate to mild category (see Appendix 10). While the small sample size does not allow for statistical significance, these results can be viewed as revealing an improvement in generalised anxiety, being beyond the minimal clinically important difference as indicated by Toussaint et al (2020).

Qualitative data

The coding process revealed three themes and a number of sub-themes (see Appendix 11).

Theme 1: Building a foundation of safeness within sessions

1a) Breathwork and relaxation to create nervous system balance

Initial sessions revealed that each participant experienced times when their breathing felt constricted. P2 disclosed that an osteopath and a yoga teacher had previously remarked on her restricted breath tendencies. Similarly, P3's conversations with a pilates teacher revealed the breath as being shallow and thoracic, leading to the self-realisation that she often breathed "almost backwards".

P1 experienced the guided nature of breathwork practices as highly supportive and compared this to feelings of frustration when self-implementing breathing practices at home. P2 described this part of the session as facilitating nervous system balance, even when she felt physically and emotionally overwhelmed:

The breathing exercises on the floor get my nervous system on board...I'm in the room, focusing gently, it's soothing. (P2)

P3 particularly appreciated the R/P's reassurance that "it doesn't matter if I don't stay in total time with the chimes"; this enabled reductions in respiratory tensions and more comfortable extension of exhalation, helping to develop confidence regarding ability to consciously control the breath.

Blending pedagogical techniques of breathwork and voice, alongside breath moving imagery, facilitated higher levels of relaxation for P1. She delineated this integrated approach as "the gold" of the sessions, reducing cognitive overwhelm and switching off "that incessant chatter that you get with anxiety" (P1).

1b) Co-regulation and feeling safe to sing

Findings suggest that all participants felt a strong and rapid connection with the R/P. Preliminary check-in conversations at the start of each session modelled an environment in which participants were able to feel heard and understood. P3 denoted this as a "safe and empathetic space"; such an environment permitted P2 the safeness to be vulnerable:

I find it easy to be vulnerable with her. This is very rare for me. A testament to her warmth and openness. (P2)

Participants conveyed the importance of the R/P's reassuring approach, naming practitioner

elements such as gentle voice tone and friendly facial expression as providing comfort and enabling confidence to engage in session content. Feeling safe was seen as being connected to the belief that the R/P was genuine and "authentic" (P2), as elucidated by P3:

I felt safe, respected, understood, and 'heard'... because you were willing to share something of yourself and your experience and vulnerability. (P3)

An important point for the R/P's reflexivity and adaptation of future practice was highlighted in P1's comments regarding feeling that she had struggled at times with eye-contact post-breathing practices.

I really struggle sometimes with eye contact and when I, like, kind of opened my eyes, you were sometimes staring at me. (P1)

Broadly, the R/P's characteristics, alongside the one-to-one format, were expressed as facilitating an atmosphere in which participants were able to garner the courage to use their voices without excessive self-consciousness. Participants expressed that being authentic and vulnerable would be challenging in a group environment, impacting the ability to physiologically relax for both breathwork and singing. For P3, singing in a group was expressed as "way too big a stretch for me"; this was in part influenced by her low vocal confidence, as she explains:

If part of your problem is hang-ups about singing, it's the very last thing I could do. (P3)

Theme 2: Voice – holistic point of convergence for breath, body, mind, and emotion

Appendices 12–14 contain an overview of participants' evolving relationship with their breath.

2a) Growing awareness and flexibility of breath

Participant awareness of breath was fostered by individual guidance surrounding techniques and "the personal way" (P3) they were implemented. For P1, awareness of the relationship between bodily tension, breath and anxiety was particularly underscored in session four when high anxiety resulted in greater difficulty releasing constriction in the breathing mechanism. In response, the R/P extended time spent on relaxation processes and gently repeated cues encouraging softness, which resulted in incremental unpeeling of tension in the stomach. Similar comprehension was felt by P3

regarding the impact of releasing the stomach on the breath mechanism:

The big thing that you have taught me is the stomach release and to really bring the breath down deeper. (P3)

P2 drew association between survival responses to threat and their impact in terms of stiffening respiratory patterns:

I'm trying to force myself to breathe so deeply that my whole stomach and diaphragm are tense, that it doesn't allow you to flow. (P2)

Sessions revealed to her that a gentler approach to breathwork can help counter physiological respiratory tensions and facilitate greater breath flexibility.

Awareness of breathing patterns extended to times outside of the sessions; P1 developed a more nuanced understanding of the relationship between her breath, emotional state and patterns of physiological tension surrounding the abdomen:

When ... I've had a panic attack or anxiety that has come on ... I've been very aware that the breath has changed, the stomach has hardened and constricted. (P1)

Participants also demonstrated the awareness and determination to try to implement breathing techniques at times of heightened stress and anxiety, exemplified by P3's experience of a difficult, anxiety-provoking visit to a specialist:

All the day... I did feel sort of peaceful...I was concentrating on my breathing because I was determined not to get to this (*gestures shoulders raising and hyperventilating*). (P3)

Changes regarding relationship to the breath were maintained at the eight-week follow-up, with participants continuing to use a more bodily-connected breath, as P3 explained, "on a daily basis I am reminding myself to breathe with my whole body".

2b) Awareness gained through connecting breath into voice

Combining breathwork practices and VP breathing methods was viewed as building more nuanced levels of awareness. For P3, realisations included the challenge of encouraging physiological relaxation of breath and body when moving into a standing position, compared to floor-based practices:

This was particularly enlightening for me as I realised how much I don't use my body to breathe and vocalise. (P3)

The R/P demonstrating and mirroring belly release was found to be validating and useful in encouraging participants to engage in this challenging work, allowing a sense of safeness and liberation to "let my stomach go as much as I am" (P3). As P1 explains:

We probably try to hold it in, you know suck in your belly... letting that out is difficult... it was Ok, because you let yours go out too, if that makes sense, with the splat thing. (P1)

Using the voice in association with breathwork added an element of auditory reinforcement, facilitating recognition of freedom, or constriction, of airflow in relation to vocalised phrases and enhancing comprehension of the choreography of processes involved, as P3 reflects:

The order they come in, how you can use the body and the breath to make the sound and not the other way around. (P3)

Similar enlightenment was experienced by P2 who found combined pedagogical techniques surrounding breath improved her awareness of breath patterns and facilitated more connection with her body:

You taught me... to have a relationship with what it feels like when you are breathing... I have much more awareness of whether my stomach is going in slowly or quickly...especially when you are doing that whoosh thing, when you need to get a louder sound out. (P2)

2c) Physiological and emotional blocks revealed and eased

Inhalation techniques focused on gentle opening of the nasal passages aided P1's vocal outcomes and relieved blocked sinuses, easing long-held frustrations regarding asthma, allergic rhinitis, and voice. P2 reflected on growing consciousness between tendencies to grip in the jaw and the impact this had on her breath and use of voice; within sessions, breath and voice exercises catalysed liberation of her sound:

In the sessions that unpeeling is about softening my face and jaw muscles, and my tongue so that my breath can fully move, and my voice has NO RESTRICTIONS! (P2)

Shifts of perception led P2 to attend a vestibular physiotherapist pre-session six, with the diagnosis indicating an extremely tight jaw. Session content improved awareness of these holistic interrelationships and the physiological revelations additionally had important emotional significance for P2:

Today during the singing, I became aware that I likely began tightening my jaw when my dad left, when I was 6 – my body’s way of keeping me safe was to tighten... I learnt to shhh – be quiet and keep my feelings hidden. (P2)

Similar processes of realisation occurred for P3, with awareness strengthening that constriction in the face and jaw had a detrimental impact on her pain and related anxiety issues. VP exercises to relax jaw, tongue and face provided valuable relief from discomfort:

Made me realise the tension in my mouth, cheeks and even up into my head and ears. I plan to continue using this in the future, particularly when the BMS flares and everything tightens. (P3)

Emotional and psychological associations with these long-held patterns of physical tensions were revealed to P3:

This is the biggy for me isn’t it... it’s all been part of this journey for me these last few weeks, this revelation to me that I don’t like my body...I’ve never trusted it ... so this a big kind of turning point for me, now. (P3)

Theme 3: Evolving relationship with voice

Appendices 15–17 contain an overview of participants’ evolving relationship with their voice.

3a) Countering judgement/restriction of voice and developing compassion

For each participant, analysis suggests historic occurrence of a form of restriction or judgement of singing voice. Processes of validation, non-judgemental listening and developed understanding regarding voice and breath mechanisms helped participants overcome occasional blocks to compassion and gradually evolve a more self-compassionate perspective. P1 revealed her experience as a young singer in rock bands, receiving unwanted judgements:

The person that was setting up the mike was like... you are going to have to sing louder, and I think it is from there that I just taught myself I’ve GOT to sing louder. (P1)

Being shamed for her volume of singing led to a sense of always needing to prioritise volume over everything else, which created physiological discomfort, pushing “the voice too hard...it feels painful in your head” (P1). She discovered from as early as Session 1 that she could enjoy singing more quietly and that it felt “nice and no pain in head or emotions attached”.

P2 disclosed an ongoing self-narrative about her lung capacity being small following one of her lungs getting “a bit crushed years ago”; this had created limiting thoughts and actions surrounding her singing voice:

I’ve never thought that I’ve got great lung capacity and I think that’s always why I can’t sustain notes ...I learnt it’s not been that, it’s been from trying too hard and tensing. (P2)

Relaxation of physiological tensions in the forehead, combined with learnt understanding about flexibility and slow contraction of the abdominal muscles when vocalising, enabled P2 to reframe this narrative and find freedom and length in sustaining notes, turning off “that switch of restriction” (P2).

Aged approximately 12 years, P3 experienced harsh criticism and mocking of her voice by a music teacher. This led to a belief that she could not sing or pitch notes and consequently impacted her willingness to sing throughout her life. Sensitively discussing this experience within sessions allowed P3 to develop heightened understanding of the detrimental effect that it had had on her:

I was deeply traumatised... and I’ll say that now, but I suppose all my life I’ve thought “Oh get over yourself that was ridiculous” you know but actually it wasn’t. (P3)

P3 viewed the process of discovery and evolution of self-kindness in sessions as being part of the impetus and courage to allow herself to overcome some of “the barriers I have built for myself over the years, particularly to do with singing”.

3b) Finding different aspects of voice - a source of joy and curiosity

Underpinned by her growing understanding of the breath and abdomen as the initial source of sound, P1’s trust in her own authentic voice developed, facilitating the courage and technical ability to sing with more nuance:

Less is more...I don’t always have to push and belt. (P1)

For P2, a growing curiosity developed throughout sessions regarding the potential of her singing voice, reframing pre-existing beliefs and feeling more “expansion” in connection with her voice.

It feels really freeing that my voice can make different sounds and my breath can last longer with less force, less effort! (P2)

The development of voice for P3 is a journey that commences in complete fear of singing to feeling “amazed at the volume that comes out”. P3 developed a solid foundation of understanding breath mechanisms that underpin voice:

Work to find sweet spot of letting body make note by relaxing into breath... to originate noise from deeper in body, not just throat... remain stunned when this happens. Very excited. (P3)

Participants experienced feelings of joy in relation to their voices. Relatedly, being playful and imaginative with physical movement during sessions was experienced as helping participants to connect with a time when they were less self-conscious about both voice and behaviour, as P2 reflects:

The singing is pure joy. I never feel silly with (R/P) because she’s playful and joyful. (P2)

3c) Self-trust and empowerment in connection to voice

Analysis suggests participants developed greater trust in their own authentic sound. P1 gained ownership over her own unique voice, realising “I don’t need to sound exactly the same as somebody else”.

For P2, the gaining of improved control over her voice felt empowering, both in terms of writing and performing new songs with increased vocal range and, more fundamentally, in trusting her voice to work with more ease and assuredness:

It is an empowering thing singing well, feeling comfortable hitting a note. (P2)

The vocal discoveries and progress made in sessions empowered P3 to garner the courage to sing in church, something she previously would not have dared to do. This confidence was facilitated in part by a greater trust in her ability to vocalise and a willingness to release herself from the constraints of other people’s judgements. Furthermore, her reflections suggest that a transformation in self-narrative also took place regarding her voice and its capacities more generally:

It’s louder than I thought...it makes me wonder because I feel like I have quite a soft voice, I’ve always thought ah you could never be a teacher because you can’t be heard. (P3)

Changes in participant’s relationship to their voice are maintained at the eight-week follow-up; questionnaire responses indicated greater positivity, confidence, and freedom in connection with singing:

I realise that singing is intrinsic to my personality and allows me to release and express emotions. (P1)

It feels freer than it did before I started... I’m more connected to my body and how to move the breath through it. (P2)

I no longer believe my mantra of “I can’t sing”! I’m really happy to have broken through a pain barrier in terms of letting myself sing. (P3)

DISCUSSION

Intervention findings indicated an increase in facilitation of authentic voice through reductions in voice, respiratory and broader body constrictions, and related liberation of suppressed emotion (Monti & Austin, 2018). Additionally, analysis suggests participants moved away from conscious and unconscious manipulations and negative self-evaluations of voice (Linklater, 2006), catalysing more self-compassionate, flexible, and empowered views of voice (see Appendix 18 for overview of hypothesised mechanisms of effect). The discussion will centre on the significance of findings from CFT and PVT perspectives and additional analysis will seek to situate findings within aspects of feminist theory.

Building a foundation of safeness within sessions

Anxiety can negatively affect the capacity to feel safeness within social situations and within experiencing primary and meta emotions (Gilbert & Simos, 2022). Such threat loop states cause hypervigilance in terms of cognitions, emotions, and behaviour (Irons, 2014). The bi-directional mechanistic effect between such processes and physiological constrictions in the body (Gilbert, 2014) might consequentially impact breath and voice. CFT theory links external sources of shame with the development of an individual’s self-critical inner voice (Carona et al., 2017). This has high relevance to aspects of authentic voice, particularly in relation to participants’ historic experiences of negative voice evaluation and the influence on self-perceptions of voice.

CFT’s transdiagnostic approach to reducing self-criticism and shame centres around down-regulating threat, increasing parasympathetic soothing states of safeness (Gilbert & Simos, 2022a), and facilitating higher levels of compassion (Hermanto et al., 2016; Matos et al., 2023). Within program sessions, balancing nervous system responses and furnishing participant safeness could

potentially have been influenced by multiple processes, consequently allowing the release of respiratory and voice-related muscular tensions, with benevolent freeing impact on breath, voice, and body (Linklater, 2006). Elements of co-regulation, including the R/P's gentle, prosodic voice quality and warm facial expressions, may have increased feelings of safeness and calm (Porges, 2009). Time spent on guided relaxation and slow breathing practices is anticipated to have facilitated a shift out of hyper-aroused threat state, amplifying parasympathetic nervous system activity (Zaccaro et al., 2022). VP techniques to facilitate physiological ease and lack of constriction may have amplified humming's benevolent effects on the nervous system (Bhatia, 2023; Trivedi et al., 2023b). Self-touch can enhance nervous system regulation (Dana, 2018); as such, practices, including stroking the forehead and jaw to release tension, may have promoted feelings of calm. Gentle, flowing movement was implemented alongside some vocal practices, cohering with elements of PVT, which correlates smooth, circular, flowing movement with ventral vagal state (Dana, 2020).

Blocks to self-compassion and receiving compassion from others are highly implicated with shame and self-criticism in individuals with anxiety (Gilbert & Simos, 2022). Sessions were undertaken with awareness of the need for incremental flow of compassion towards participants, understanding that this can be a triggering and difficult experience for some individuals (Hermanto et al., 2016). While at times resistance to compassion was apparent, participants were receptive to developing comprehension grounded in CFT's model of reality checks (Irons, 2014), that voice and breath could be affected by genetic heritage and experiences accrued through social and educational interactions. Such perspectives appeared to enable increased self-compassion and validation. Compassionate listening to participant experiences without judgement may have been foundational in enabling participant safeness, reflecting theory that being heard and understood enables processes of healing (Felitti, 2019) and validation (Morelli et al., 2014). It might be hypothesised that participant acceptance of compassion and subsequent increased self-compassion was shaped by the initial platform of slow breathwork, downregulating threat system defences that can impede openness to care and connection (Gilbert & Simos, 2022).

Revelations regarding the perceived challenges of group singing situations would appear to have high relevance to the SFMH discipline in terms of understanding blocks to group singing

interventions for anxiety populations and those who lack vocal confidence (Williams et al; 2018). Social connection is a key finding of many group singing interventions (Camlin et al., 2020; Fancourt & Perkins, 2018); the interdisciplinary amalgamation of a one-to-one pedagogical approach with underlying therapeutic underpinning might be viewed as fulfilling elements of social connection and social belonging (Geller, 2017), via the construction of a trusting relationship with the R/P and their validation of experience and compassionate listening. Furthermore, building a platform of interpersonal and intrapersonal safeness appears to have been fundamental in allowing participants to tolerate the levels of vulnerability that connecting to authentic voice and breath can require (Austin, 2009).

Voice – holistic point of convergence for breath, body, mind, and emotion

Constriction of breath and physiological voice tensions have been connected to suppression of emotion and inhibition of instinctual response (Lalande et al., 2012; Linklater, 2006). Ameliorating breath patterns in connection with voice and counteracting tendencies to compensate with excessive manipulation in the throat and mouth might enable both physiological and related emotional and psychological release. From a neurobiological perspective, stretching of lung tissue and increased diaphragmatic movement may have positively influenced the delivery of neural messages to the brain through mechanoreceptor activity (Heck et al., 2017), as well as having moderated pain perception and emotional state (Bordoni et al., 2016). Viewed within the understanding that females breathe more thoracically and less diaphragmatically than men (Lomauro & Aliverti, 2018), such mechanisms appear of fundamental importance to issues of female breath, voice, and anxiety.

Combining breathwork and VP approaches appears to have facilitated the evolution of increased self-awareness of tendencies within breath, body, and voice. Adduction of vocal cords during vocalisation can help to balance optimal airflow (Morris, 2013); relatedly the audio-feedback of hearing the extension and flow of outbreath supported participant learning and awareness processes. Initial pure breathwork techniques that took place lying on the floor built a platform of confidence in extending and controlling the breath. Subsequently floor-based and standing basic accent method-style exercises allowed enhanced participant understanding of the different

demands placed on the body and specifically the abdominal musculature in each posture (Morris, 2013), as well as methods to release constrictions.

Evolving relationship with voice

Regardless of previous singing experience levels, participants appeared to feel de-shamed regarding their experiences of breath and voice, supported by processes of increased self-awareness, validation, and improved understanding of connections between breath, voice, and body. Long-held self-critical tendencies shifted, with participants demonstrating increased self-compassion in relation to their voices. Such a trajectory is consistent with the central aims of CFT (Bell et al., 2021) and appears of high relevance for women, who are more likely to self-blame (Goubet & Chrysikou, 2019). Participants transitioned from fixed views of their voice towards greater joy and playfulness. Such an evolution can be viewed from a PVT perspective, with elements of the social engagement system permitting transition into ventral vagal connection (Porges, 2009), accumulating new information without sympathetic nervous system mobilisation (Dana, 2018). The developed relationship to voice might also be seen as exemplifying the two-part process of compassion as defined by CFT; firstly bringing “sensitivity to suffering in self and others” (Gilbert & Simos, 2022, p245) through enabling enhanced awareness of historical restrictions and judgement of voice. Secondly, encouraging “a commitment to try to alleviate and prevent it” (Gilbert & Simos, 2022, p245), through reframing self-beliefs with compassion and developing techniques to counteract suppression of breath, voice, and related emotions.

Findings contextualised within aspects of feminist theory

Through the sessions, participants appeared to transition from fixed and limited views of their voice towards a more empowered stance. Contextualised within a feminist perspective, these literal developments in awareness, confidence and flexibility of voice could potentially be viewed from a more fundamental level of developing female voice within a patriarchal society (Maji & Dixit, 2019). Self-belief in the freedom to express themselves, alongside the self-trust in the reliability of their voice, might have impacted the participants’ sense of feeling heard, as well as the self-agency to speak up for themselves, furnishing links between authenticity and a sense of power

(Gan et al., 2018). Such a process might be hypothesised as countering both the lack of gender-specific comprehension of anxiety (Christiansen, 2015; Farhane-Medina et al., 2022) and the historic proclivity towards labelling of women as “neurotic” or “hysterical” in an androcentric medical system (Merone et al., 2021).

LIMITATIONS AND FUTURE RECOMMENDATIONS

Strengths of the study are considered to include the novel, interdisciplinary approach, the illumination of individual participant experience, and the contextualisation of findings within CFT and PVT theories. Project limitations include the small sample size and participant pre-existing interest in breathwork. Analysis might be improved by a more comprehensive eight-week follow-up qualitative questionnaire, as well as re-administration of GAD-7. Findings regarding preferences for one-to-one sessions should be considered anecdotal, due to the lack of direct comparative experience of group scenarios. Within the project, there was no delineated guidance regarding using practices in-between sessions, as potentially varied adherence was thought to compromise comparability. Further research should focus on refining methods to better support and solidify participant engagement in practices outside of sessions. The project unearthed a range of areas of interest and importance, with future research of these issues being suggested:

- The impact of voice-shaming experiences within music education and their effects on future singing voice use/confidence.
- The relationship between female experiences of voice restriction and incidence of chronic pain and anxiety.
- The application of breathwork and voice pedagogy techniques to relieve symptoms of BMS and TMJ disorder.
- The relationship between belly holding in females and anxiety levels.

CONCLUSION

While framed within a small sample, outcomes of the study suggest that intervention sessions effected substantial change in relation to participant authentic voice. Breath and voice-related physiological tensions appear to have lessened, catalysing increased ease, freedom, and flexibility of voice. Intrapersonal relationships with voice are

suggested to have become more centred around compassion, joy and curiosity and participants were empowered to attempt to self-implement supportive practices (Fancourt & Finn, 2019). Contextualised within a voice science understanding of breath as the vital impetus for vibrations of the voice (Holbrow et al., 2014), the evolving comprehension of the bi-directional relationship between body and mind (Heck et al., 2017; Van der Kolk, 2014) and the emotional and psychological implications of restricting authentic voice (Monti & Austin, 2018), findings are believed to hold potential importance for a wide range of related disciplines.

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BIOGRAPHY

Claire Turner studied voice at the Royal College of Music and has worked as a performer and singing teacher for over two decades. She has a Master of Arts in Voice Pedagogy (Singing for Health Specialism) from the Voice Study Centre, University of Wales Trinity St David, and is also a breathwork teacher and compassionate mind training facilitator. Her research surrounds compassion focused therapy-informed approaches to singing for health, attention on the breath within singing for mental health interventions and the potential role of one-to-one approaches within singing for mental health and wellbeing. She works as a research and evaluation advisor for the Singing for Health Network and has presented her research at the Singing for Health Research Conference and within webinar events for the Singing for Health Research Project.

APPENDIX 1

Table 1: Glossary of terms

Term	Explanation
Accent method (AM)	Developed in the 1930s by Professor Svend Smith, the accent method has been used therapeutically within speech therapy for many years (Burg et al., 2015) and is utilised within voice pedagogy (Morris, 2013) to enhance optimal airflow to the vocal cords.
Anxiety disorders (AD)	In England, the WHO International Classification of Diseases (ICD-10) has been implemented into NHS standards and guidelines (NHS Digital - Clinical Classifications, 2023). The online application (World Health Organisation, 2019) categorises anxiety disorders into “phobic anxiety disorders”, including social and other specific phobias, “other anxiety disorders”, including panic disorder and generalised anxiety disorder (GAD), “obsessive compulsive disorder” and “reaction to severe stress, and adjustment disorders”, including post-traumatic stress disorder (PTSD).
Burning mouth syndrome (BMS)	Burning mouth syndrome is a chronic and complex neuropathic pain disorder with symptoms including burning sensations in the mouth and tongue (Adamo & Spagnuolo, 2023).
Compassion focused therapy (CFT)	Compassion focused therapy (CFT) is an established psychological, therapeutic intervention (Gilbert & Basran, 2018; Gilbert, 2020) that highlights human caring-compassion as key to mental health.
Polyvagal theory (PVT)	Polyvagal theory was developed by Stephen Porges. It outlines the phylogenetic evolution of the mammalian autonomic nervous system and the way in which this hierarchical development impacts human survival responses, emotional reactivity, and feelings of safety (Porges, 2018).
Singing for mental health (SFMH)	Singing for mental health is an umbrella term for practices and interventions that use the singing voice to enhance mental health.
Temporomandibular disorders (TMD)	Temporomandibular disorders are pathological orofacial conditions involving dysfunction within the temporomandibular joint; they are connected with chronic issues of pain (Caetano et al., 2019).

APPENDIX 2

Table 2: Overview of evidence for accent method (AM) and points of practitioner implementation

Element of planned intervention	Theoretical basis	Practitioner implementation points within program
Accent Method (AM)	<ul style="list-style-type: none"> The teaching of accent method techniques centres around repetition of exercises (Thyme-Frokjaer & Frokjaer-Jenson, 2001). Exercises build incrementally; integral to AM’s use in singing sessions, is that individuals reach proficiency within one level before progressing to the next (Morris, 2013). Exercises that are earlier on in the AM program hold the greatest degree of similarity to slow VRBPs. Later elements of the AM program require more extreme, rapid and repeated engagement of the diaphragm and strict adherence to rhythmicity of breath and vocalizations (Morris, 2013), which could be seen as less aligned with the basis of VRBPs. 	<ul style="list-style-type: none"> Using AM techniques incrementally, prioritising the development of confidence and ease of participant over the need to progress to more complex exercises. Limiting the exercises to those found earlier in the program.

APPENDIX 3

Table 3: Overview of evidence for coherent breathing (CB), correlations with voice pedagogy and points of practitioner implementation

Element of Breathing Practice	Theoretical basis	Correlation with voice pedagogy methods	Practitioner implementation points within program
Slow breathwork, including coherent breathing (CB) and its combination with vocalising	<ul style="list-style-type: none"> • CB increases feelings of calm (Gerbarg et al., 2019; Payne & Crane-Godreau, 2013), and decreases anxiety symptoms (Pettitt et al., 2021). • CB maximises heart rate variability (HRV) and promotes autonomic nervous system balance (Noble & Hochman, 2019). • Slow breathwork encourages unforced inhalation/gentle expansion of lungs and abdomen (Gerbarg et al., 2019), allowing optimal descent of the diaphragm (Hidetaka, 2020). • Slow contraction of the abdominal muscles to facilitate extended exhalation (Liu et al., 2024). • Five minutes singing at CB pace/ratio amplified HRV and increased positive affect (Tanzmeister et al., 2022) and spontaneous toning triggered CB pace leading to cardio-respiratory optimisation (Bernardi et al., 2017). 	<ul style="list-style-type: none"> • Accent method (AM) breathing promotes flexibility/ease of breath, with unforced inhalation (Chapman & Morris, 2017). • AM exhalation/vocalisation involves active use of the primary expiratory muscles of the abdominal wall (Thyme-Frokjaer & Frokjaer-Jenson, 2001). 	<ul style="list-style-type: none"> • CB, lying down (approximately 8 minutes) in first part of each session. • Five minutes CB at the end of each session to “book-end” with activation of the parasympathetic nervous system. • Connecting breathwork to voice – expanding belly on inhale and gentle belly button to spine motion on exhale. • Within most of the vocal exercises, encouraging a full, extended inhale and vocalising for five seconds on the exhale (approximating a CB rate/pattern).

APPENDIX 4

Table 4: Overview of evidence for sigh breaths (SB), correlation with voice pedagogy and points of practitioner implementation

Element of Breathing Practice	Theoretical basis	Correlation with voice pedagogy methods	Practitioner implementation points within program
Sigh breath (SB)	<ul style="list-style-type: none"> • Sighs are “resetters of regulation” (Dana, 2018, p137), promoting parasympathetic nervous system activity. • Sighs are connected to release of emotional expression (Del Negro et al., 2018). 	<ul style="list-style-type: none"> • Sighs enable an accessible means of controlling the breath and counteracting recoil force (Stewart, 2013). • Sighing is a primal sound which encourages more instinctive use of voice and a diaphragmatic breath (Chapman, 2016). 	<ul style="list-style-type: none"> • Use of SB to encourage calm and emotional release. • Implemented in the early stages of sessions as a relatively easily accessible way to slow and deepen the breath.

APPENDIX 5

Table 5: Overview of evidence for nose inhalation (NI), correlations with voice pedagogy and points of practitioner implementation

Element of Breathing Practice	Theoretical basis	Correlation with voice pedagogy methods	Practitioner implementation points within program
Nose inhalation (NI)	<ul style="list-style-type: none"> • NI increases production of nitric oxide, which provides a neuroprotective function (Calabrese et al., 2007). • NI facilitates more efficacious entrainment of neuronal activity including oscillations in the limbic system (Zelano et al., 2016). 	<ul style="list-style-type: none"> • NI while singing can be challenging due to rhythmic constraints (Miller, 1997). • Permitting time for NI while singing can optimise neuroscientific benefits (Moss Erickson, 2022). 	<ul style="list-style-type: none"> • Encouraging the use of NI throughout breathwork exercises • Introduction and encouragement of NI methods in singing. • Formulating singing exercises that permit generous time for NI.

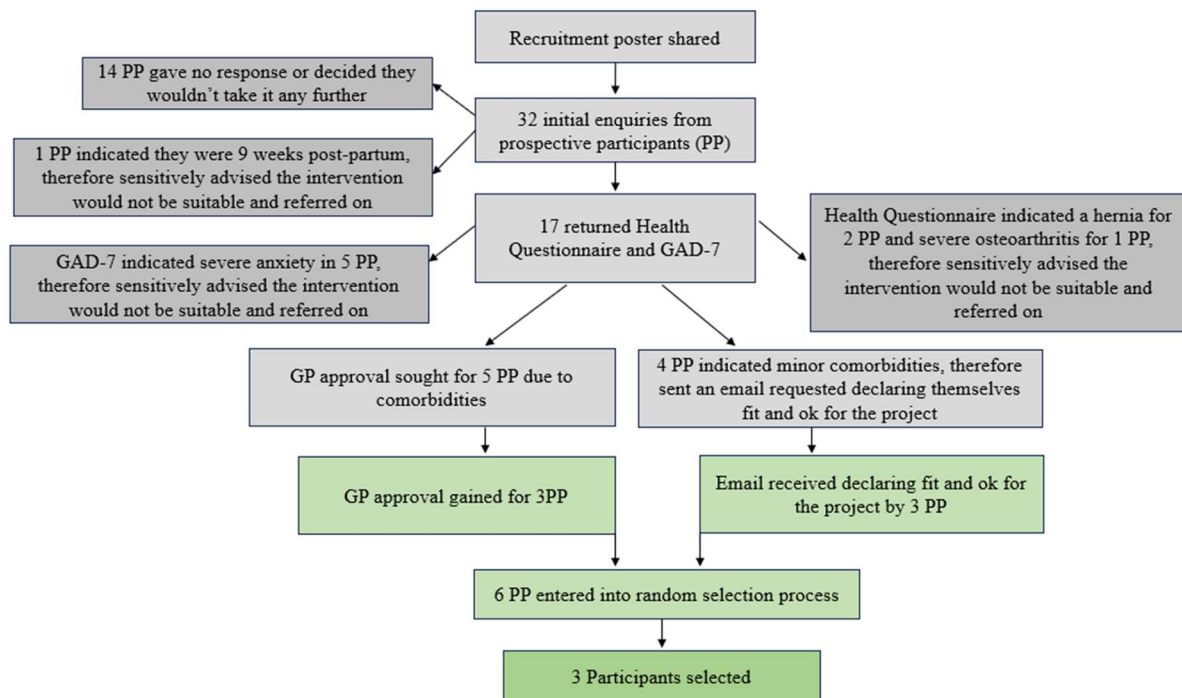
APPENDIX 6

Table 6: Overview of evidence for pursed lips breathing (PLB), correlations with voice pedagogy and points of practitioner implementation

Element of Breathing Practice	Theoretical basis	Correlation with voice pedagogy methods	Practitioner implementation points within program
Pursed-lips breathing (PLB)	<ul style="list-style-type: none"> • PLB encourages active exhalation (Valenza et al., 2014) and facilitates slow controlled flow of breath (Nguyen & Duong, 2023). • PLB at a rate of 0.1Hz was experienced as subjectively calming (Gholamrezaei et al., 2020). • PLB is an established physiotherapy technique to control/prolong exhalation in COPD patients (Lewis et al., 2016). 	<ul style="list-style-type: none"> • PLB is implemented in singing for lung health programs (Kaasgaard et al., 2021). • PLB is used in Chapman's SPLAT exercise (Singers Please Loosen Abdominal Tension) to facilitate active exhalation and release of abdominal tension on inhalation (Chapman., 2017). 	<ul style="list-style-type: none"> • Implementation of PLB exercise at the beginning of the sessions to enhance participant sense of control over slowing the breath and to enhance calm. • PLB used in connecting breathwork to voice exercises, with teaching of SPLAT.

APPENDIX 7

Figure 1: Overview of participant recruitment



APPENDIX 8

Table 7: Participant profile information

Details	Participant 1 (P1)	Participant 2 (P2)	Participant 3 (P3)
Age	39	48	54
Employment	Employed	Self-employed	Self-employed
Comorbid health conditions	<ul style="list-style-type: none"> Asthma Dizziness caused by inner ear issues Very occasional panic attack Some dissociation/flashback 	<ul style="list-style-type: none"> Some dizziness, low iron stores (taking supplements) Inflammation around womb/gut Pain around left side of rib cage to armpit – osteopath treating SOAS muscle 	<ul style="list-style-type: none"> Burning mouth syndrome
Breathwork experience	<ul style="list-style-type: none"> She does some yoga involving pranayama (breathing practices) 	<ul style="list-style-type: none"> She engages in meditation and some breathwork but finds it hard to maintain a routine 	<ul style="list-style-type: none"> She has read some breathwork literature and followed practices on YouTube
Singing experience	<ul style="list-style-type: none"> Loved singing from an early age, enjoying singing by herself, rather than in groups As a teenager, singing became part of her identity and she joined a heavy metal rock band, playing drums and singing. Asthma, allergic rhinitis, and medication-related dissatisfaction with voice quality led to an extended period without singing in her twenties. 	<ul style="list-style-type: none"> She has never had singing lessons, but believes she has good pitch. Her childhood was filled with music and she sang a lot when young; as a teenager she joined bands as a singer songwriter and continued with this until approximately 7 years ago. 	<ul style="list-style-type: none"> She is part of a musical family and music was a strong part of her identity growing up. While she was praised for being gifted at her instrument, she suffered shaming and criticism of her singing within classes resulting in a strong fear of singing

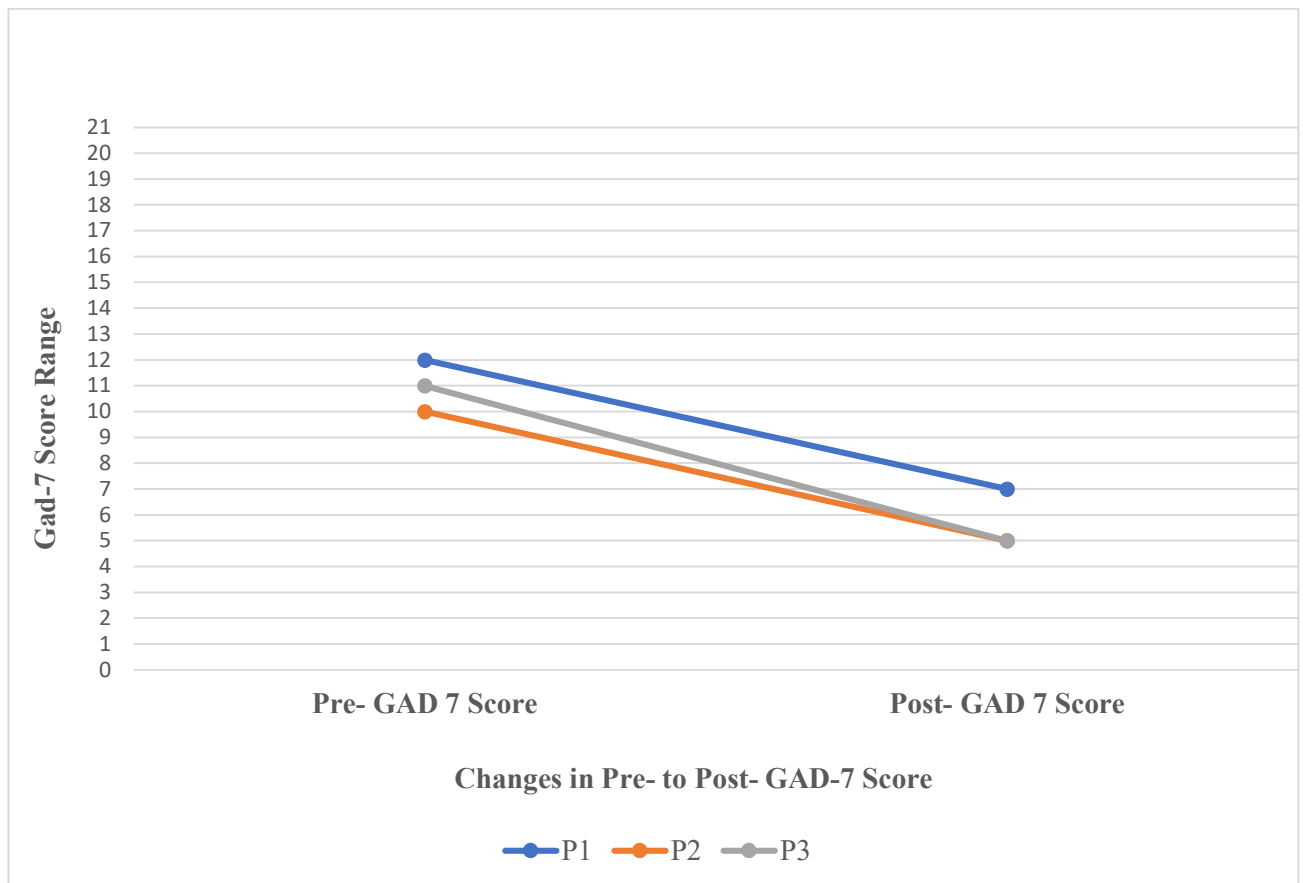
APPENDIX 9

Table 8: Initial session plan

Session Section	Practices/Exercises
Introduction	<ul style="list-style-type: none"> • Introduction to researcher-practitioner and sessions • Reassurance • Conversation covering anxiety, voice, and breath
Pure Breathwork	<ul style="list-style-type: none"> • Body scan relaxation/slowing the breath (5 minutes) • Sigh Breath (1 minute) • Introduce Coherent Breathing with Coherent Breathing Chimes (8 minutes) • Imagery of Breath Moving through body at Coherent Breathing rate (3 minutes) • Introduction of basic, slow Accent Method exercises with non-voiced fricatives combined with Coherent Breathing chimes (3 minutes)
Breathwork transitioning to Voicework	<ul style="list-style-type: none"> • Gentle Movement including shoulder rolls and forward bend (2 minutes) • Connecting Breathwork to Voice – expanding belly on inhale and gentle belly button to spine motion on exhale (2 minutes) • Adding non-voiced fricatives (2 minutes)
Vocalising	<ul style="list-style-type: none"> • Single note hums (3 minutes) • Hum/siren/voiced fricatives on a third interval slide (3 minutes) • More extended vocal range exercise on vowels (6 minutes)
Warm-down	<ul style="list-style-type: none"> • Breathwork warm-down: Coherent Breathing chimes (5 minutes)

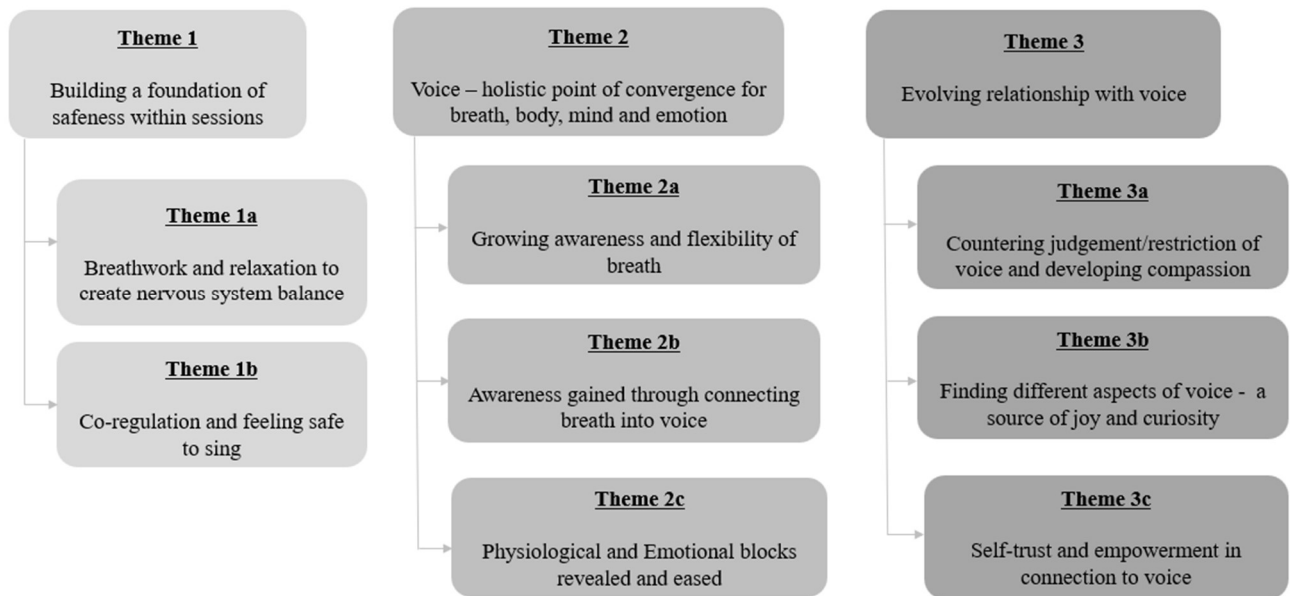
APPENDIX 10

Figure 2: Pre- and post-GAD-7 results



APPENDIX 11

Figure 3: Overview of themes and sub-themes



APPENDIX 12

Table 9: Trajectory of P1 data regarding breath from start of intervention to eight weeks post-intervention

DEVELOPMENTS REGARDING BREATH	START OF SESSIONS	DURING INTERVENTION PERIOD	INTERVIEW	8 WEEK FOLLOW-UP QUESTION: Do you have any more detailed reflections about how you feel about your breathing?
PARTICIPANT 1	RP: She believes she is a tummy breather; can feel tightness across chest. She does some yoga and pranayama. When anxious she notices shallow breathing and sometimes almost forgetting to breath	<i>V anxious, clicking nails, sweaty, couldn't breathe deep. Felt emosh when RP said you have nothing to do "right or wrong", when I was getting frustrated with myself for not breathing 'zzzz' buzz out at right timing. A few tears. We went very gently.</i>	<i>I think having somebody tell me and guide me what to do, and the visualisations in particular were really important for being able to use that breathwork....um, to help lower anxiety.</i>	<i>Very grateful for it.</i>

APPENDIX 13

Table 10: Trajectory of P2 responses regarding breath from start of intervention to eight weeks post-intervention

DEVELOPMENTS REGARDING BREATH	START OF SESSIONS	DURING INTERVENTION PERIOD	INTERVIEW	8 WEEK FOLLOW-UP QUESTION: Do you have any more detailed reflections about how you feel about your breathing?
PARTICIPANT 2	RP: Shallow breath, sometimes doesn't even notice any breath	<i>The initial breathwork and relaxation exercises on the floor were super calming.</i> <i>The breathing exercises on the floor get my nervous system on board – I'm in the room, focusing gently, it's soothing. It reminds me to untense my forehead, my cheekbones, my jaw.</i>	<i>Some of the techniques of you are getting me to do, taking my attention away from focusing forcefully on the breath and putting my attention other places definitely was completely new ..and helpful that does relate to breath really doesn't it because I'm trying to force myself to breathe so deeply that my whole stomach and diaphragm are tense, that it doesn't allow you to flow.</i>	<i>I... have felt the difference just short breathing exercises can have on the way I feel.</i>

APPENDIX 14

Table 11: Trajectory of P3 responses regarding breath from start of intervention to eight weeks post-intervention

DEVELOPMENTS REGARDING BREATH	START OF SESSIONS	DURING INTERVENTION PERIOD	INTERVIEW	8 WEEK FOLLOW-UP QUESTION: Do you have any more detailed reflections about how you feel about your breathing?
PARTICIPANT 3	RP: She read the James Nestor book and has done some breathwork including Wim Hof - on YouTube. When she did pilates, her teacher noted that her breathing was really shallow	<i>The challenge came when we moved to the standing exercise ... particularly enlightening for me as I realised how much I don't use my body to breathe.</i> <i>The breathing exercise was significantly more comfortable this week and I didn't feel that I ran out of breath before the end of the rising chime.</i>	<i>What I've really enjoyed is... the idea to put the breath anywhere in the body ... Which we all know physically doesn't really happen but the thought of putting the breath into my sore hip or into my sore foot or um you know I think that's really helpful.</i>	<i>I was already convinced by the potential and power of conscious breath work. I remain curious and committed to more regular practise. Generally, on a daily basis I am reminding myself to breathe with my whole body.</i>

APPENDIX 15

Table 12: Trajectory of P1 responses regarding voice from start of intervention to eight weeks post-intervention

DEVELOPMENTS REGARDING VOICE	START OF SESSIONS	DURING INTERVENTION PERIOD	INTERVIEW	8 WEEK FOLLOW-UP QUESTION: Do you have any more detailed reflections about how you feel about your breathing?
PARTICIPANT 1	RP: Has always loved singing – humming and singing as a child. Was found irritating by those around her so not encouraged...During 20s also put on weight which made her more self-conscious and less comfortable to sing and perform. Suffered from bad allergic rhinitis – took cortisol spray which caused Central Serous Retinopathy (CSR) ... felt her voice to be very nasal due to the rhinitis and wasn't happy with this so her singing lessened.	<i>I've not really sung like that to a piano and gently. I normally belt. Felt nice and no pain in head or emotions attached.</i> <i>Lovely sing to 'Always remember us this way' ...such lovely compliments! Feel fab!</i>	<i>The warm ups that we did and the techniques of opening the nose and opening the sinuses, actually really relieved a lot of those sort of symptoms and I felt that I could sing better.</i> <i>Whenever I've come away from one of your sessions, I've felt very positive about it and enjoyed having a little sing in the car on the way home.</i> <i>I'm scared of getting into that place again where everybody knows me as a singer and they are like all can you sing this or, and it's like, no bugger off! (laughs) it's my voice, it's for me,</i>	<i>I realise that singing is intrinsic to my personality, and allows me to release and express emotions.</i>

APPENDIX 16

Table 13: Trajectory of P2 responses regarding voice from start of intervention to eight weeks post-intervention

DEVELOPMENTS REGARDING VOICE	START OF SESSIONS	DURING INTERVENTION PERIOD	INTERVIEW	8 WEEK FOLLOW-UP QUESTION: Do you have any more detailed reflections about how you feel about your breathing?
PARTICIPANT 2	RP: Has never had singing lessons, but says she has good pitch. She sang a lot as a child and as a teenager started writing songs. She joined bands around the same	<i>I think I've always wanted to learn the skills the RP showed today, as a lover of singing but with no clue how.</i> <i>Made me aware how much singing has been an internal therapeutic process for me since a really young age.</i>	<i>Singing for me...it feels very connected to me ...so it's been lovely while I've been going through these other processes to have your process with me, just totally feels right (gesturing with hand to show alignment and synchronicity) it's totally felt like it's fitted exactly what I need and what I am doing yeah so it's been lovely.</i>	<i>Much more positive. I'm enjoying it and it feels freer than it did before I started the RP's classes. I'm more connected to my body and how to move the breath through it.</i>

Breath - Focused One - to - One Singing Sessions

	time and up until last 7 years she performed in bands as a singer-songwriter	<p><i>Something that resonates deep within and heals me.</i></p> <p><i>It made me want to sing more. It made me aware how much I tense my jaw and how I've likely done this whilst singing (and possibly talking) for years.</i></p>	<p><i>It's expression isn't it, is it authentic expression that you're letting out, which is the only reason why I sing, for that, it's like therapy</i></p> <p><i>Singing feels liberating... it's a powerful shifter, I'd put it on the same line as crying, you know how crying is such a wonderful release and shouting, a brilliant release.</i></p>	
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APPENDIX 17

Table 14: Trajectory of P3 responses regarding voice from start of intervention to eight weeks post-intervention

DEVELOPMENTS REGARDING VOICE	START OF SESSIONS	DURING INTERVENTION PERIOD	INTERVIEW	8 WEEK FOLLOW-UP QUESTION: Do you have any more detailed reflections about how you feel about your breathing?
PARTICIPANT 3	<p>RP: She loves music but not able to/scared of singing. Feels that it is curious that she is musical and yet 'can't' sing</p> <p>RP: Never sang in front of anyone – from being little. Really, really shy. Mum never sang – both of them can't hear own voice well in a group. School singing – embarrassed and church. She was good at guitar.. really pushed at school to do exams. As part of this needed to do aural exams. The music teacher would teach the aural to her in front of the whole of the rest of his music class, she felt really shamed</p>	<p><i>It highlighted to me the realisation that whenever I have tried to sing before I have probably done so with a tightly held breath and diaphragm and tense throat – no wonder it was so difficult!</i></p> <p><i>Delighted to be able to pitch notes again. Work to find sweet spot of letting body making note by relaxing into breath. The challenge is to not overthink the mechanics of belly and diaphragm movement but still to be able to originate noise from deeper in body, not just throat. I remain <u>stunned</u> when this happens.</i></p>	<p><i>Mean I like it, I'm excited by it ..excited to think that I can do it... I love the volume if I will just open my mouth and this is what I have to keep reminding myself, open your mouth, you know and if I can do that um, so that's the one thing, the volume and then the other is the fact that I can pitch.</i></p> <p><i>It was so (emphasised) unattainable for me whereas now I feel like you know what you can sing in church, nobody cares anyway and give it, open your mouth and do it, it's like I've never dared open my mouth to do it.</i></p>	<p><i>I no longer believe my mantra of 'I can't sing!' I'm really happy to have broken through a pain barrier in terms of letting myself sing. I'm sure some of the physical exercises such as the gorilla helped! I test myself regularly in the church environment and find myself less anxious about doing so. I won't be joining a choir anytime soon but, as far as I'm concerned, I've made some very positive leaps through your guidance and encouragement. Forever grateful!</i></p>

APPENDIX 18

Figure 4: Overview of hypothesised mechanisms of effect

