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Independent Study Module

Falling Flat: The association between burnout syndrome and functional voice disorders in elite voice professionals. A qualitative evidence synthesis.

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Table of Contents

Part One - Portfolio

Chapter 1: Introduction and rationale ..... Page 4
1.1: Introduction ..... Page 4
1.1.1: Burnout syndrome ..... Page 4
1.1.2: Elite vocal performers ..... Page 5
1.2: Rationale ..... Page 6

Chapter 2: Aims and objectives ..... Page 6
2.1: Proposed timeline of study ..... Page 7
2.2: Project aims ..... Page 7
2.3: Research objectives ..... Page 7
2.4: Aims for future projects ..... Page 7

Chapter 3: Methods ..... Page 8
3.1: Methodological framework ..... Page 8
3.1.1: Focus ..... Page 8
3.1.2: Goals ..... Page 9
3.1.3: Perspective ..... Page 9
3.1.4: Coverage ..... Page 10
3.1.4.1: Developing a search string ..... Page 10
3.1.4.2: Gathering relevant papers ..... Page 11
3.1.5: Organisation ..... Page 12
3.1.6: Audience ..... Page 12

Chapter 4: Reflection ..... Page 14
4.1: Reporting ..... Page 14
4.2: Responding ..... Page 14
4.3: Relating ..... Page 15
4.4: Reasoning ..... Page 16
4.5: Reconstructing ..... Page 16
4.6: Action plan..... Page 17

Claire Cannon
2217694
BMPF7013F

Part Two - Literature Review

Abstract: ..... Page 18

Chapter 1: Introduction ..... Page 18
1.1: Rationale ..... Page 19
1.1.1: Burnout ..... Page 19
1.1.2: Voice disorders ..... Page 19
1.1.3: The vocalists work life ..... Page 20
1.2: Objectives ..... Page 20
1.2.1: Population ..... Page 21
1.2.2: Exposure ..... Page 21
1.2.3: Outcome ..... Page 21

Chapter 2: Methods ..... Page 22
2.1: Design ..... Page 22
2.2: Search strategy ..... Page 22

Chapter 3: Results ..... Page 24
3.1: Selection of sources of evidence ..... Page 24
3.1.1: Study designs ..... Page 24
3.1.2: Summary of findings ..... Page 24
3.2: Thematic analysis and theoretical sampling ..... Page 25
3.2.1: Emotional exhaustion..... Page 25
3.2.2: Perfectionism ..... Page 26
3.2.3: Identity ..... Page 27
3.2.4: Stigma/shame ..... Page 28

Chapter 4: Discussion ..... Page 28
4.1: Summary of findings ..... Page 28
4.2: Considerations for practical application ..... Page 29

Chapter 5: Conclusion ..... Page 30

References: ..... Page 31
Appendices: ..... Page 46
Appendix A – Initial search results and reasons for exclusion ..... Page 46
Appendix B – Stage two- population breakdown..... Page 50

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Part One – Portfolio.

Falling Flat: The association between burnout syndrome and functional voice disorders in elite voice professionals. A qualitative evidence synthesis.

Chapter 1: Introduction and rationale

1.1: Introduction.

Despite evidence of a strong connection between functional dysphonia and burnout syndrome shown in the literature (Alvear et al., 2010; Mota et al., 2019; Guzy, 2021), there seems to be a lack of research into how these two elements may affect the population that is perhaps most vulnerable to both. The purpose of this paper is to investigate the possible physical effects of burnout syndrome (BS) on the voice of a working singer. By conducting a qualitative evidence synthesis (QES), I will use thematic analysis to uncover areas where BS and functional voice disorders (FVD) interact, with the aim of encouraging further exploration into BS amongst professional vocalists. I will explore the current scope and content of the literature connecting BS and FVD to identify common themes. By investigating whether symptoms of BS may negatively affect vocal production, I also hope to establish helpful lines of inquiry for vocal coaches during interventions with vocalists suffering with FVD.

I am a vocal coach who, for the past decade, has been working with both amateur and professional singers of all ages. My work as a coach, and my history of working as a gigging artist, provides me with some level of insight into the work life of a professional vocalist. Professional singers in my private voice studio who exhibit signs of functional dysphonia often report sensations of fatigue, stress, or BS. In contrast, the students I teach at theatre schools, who are training for the industry, tend to show fewer FVDs and demonstrate higher overall positive engagement. This prompted me to consider the concept of BS and its possible impact on the voice of elite vocal performers (EVP). My arrival at this current topic is a continuation of my research into BS and its effect on musicians mental and physical health.

1.1.1: Burnout syndrome. The APA dictionary of psychology (2008) describes BS as “physical, emotional, or mental exhaustion accompanied by decreased motivation, lowered performance, and negative attitudes toward oneself and others” (Par. 1). The three main elements of BS, exhaustion, reduced accomplishment and depersonalisation, have been commonly cited throughout BS literature since the syndrome’s conception in the late 1970’s (Freudenberger and Richelson, 1980; Maslach and Leiter, 2003; Defreese and Smith,

2013; Brady et al., 2020). As of 2024, BS is not considered a medical condition but has been classified as a syndrome (World Health Organisation, 2019). BS was primarily investigated as a hazard amongst the helping professions (Maslach et al., 1997) but was later accepted to be relevant to any profession where intense involvement from the worker is required (Leiter et al.,, 2009). BS is particularly prevalent in industries were the worker takes on extreme pressure to produce a high level of performance without sufficient time for rest or recuperation (APA dictionary of psychology, 2018). Studies have shown that it is not just the stress of work that contributes to BS, but rather the importance that the worker places on their work (Pines and Keinan, 2005). Results from a previous study measuring Maslach and Leiter's six areas of work life *(workload, control, reward, community, farness and values)* (2003), has shown that singers score highest in the category of 'values' when it comes to their work in the music industry (Cannon, 2023).

1.1.2: Elite vocal performers. Professional voice users can be found in many occupations, but the professional singer is the most elite (Koufman and Koufman, 2003; Pestana et al., 2017). The EVP relies on their voice for the entirety of their work (D'haeseleer et al., 2022), therefore any vulnerability in their voice can cause extreme stress or trauma (Koufman and Koufman, 2003). D'haeseleer and colleagues (2022) suggest that the metric by which we measure voice disorders should be adapted for EVPs, "it is clear that for elite vocal performers like musical theater actors, different norms should be applied" (p. 292.e4).

A meta-analysis conducted by Pestana et al (2017) noted that singing students had a significantly lower prevalence of voice disorders when compared to their professional counterparts. D'haeseleer et al's study supports this, but adds that preprofessional singers present a higher prevalence of stress and anxiety (2022). This research may indicate that the occupational pressures faced by EVPs, who may be more vulnerable to mental health issues, could pose further risks to their vocal function. The relationship between BS and FVD is further supported by the finding that experiencing BS is associated with increased voice difficulties in other occupations (Guzy, 2021).

Promoting healthy vocal techniques could mitigate the effects of FVD in professional singers (Neighbors et al., 2024). Furthermore, a deeper understanding of the vocalist's working environment may lead to more effective prevention strategies for FVD within this population.

1.2: Rationale.

A study conducted by Mental Health UK (2024) reports that around 20% of workers across the general population have taken time off work between 2022-2023 due to poor mental health caused by excess pressure or stress. Consequently, there is a renewed focus on BS post pandemic (Edú-Valsania et al, 2022; Burrowes et al, 2023). This is especially pertinent for those working as self-employed due to the added pressures of maintaining financial security in a rising cost of living crisis (O'Brien, 2024).

According to the first ever music census undertaken by Help Musicians and Musicians Union (2023), around 80% of musicians currently working are self-employed. The average salary for a UK based musician in 2023 was reported to be around 20,700GBP (Help Musicians and Musicians Union, 2023), almost 15,000GBP under the UK national average (Office for National Statistics, 2023). Many musicians will take on extra jobs outside of the industry to bridge the gap between their earnings from music and the rising costs of living (Beaumont-Thomas, 2023). Even seemingly successful musicians have seen a drop in income from digital royalties, putting pressure on them to make, or save, money in other areas, often by taking on extra touring hours, marketing responsibilities and increasing their social media visibility (Ficek, 2024).

Given the increase in stress-related absences across workplaces (Mental Health UK, 2024) and the below-average earning potential for freelance musicians (Help Musicians and Musicians Union, 2023), it is perhaps unsurprising that musicians' mental health has reached a concerning low post pandemic (Help Musicians, 2021; Shotwell, 2021; Musgrave, 2023). This evidence pointing to a potential mental health crisis among musicians, alongside rising concerns about BS, suggests that industry professionals must urgently explore strategies to alleviate BS among singers and musicians. By encouraging further research in this area, vocal coaches can arm themselves with more efficient lines of inquiry during interventions with working singers struggling with FVD. This may include signposting the client towards other multidisciplinary practitioners to mitigate further vocal damage. In this review I intend to investigate how BS may affect the vocal health of EVPs, and how coaches may identify warning signs in the voice studio.

Chapter 2: Aims and objectives

As my future intention is to conduct a qualitative study focused on vocalist BS, it is important that I first investigate the current landscape of relevant literature (Boote and Beile, 2005). I will therefore conduct a QES to transparently collate and thematically synthesise the

current available literature discussing BS and FVD using methods outlined later in this paper.

2.1: Proposed timeline of study.

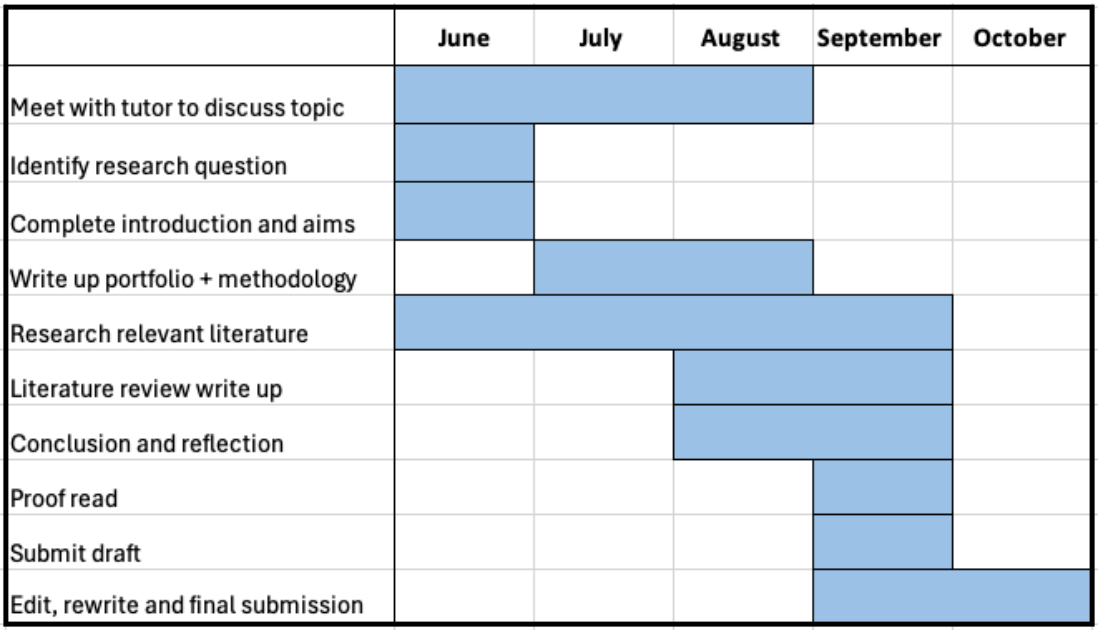

Figure 1: Gantt chart to show study timeline.

2.2: Project aims and objectives

- To identify the scope of the literature connecting BS and FVD through QES.
- Research the physical effects of BS on the voice of a working singer to improve interventions in future professional practice.

2.3: Research aims and objectives

- To establish patterns in the literature discussing BS and FVD through thematic analysis.
- To identify gaps in the current research around the presentation of BS in vocalists.

2.4: Aims for future projects.

- Investigate various coaching methods via continuous qualitative enquiry to establish best practices when preparing young singers who wish to follow a career in performance.
- Develop a program to promote BS awareness, prevention and management for working musicians
- Create educational program for young singers to encourage BS prevention.

Chapter 3: Methods

When developing a methodological strategy to analyse and synthesise qualitative data, it is prudent to first establish the purpose of the study to develop a method which will address that purpose (Blandford, 2013). A robust conceptual framework aids in the selection of suitable study methods and reduces the risk of bias commonly associated with qualitative research, thus enhancing the credibility of the findings (Johnson et al., 2020). I am aware that this plan may be subject to change as the process evolves and my understanding of the phenomena develops (Kacen and Chaitin, 2006).

I have chosen to undertake a QES to transparently synthesise data from previous studies to find common themes that may be used to support further research (Souza et al., 2010). Transparency will be achieved by detailing the research design, sampling strategy and data collection methods (Hecker and Kalpoka, date unknown). Additionally, supplementary material evidencing all data collected during the search process will be provided in the appendices (Kapiszewski and Karcher, 2021) (Appendix A).

I will use PEO keywords and inclusion/exclusion criteria to extract primary data from my chosen databases (Munn et al., 2018). I will then use an iterative approach to theoretical sampling through citation chaining to synthesise additional data within the scope of my chosen population (Kelly et al., date unknown). Qualitative synthesis is beneficial to develop new understanding and inform practice (Seers, 2012). However, recognizing the potential for limited systemic rigor in QES, I will refrain from drawing definitive conclusions and will focus instead on identifying themes based on the best available evidence (IEG, 2022; Tricco, 2022).

3.1: Methodological framework

Throughout this review I will consider Cooper's taxonomy of reviews (1988) to help form a structure to my writing. Cooper suggests that literature reviews can be effectively structured using six characteristics (i) focus, (ii) goal, (iii) perspective, (iv) coverage, (v) organization, and (vi) audience (1988). Below I will outline how these characteristics can help when both assessing and structuring reviews, and how they were employed in the building of my review.

3.1.1: Focus. The focus of a review is determined by the primary interest of the researcher (Cooper 1988; Sipe and Stallings, 1996). There are four potential foci identified by Cooper: (i) research outcomes, (ii) research methods, (iii) theories, (iv) practices or

applications (2008). Whilst many literature reviews are focused primarily on research outcomes (Randolph, 2009), most reviews have multiple areas of focus (Cooper, 1988). My focus in this review will be on research outcomes and theories. As the literature around BS and FVD in EVPs is scarce (Parkinson, 2016), I will focus initially on identifying theories from researchers investigating other communities which may be applicable to my chosen population. By investigating and highlighting common themes in previous research, I can inform my own practice and that of other practitioners (Randolph, 2009). Cooper suggests that the four research foci are not mutually exclusive (1988), as my intention is to build upon this research it may also be prudent to assess research methodologies and practices found in the literature.

3.1.2: Goals. The most common goal across all literature reviews is to synthesise available literature relating to a topic of interest, "...it is difficult to find reviews that do not attempt to synthesize works at some level" (Cooper, 1988, p. 108). Alternative goals may be to critically analyse past studies (Randolph, 2009) or identify central issues relating to a particular field (Baumeister and Leary, 1997). My primary goal is to define the scope of available literature relevant to my chosen context and concept (BS and FVD). The data from this review, along with ongoing research, may better support coaches and others working with singers who exhibit symptoms of BS. An outcome orientated review may also help identify gaps in previous research in which no outcomes are evidenced (Randolph, 2009).

3.1.3: Perspective. The perspective of the author is especially important to identify within the context of qualitative research (Bryman, 1984). My current understanding of the singers work life has been cultivated by my lived experience as both a singer and a coach, this influences my paradigm of interpretivism (Mertens, 2012). Any insights gained from this research will be interpreted through an ontological lens of relativism. Social phenomena are shaped by human interactions, which are subjectively constructed according to an individual's environment, personality, and beliefs, thereby negating the possibility of a universal truth (Rehman and Alharthi, 2016). Much of the research into BS lives in a qualitative space which is open to much bias and interpretation and can therefore not be viewed through a positivist lens (Cooper et al., 2012).

Using qualitative data in phenomenological research is a sound way to inspire change in legislation (Kozleski, 2017). In qualitative research the reality can be constructed through the interpretations of researchers, participants, and readers (Blandford, 2013). Given the potential for bias, it is essential for authors of qualitative reviews to disclose any potential biases (Randolph, 2009). By acknowledging and clarifying our ontological and

epistemological position up front, we give the reader context relating to the editorial process and how information was knowingly or unknowingly filtered through the researcher (Randolph, 2009; Blandford, 2013).

3.1.4: Coverage. Cooper (1988) suggests four methods of study selection which he labels 'coverage', (i) exhaustive review (ii) exhaustive review with selected citation (iii) representative sample (iv) purposive sample. Cooper defines an exhaustive review as "comprehensive coverage within the limitations of the author's definition of the area" (1988, p. 114). Due to the restrictions on time allocated for my study, I chose to conduct an exhaustive review with selected citation following a semi-systematic search strategy which I will outline below.

Achieving data saturation on this topic is unrealistic due to the current lack of classification of BS as a medical condition (World Health Organisation, 2019). BS symptoms (e.g. Chronic fatigue, stress, depression, anxiety, etc) may not be classified as BS by past scholars. The academic rigour in QES can vary greatly, therefore each review must be viewed uniquely based on the outlined search strategies and the perceived risk of bias (IEG, 2022).

3.1.4.1: Developing a search string. I independently conducted a search of the literature across six databases between 26th June 2024 and 30th June 2024 to identify the scope of the literature around BS and its relation to FVD. The following six databases were searched: PubMed, journal of voice, sage journals, science direct, google scholar and the UWTSD library. The PEO mnemonic was used to identify keywords for an initial search string (Munn et al., 2018) *(Table 1).*

Population	Working singers
Exposure	Burnout syndrome
Outcome	Functional voice disorders

Table 1: PEO mnemonic.

Search string one was generated using Boolean connectors *(Table 2).* There were no results in any of the specified databases with this specific search string. I then widened the search string to include only the three main elements (Search string two). After more searching it became apparent that the literature around these three elements was scarce. I decided to focus my search solely on the exposure and outcome (Search string three). Population will then be established from the resulting data. As this study does not

encompass all possible peer reviewed papers on the association of FVDs with each separate element of BS important evidence may be missed.

Search string one	*(burnout OR "occupational burnout" OR "professional burnout") AND ("voice disorders" OR "vocal fatigue" OR hoarseness OR dysphonia) AND ("professional singers" OR "working singers" OR vocalists) NOT (students OR amateurs)*
Search string two	*Burnout AND voice disorders AND working singers.*
Search string three	*Burnout AND voice disorders.*

Table 2: Search string descriptions.

3.1.4.2: Gathering relevant papers. Relevant papers were identified by title and abstract and saved to an excel chart. 69 papers were collected, and 10 duplicates were removed. 59 papers remained for further exploration of the text *(Figure 2).*

Of the 59 remaining papers, 38 articles did not meet the primary eligibility criteria and were excluded (Appendix A). There were six items in the inclusion criteria: (i) must be in English, (ii) text must be available in full, (iii) must discuss FVDs (iv) must discuss BS, (v) population must be working professionals (vi) paper must be peer reviewed. Following application of the exclusion and inclusion criteria, the remaining 21 papers were further screened to determine population (Appendix B). This helped to establish where most of the research into BS and FVD currently resides.

At this stage I made the decision to remove papers investigating academic teachers without the additional element of musicianship. The discovery of Koufman and Koufman's work on the four levels of voice professionals highlighted the idea of an "elite voice professional" for whom any slight impairment would inhibit their ability to work, this group did not include teachers (2003). Despite this addition to the inclusion criteria, the results of this QES may still be applicable to other voice professionals. Studies on music therapists were included in my analysis due to their reliance on voice as a primary instrument (Baker and Uhlig, 2011; Murray, 2015). This left six papers in total, three investigating singers/performers and three investigating music therapists. These six papers will be read in full to extract themes which will form the foundation of the theoretical synthesis (Glaser and Strauss, 2009).

3.1.5: Organisation. The organization of the studies will involve a systematic review of the data presented in each paper to identify information pertinent to my research question

(Zawacki-Richter et al., 2020). My ontological position that there are multiple truths means that there is no correct way to qualitatively analyse data without possible bias (Terry et al, 2017), however Braun and Clarke (2006) suggest that the subjectivity of the researcher can be integral to the analysis when outlined clearly.

My analysis will be built via mixed purposeful sampling, which will facilitate triangulation and explorative flexibility in the results (Suri, 2011), and an inductive approach to thematic development, generating themes and insights from the data itself, rather than starting with a preconceived hypothesis (Terry et al., 2017). Through deep engagement with the primary literature, extracting themes as I assess the data, I will organically collate information which applies to my original question. Braun and Clarke (2006) describe thematic analysis as “a method for identifying, analysing and reporting patterns (themes) within data” (p. 79). Using this analytical process means that the resulting themes “can be stronger or weaker but they cannot be right or wrong in any objective sense” (Terry et al., 2017, p. 20).

I will then use citation chaining from the primary resources to look outside of the original sample to further explore these emerging themes (Silverman, 2008). As my paper is explorative in nature I do not intend to make concrete conclusions, but rather to contribute to a growing conversation and highlight any items that may benefit from further exploration.

3.1.6: Audience. Cooper (1988) mentions four different audiences for literature reviews: (i) specialised scholars, (ii) general scholars, (iii) practitioners or policy makers, (iv) the general public. The author should understand the intended audience prior to writing (Huff, 1999), this will be evidenced through the authors writing style (Cooper, 1988). The topic of the paper will invite a core audience (Silverman, 1982), as will the platform upon which it is published (Olsen, 1997).

My own paper is written as part of a body of work into BS. My overarching intention is to reach policy makers and educators in the music industry to highlight the importance of accessible education and support systems for working singers. Whilst Cooper (1988) suggests that it is rare for reviews to be intended for the public, it is my belief that when it comes to mental health and addressing the working conditions of musicians, we should make the research accessible for those outside of academia.

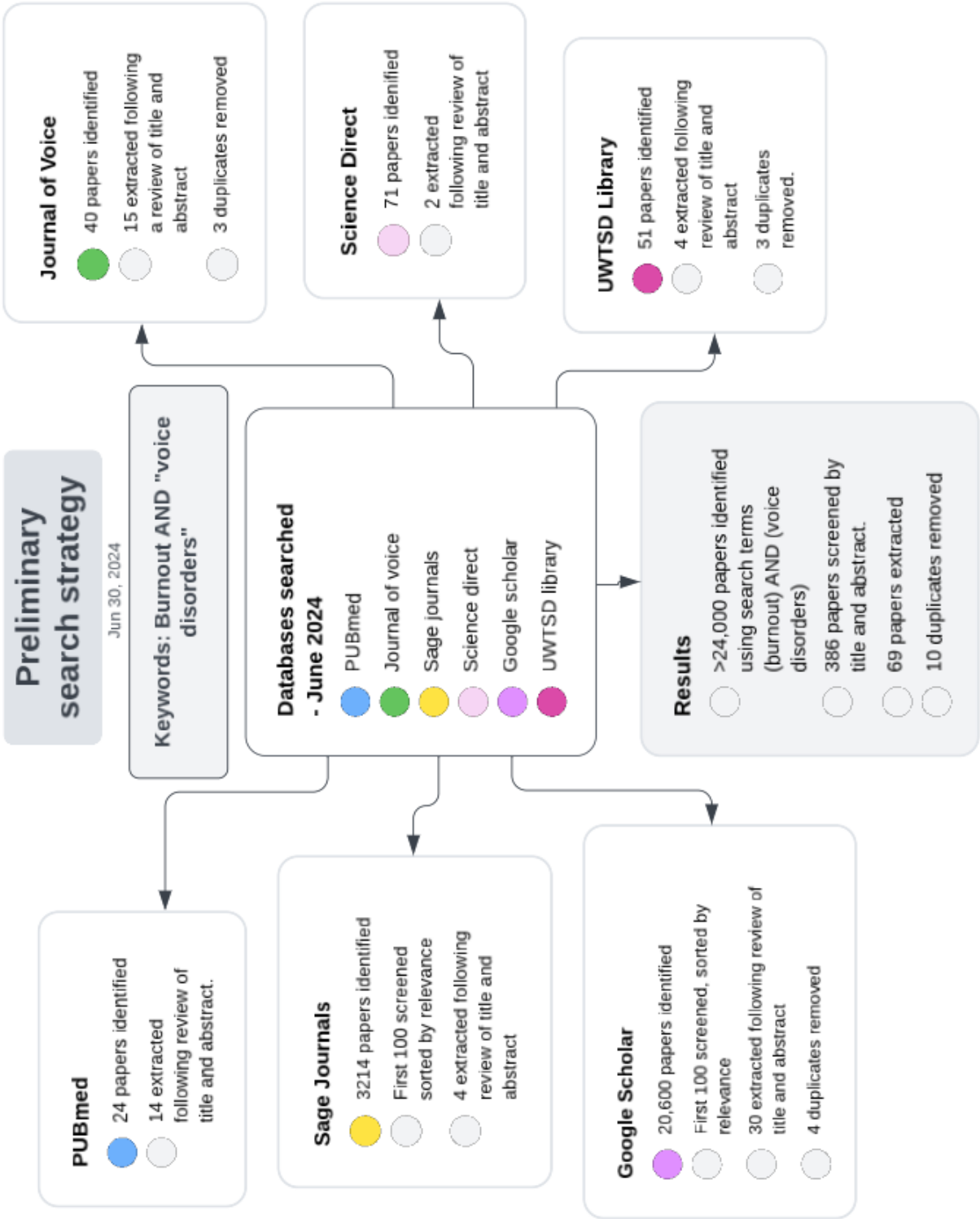

Figure 2: Flow chart - Initial search process (Created by Cannon 2024)

Chapter 4: Reflection.

Reflective practice requires the learner to not only focus on the knowledge, but also on the process of learning itself (Rolfe, 2002). Qualitative research requires the author to continuously reflect on subjectivity and context to increase academic rigor (Olmos-Vega *et al.,* 2022). Both reflection in action (reflection during the process) and reflection on action (reflection after the fact) are beneficial for practitioners to prepare for the learning process, and later, for correct application of the learning (Schön, 1983). Basil et al (2017) define reflective practice as "the ability to purposely explore personal experiences, beliefs or knowledge in order to increase understanding, promote personal growth and improve professional practice" (p. 464). Using a reflective framework will help the author to engage in a more productive reflection (Grossman, 2008). To frame my reflective practice, I will be using the 5R framework of reflection (Bain et al., 2002)**,** which focuses on five core stages each addressing a different aspect of reflection.

4.1: Reporting.

This literature review was undertaken as part of my master's degree and is a continuation of my research into musician BS. My primary goal was to identify current literature addressing the association between FVD and BS, with the intention of expanding my knowledge around the impact of a singer's work life on their vocal health.

I completed this review as a part time student whilst working full time as a freelance singing teacher and vocal coach, it took approximately 4 months. The process was largely self-led with guidance from the Voice Study Centre when needed. I had three online 1-2-1 appointments with my tutor and attended four online group classes. I developed a GANTT chart *(Figure 1)* to ensure that I could stay on track with study hours over evenings and weekends (Ramachandran and Karthick, 2019).

The decision to focus specifically on FVD in relation to BS was a response to the rising number of clients in my private studio presenting with voice issues and reporting struggles with work/life balance. As an insider researcher, I remain acutely aware of the potential biases that may affect the outcomes of any studies I conduct in this field. This awareness remained a central consideration throughout the entire process

4.2: Responding.

This was the fifth academic paper I have written as part of my master's degree. As such I believed that both the researching and the writing process would get easier, however it felt like the most difficult assignment to date. This is possibly due to my growing awareness

of the academic rigor required in research. As I continue to delve deeper into the literature around various research methodologies and theoretical paradigms, I begin to question my own theoretical position. Similarly, the more I learn about musician BS, the more complex the phenomenon seems to become (Dunning, 2011).

This assignment fell across the summer holiday period, and it quickly became a challenge to balance my parental responsibilities with my professional obligations and my studies. It was an interesting experience to learn about BS whilst trying to avoid succumbing to it myself. It was often a struggle to stay on track and remain motivated when feeling overwhelmed. As an insider researcher working with clients who were expressing BS symptoms, I was careful to avoid sharing any results of my ongoing research to avoid misinformation.

Synthesising the information found during the data collection stage was a particular challenge due to the methodological differences between the primary sources of evidence. Despite this I feel that my decision to use thematic analysis was wise considering the time and resource constraints. Frustration arose due to limited access and paywalls on various search databases. To manage the feeling of overwhelm, I collected references throughout, and colour coded my work to keep track of citations.

Confidence in my writing has grown and I am becoming comfortable with creating rough drafts. This is largely due to an earned understanding that I will do numerous rewrites before the paper comes together. Working on one section at a time, whilst following a strict timetable, meant that I had time for errors. Using frameworks to keep the writing organised also helped me feel comfortable in the messy stages. I believe that it was only through careful organisation that I was able to remain productive.

4.3: Relating.

Despite feeling like this was the most difficult study to date, I was able to recognise that my experience with this module was not unlike my experience on the previous modules. It is perhaps easy to forget the hardships of past projects and assume that the current struggle is greater than past struggles. I felt confident that I was able to complete the task despite periods of self-doubt as I have experienced similar struggles with each module. The knowledge that ‘I can’ is perhaps one of the most valuable aspects of this learning journey.

One important realisation is the idea that the more I learn, the more I struggle with learning. Through deeper engagement with the BS literature, I started to question my previous observations. This was particularly relevant in this study as I questioned my methodology many times.

In my professional practice I must also acknowledge the imposter syndrome (Clance and Imes, 1978) that I experienced working professionally in an area whilst continuing education. It was confronting to read information that I had not considered during my 10+ years of teaching and to discover evidence challenging my previously held beliefs.

I have discovered that organisation is perhaps my greatest tool for success (Motion, 2023). By clearing space in my diary for study sessions, and sticking to the timeline, I can achieve a flow state (Csikszentmihalyi, 2013), and remain productive (Lee, 2005). As a teenager I adopted the belief that children were either academic or creative (Gretzels and Jackson, 1962), which can be limiting for a young person who identifies as naturally creative. As I find myself in post graduate education, it is comforting to know that one can be both (Loew, 2020), particularly when the subject is one that the author is passionate about (Stoeber et al., 2011). It was most likely a lack of focused attention in my early education which caused lower levels of engagement, rather than a lack of ability (Bradbury, 2023).

4.4: Reasoning.

Whilst I do feel that I have achieved my immediate goal of conducting a study into the association between FVD and BS, I am concerned that I may have limited the wider generalisability of the findings due to my limitations on inclusion. This study might have produced more valuable findings if data on teachers had been included, as BS is better understood in this population (Mahmoodi-Shahrebabaki, 2019). However, addressing each population individually offers greater benefits for practitioners (Demerouti et al., 2021), whilst highlighting the limited literature specifically focusing on EVPs.

Despite the methodological differences across the primary papers, I believe that the commonality of the organically emerging themes highlights the importance of addressing BS in this population separately.

4.5: Reconstructing.

My democratic coaching style means that this learning can be easily applied in my professional practice. One element of my learning experience which will benefit my clients is to encourage comfort in “rough drafts”. For singers this can be translated into feeling happy with progression over perfection. The data around perfectionism in this thematic analysis backs up the importance of a coach who creates a safe space for experimentation (Murray, 2015; Smallwood, 2021; Jones, 2022; Oliveira et al., 2022).

A democratic coach values and encourages autonomy, competence and communication (Dong, 2022). As a result of this review, I have learned that holding space for

my clients to discuss any issues they are having with their voice or work life is an important step to remove the stigma and possible shame they may feel (Stangl et al., 2019; Jones, 2022). The evidence from this review gives me confidence in my previously held beliefs that autocratic coaching may be detrimental to vocalists and could even encourage BS symptoms (Barcza-Renner et al., 2016).

4.6: Action plan.

- Continue to use GANTT charts to schedule projects.
- Look for evidence-based frameworks to ensure academic rigor in future research projects.
- Continue to research BS and its effect on EVPs.
- Continue reflection in education and professional practice.

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Part Two – Literature Review

Falling Flat: The association between burnout syndrome and functional voice disorders in elite voice professionals. A qualitative evidence synthesis.

Abstract

Musicians frequently report experiencing elevated levels of depression and anxiety associated with their profession (Gross & Musgrave, 2016; Vertava Health, 2021; Thraves, 2022), with a significant number considering leaving the industry altogether (Venvell, 2021). This trend may reflect an escalating concern regarding the presence of burnout syndrome within this demographic (Cannon, 2023). Despite evidence that burnout can have a detrimental impact on the voice (Alvear et al., 2010; Mota et al., 2019; Guzy, 2021), research into the syndrome in vocalists is scarce. This qualitative evidence synthesis aims to gather and analyse available literature discussing burnout and its association with functional voice disorders amongst elite voice professionals. Six online databases were searched using the keywords *(burnout)* AND *(voice disorders).* 59 papers were identified, and the following inclusion criteria was applied; (i) must be in available English, (ii) full text must be accessible, (iii) must mention burnout, (iv) must discuss voice disorders, (v) population must be elite voice professionals, (vi) must be peer reviewed. Six papers remained and were subject to full thematic analysis. Four thematic categories arose (i) perfectionism, (ii) identity, (iii) stigma/shame and (iv) emotional exhaustion. Mixed purposeful sampling was achieved through citation chaining. The included papers presented a range of objectives and were methodologically incomparable; however, the organically extracted themes may provide practitioners with insights into how burnout may manifest in vocalists and its potential effects on the working singer's voice.

Chapter 1 - Introduction

Over the past decade, significant efforts have been made to promote the positive impact of music-making on well-being in both educational and therapeutic contexts (DeNora, 2016; Daykin et al., 2017; Kreutz & Bonshor, 2021). Despite this, studies consistently indicate that over 70% of working musicians experience mental health challenges related to their profession (Gross & Musgrave, 2016; Cannon, 2023). Many of the mental health issues cited by musicians, such as anxiety, depression, insomnia, fatigue and cynicism (Gross and Musgrave, 2016), can be aligned with the research on burnout syndrome (BS) to provide some evidence of the presence of the syndrome in this population (Cannon, 2023).

The purpose of this paper is to examine the extent to which BS impacts the development of functional voice disorders (FVD) amongst elite voice professionals (EVP). The aim is to explore current research discussing both BS and FVD to identify the scope of the research connecting the two subjects. The findings of this review may contribute to

determining the necessity for additional research into prevention and treatment strategies for BS in EVPs.

1.1: Rationale.

There is growing evidence of a decline in the mental health of professional musician's post pandemic (Vertava Health, 2021; Thraves, 2022; Visser et al., 2022; Support Act, 2022; Help Musicians, 2023; Musgrave, 2023). Considering this, further research into effective support and treatment of BS in this population is crucial to mitigate the risks of compounding physical and emotional deterioration (Visser et al., 2022).

1.1.1: Burnout. "Burnout is a state of physical, mental and emotional exhaustion" (Mental Health UK, 2024, par. 3). In addition to emotional exhaustion (EE), BS has two other main elements, reduced accomplishment and depersonalisation (Defreese and Smith, 2013; Heinz and Nguyen, 2024). BS has not yet been recognised as a medical condition, however in 2019 it was classified as a syndrome (World Health Organisation, 2019). Mental Health UK (2004) define the syndrome as "a collection of symptoms or signs associated with a specific health-related cause" (par. 2). BS is often characterised as 'chronic stress' however, unlike stress, it is a condition which builds over time causing detachment, demotivation and feelings of hopelessness (WebMD, 2024). Whilst there is a rising awareness of BS across other corporate industries post pandemic (Edú-Valsania et al, 2022), less is currently known about the possible threat of BS on musicians (Psycformusos, 2020).

1.1.2: Voice disorders. Whilst BS has been shown to affect workers at a cognitive, emotional, and attitudinal level (Edú-Valsania et al, 2022), the focus of this review is on the physical BS symptoms that may present in working singers. Exposure to BS in singers may have physical consequences in the form of a FVD (Oliveira et al., 2022). FVDs are caused by improper use of the voice with an absence of any anatomical or neurological abnormalities (Baker, 2016). Whilst structural voice disorders may require medical intervention, a FVD can be rehabilitated through a change of habits (Jani et al., 2008). A working singer who may be prone to overuse or ineffective technique may experience acid reflux, vocal nodes, contact ulcers, vocal polyps, or laryngitis (Cortes, 2014; Parkinson, 2016; Clements- Martins et al., 2024).

Some of the most cited causes of FVD are phono trauma (misuse of the voice via excessive shouting or throat clearing) and psychogenic aphonia and dysphonia (voice loss due to behavioural issues such as anxiety and depression) (Naqvi and Gupta, 2023). Whilst extensive research has been done on BS and FVDs in professional voice users, research

into the EVP is scarce (Parkinson, 2016). This population is important to address due to the excessive occupational pressure placed on the voice (Koufman and Koufman, 2003).

1.1.3: The vocalists work life. The working vocalist is often self-employed (Morgan and Dugher, 2019) and operates a portfolio career, taking gig work to become financially stable (Musicians Union, 2012). This type of work is a breeding ground for BS since financial instability is rapidly becoming one of the biggest contributors to occupational stress (Simonse et al., 2022). The slow onset of BS highlights the importance of early detection (Seritan, 2020), but with most freelance musicians working in isolation (Eleven, 2024), a decline in engagement or efficiency may not be recognised. For this reason, a singer's struggle with their mental and physical health often goes unnoticed, causing some to leave the industry entirely (Smallwood, 2021). Musicians show a level of passion towards their work that is unusual when compared to the general working population (Bonneville-Roussy and Vallerand, 2020). This can leave workers more vulnerable to BS due to the unrelenting pursuit towards a way of life that does not provide the expected reward (Freudenberger and Richelson, 1980). Further understanding how BS could present in the voice may help practitioners identify signs of BS and address the cause earlier with greater effect.

The following review may help establish any potential need for further investigation into the phenomenon of BS in working singers and its possible effects on vocal health.

1.2: Objectives.

This qualitative evidence synthesis (QES) will aim to systematically and transparently collate current available peer reviewed literature which addresses FVDs in EVPs exposed to BS. A QES does not focus on a single isolated perspective, nor does it highlight averages, rather it creates a diverse range of perspectives of a shared phenomenon (Pluye and Hong, 2014).

A general systematic review framework has been used however some methods have been simplified, modified or omitted (Tricco et al., 2022). The researcher utilised the PEO mnemonic along with a condensed methodology based on a semi-systematic review framework to provide structure during data collection (Munn et al., 2018). Citation chaining was then used to enable mixed purposeful sampling on the emerging themes from the primary data (Suri, 2011). All search criteria and data collection methods have been outlined to ensure transparency in the process and maintain academic rigor (IEG, 2022; Tricco et al., 2022).

1.2.1: Population – Professional voice users. Koufman and Koufman (2003) identify four levels of professional voice users: (1) elite vocal performer, (2) professional voice user, (3) non-vocal professional, and (4) non-vocal non-professional. EVPs include workers, such as singers or actors, for whom even a slight deterioration in their vocal quality would have dire consequences on their ability to work (Timmermans et al., 2002). During the data collection process there were many studies focused on teachers (Appendix B). These papers were eventually excluded as a teacher is not considered an EVP since their work is less impacted by slight vocal impairment (Koufman and Koufman, 2003). Music therapists are considered EVPs (Boyle and Engen, 2008) as their voice is vital to their work (Parkinson, 2016). As Murray (2015) states, "the use of the voice is integral to the practice of music therapy" (p. 36).

1.2.2: Exposure – Burnout syndrome. BS is not classified as a medical condition but rather a consolation of symptoms (World Health Organisation, 2019). Sufferers will initially experience EE, which will be followed by depersonalisation and reduced accomplishment (Defreese and Smith, 2013). Context is important when considering BS vulnerability (Demerouti et al., 2021), therefore it is only by looking into the occupational demands placed on working singers that we can establish possible BS threats.

Maslach and Leiter (1997) propose six areas of work life which must be efficiently balanced to mitigate BS in an individual: (i) workload, (ii) control, (iii) reward, (iv) fairness, (v) community and (vi) values. Lack of control causes negative effects in areas of workload, reward, community and fairness, which may lead to EE and disengagement by the worker (Leiter, 2005). A singer who is experiencing the central element of BS, EE (Maslach and Schaufeli, 2001), could be demonstrating vocal issues which will highlight the need for a more nuanced look into their work-life balance. When a vocalist loses control of their instrument they may become more vulnerable to depersonalisation and reduced accomplishment (Maslach and Leiter, 2016).

1.2.3: Outcome – Voice disorders. The overall objective of this study is to identify past literature demonstrating an association between FVD and BS. Voice disorders can be organic, neurogenic or functional (Murray, 2015). Organic disorders include infection and nodules, whereas FVD are related to improper use (Gooding, 2018; Jones, 2022). "Research suggests that up to 93% of professional musicians experience playing-related injuries during their career" (Gooding, 2018, p. 207). Research further indicates that a large percentage of musicians are likely to encounter mental and/or vocal health issues that can pose a serious threat to their careers (Pierce, 2012).

Issues that leave singers open to FVD include, pressure to push voice past natural range to get a job, poor venue acoustics, stress and lack of focus on breath support (Gooding, 2018). Pestana and colleagues (2017) reported in their meta-analysis that 46% of singers declared a history of dysphonia compared to 16% of the general population. Singers who are considered 'elite' can experience a significant impact from mild voice issues (Koufman & Koufman, 2003; Parkinson, 2016). Research on music educators shows that FVD can cause EE, which is the first element of BS (Hendry, 2001; Murray, 2015). When studying FVD in music therapists, Clements-Cortes (2014) declared that, if left untreated, voice issues could lead to permanent vocal damage and, in some cases, psychological issues.

This review aims to identify the ways in which BS may contribute to FVDs in EVPs. If it is possible for an occupational imbalance to undermine any efforts at technique-driven vocal rehabilitation, then a deeper understanding of a singer's work life may benefit vocal coaches when treating FVD.

Chapter 2 – Methods

2.1: Design

The methodology for this QES was designed with the purpose of gathering papers discussing BS and FVD to establish recuring themes. Theoretical sampling from the primary pool of data was achieved via citation chaining and allowed a more rapid approach necessary for this time sensitive study (Booth, 2017).

As a single researcher undertaking a QES is it important to acknowledge an underpinning epistemological position of constructivism. The separation of the knowledge from the knower is less possible when data is synthesised by an individual researcher with a natural bias from lived experience (Williams, 2008). For this reason, the objective of this QES is to gather meaning to form paths of enquiry, rather than starting with a theory (Gray, 2018). The resulting descriptive thematic synthesis is a collaboration of the research and the researcher and should therefore be seen as subjective in its nature (Rheman and Alharthi, 2016).

2.2: Search strategy

Six online databases were searched using the keywords *(burnout)* AND *(voice disorders).* The following databases were included due to their large data sets of peer reviewed papers: (i) Google scholar, (ii) PubMed, (iii) Sage journals, (iv) Journal of voice, (v) Science direct, (vi) UWTSD library. There were six items in the primary inclusion criteria: (i)

must be in English, (ii) text must be available in full, (iii) must discuss FVD, (iv) must discuss BS, (v) population must be EVPs, and (vi) must be peer reviewed. Since search engines can produce an unmanageable number of results the papers were listed by 'most relevant' and only the first 100 were screened (Bates et al., 2017). *(Figure 1).* 59 papers were gathered in this initial search (Appendix A).

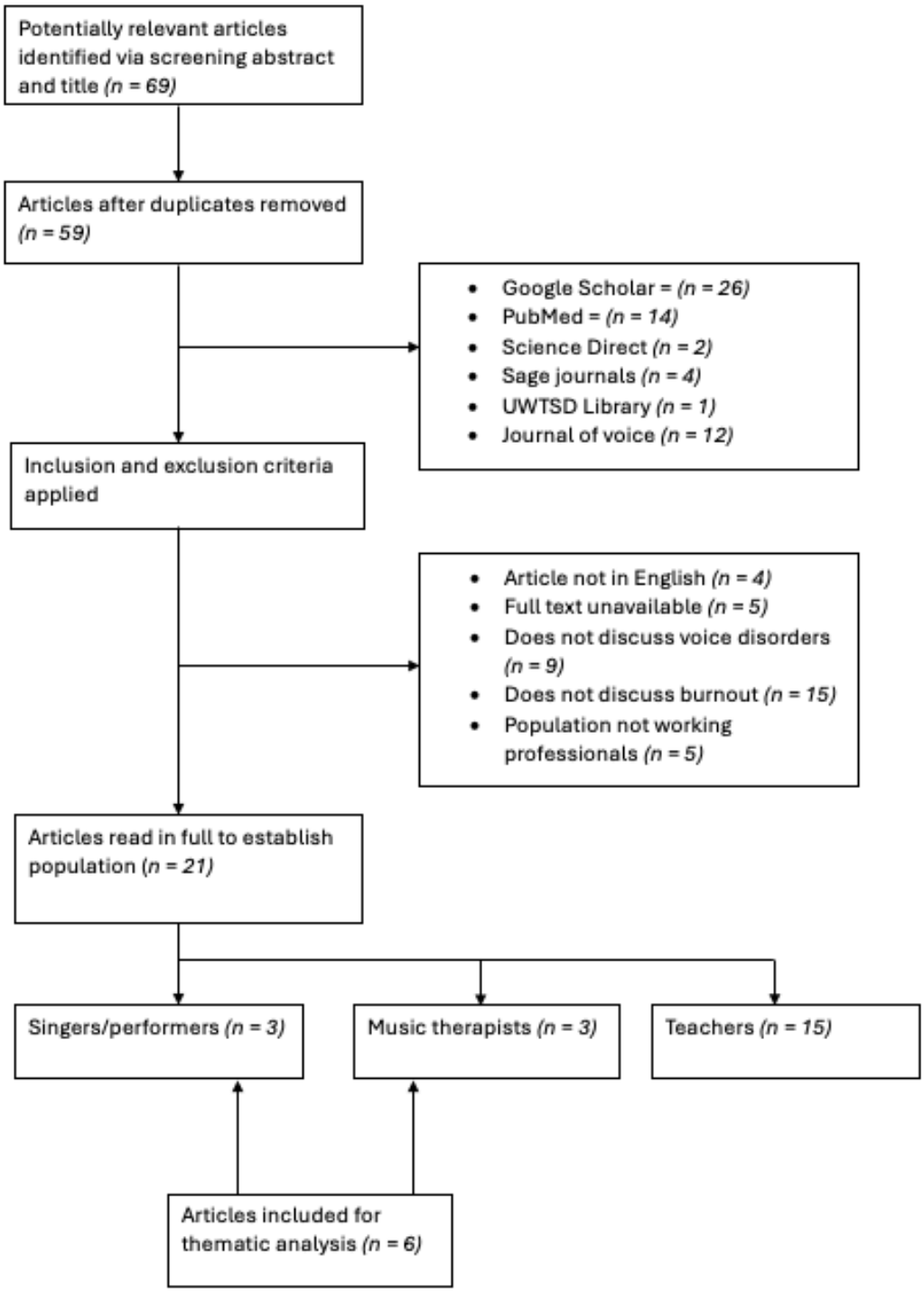

Figure 1- Study selection - flow chart. Adapted from Visser et al., (2022).

Papers were initially screened by abstract and title to establish possible relevance (Visser et al., 2022) and population was determined (Appendix A). The inclusion criteria was applied, and the remaining six papers were read in full to explore connecting themes.

Data was charted by the researcher using an excel spreadsheet and four recurring themes were extracted (i) perfectionism, (ii) identity, (iii) stigma/shame and (iv) emotional exhaustion (EE). The four overarching themes formed the foundation for further exploration using citation chaining (Silverman, 2008).

Chapter 3 – Results

3.1: Selection of sources of evidence.

3.1.1: Study designs. The six papers selected for initial thematic analysis are varied in their design. Articles include, two literature reviews, one systematic review and meta-analysis (Oliveira et al., 2022), plus one narrative review (Gooding, 2018). Also included are three studies, one phenomenological study (Murray, 2015), one mixed methods study (Parkinson, 2016), and one qualitative study (Jones, 2022). The final paper is an autobiographical report of one researchers account of a FVD they experienced due to BS during their career as a classical singer (Smallwood, 2021).

3.1.2: Summary of findings. Both literature reviews focus on the prevalence of work-related voice disorders amongst voice professionals. Whilst Oliveira and colleagues (2022) were interested in all voice professionals, Gooding's review attempted to identify hazards and treatment options for music therapists struggling with occupational health and wellbeing (2018). Oliveira and colleagues notably discovered a high prevalence of voice disorders in voice professionals, concluding that high vocal demand required from EVPs increased instances of FVD (2022). Gooding concludes that there are a lot of health-related occupational hazards for musicians including neuromusculoskeletal conditions, hearing loss and psychological conditions such as anxiety and BS (2018).

Jones (2022) focused on the stigma involved in voice issues with their qualitative study comprising of 200 EVPs. Notably, Jones found that stigma around vocal health issues was 15% higher in singers than in actors. Murray (2015) used phenomenological enquiry to investigate the experience of music therapists who had encountered vocal health issues. Murray's intention was to provide an overview of vocal health issues amongst music therapists whilst highlighting areas for further research. Loss of identity was a huge theme across this study (2015).

Parkinson (2016) set out to investigate the symptoms and causes of voice issues amongst 735 credentialed music therapists via a mixed methods study using both closed-ended questions and a Likert scale questionnaire. Qualitative data gathered from participants additional written comments were used to enhance understanding of the quantitative data (Parkinson, 2016). Parkinson included comment on identity and framed the voice as an extension of the sense of self (2016)

The final paper by Smallwood (2021) includes a description of their own experience of BS as a classical singer. Smallwood discussed the shame of experiencing a voice issue due to BS and concluded that educators should be more forthcoming with young musicians about BS to avoid "potentially devastating" consequences (2021, p. 154).

The outlier in these results is the study conducted by Oliveira and colleagues (2022) which was focused on identifying the prevalence of voice disorders but offered no discussion around specific behavioural causes.

3.2: Thematic analysis and theoretical sampling.

There were four overarching themes identified across the primary papers, (i) perfectionism, (ii) identity, (iii) stigma/shame and (iv) emotional exhaustion *(Table 1).* These themes arose organically through deep engagement with the literature. Despite some of the papers not mentioning BS specifically, there is a focus on some of the main predictors of BS across all the papers. Citation chaining was used to introduce further evidenced connections between the extracted themes and BS.

Table 1 – Visual of themes extracted from primary articles.

	Perfectionism	Identity	Stigma/Shame	Emotional exhaustion
Murray, 2015	x	x	x	x
Jones, 2022	x	x	x	x
Parkinson, 2016		x		
Gooding, 2018		x	x	x
Smallwood, 2021	x	x	x	x
Oliveira et al, 2022	x			x

3.2.1: Emotional exhaustion. Emotional strain can have a severe impact on the vocal health of an EVP (Boone et al., 2014). The psychological pressure of perfectionism

and stigma can cause EE (Hendy, 2001; Murray, 2015), intense EE may then lead to the development of a FVD (Boone et al., 2014; Murray, 2015).

FVD in EVPs can intensify psychological challenges, such as low self-esteem concerning vocal abilities, potentially resulting in increased anxiety (Rosen et al., 1997; Khatcherian, 2014). Research has shown that musicians and vocalists are more prone to anxiety traits (Kenny et al., 2012) and anxiety is shown to be a predictor of EE (Gooding, 2018). Positive self-talk is a preventatives strategy for BS (Gooding, 2018) however those suffering with anxiety are less able to regulate their emotions (Rowlands, 2019). Pressure and stress on top of EE can be a risk factor for vocal health issues (Murray, 2015). Depressive symptoms are also associated with a nearly doubled likelihood of reporting a FVD (Rosen et al., 2020; Jones, 2022)

The way singers cope with voice problems is dependent on the type and severity of the FVD (Ramachandran et al, 2022). According to De Freitas Valadares and colleagues (2022), the more severe the dysphonia the more emotional coping strategies were used. Rosen et al (1997) identify the significant demands placed on EVPs as an emotional stressor that can impact both the quality and health of their voices (Parkinson, 2016). When recalling their own experience of BS Smallwood wrote:

> I had started the work of technical repair but had not acknowledged that changes in my vocal stamina combined with psychological stress caused by this new sense of my own “vocal mortality” had made me far more vulnerable to the crisis I experienced (2021, p. 149).

The national library of medicine (2023) defines coping as “the thoughts and behaviors mobilized to manage internal and external stressful situations”. The act of singing is often used as a coping mechanism, when this is taken away the potential for BS and other mental health issues is heightened (Murray, 2015).

3.2.2: Perfectionism. Perfectionism is the act of setting excessively high standards, coupled with a propensity for critical self-assessment of one’s actions (Flett and Hewitt, 2002; Stoeber and Eismann, 2007). Research suggests that an individual’s inability to meet personally set high standards may make them more vulnerable to BS (Lemyre, et al., 2008; Gustafsson et al., 2018).

Murray (2015), Smallwood (2021), Jones (2022) and Oliveira et al (2022) all mention perfectionism as a possible exacerbator of FVD amongst EVPs. Perfectionism can be a trait that is thrust upon singers through a hyperawareness of audience expectations, “A less than optimal performance may turn up on YouTube and will be commented on by people who have no idea of exigent circumstances influencing your performance (Smallwood, 2021, p.

151). A FVD may disrupt the singer's ability to control the quality of their output which can have an emotionally draining effect on the subject. Singers have been known to end their career early if they feel they are not meeting high standards (Smallwood, 2021).

Excessive practice hours and overworking can cause both FVD (Gooding, 2018) and BS (Maslach and Leiter, 2004). Singers often experience pressure to push through injury to meet expectations (Jones, 2022).

3.2.3: Identity. Identity is formed through the meaning we attach to the multiple different roles that one plays in society (Stryker and Burke, 2000; O'Bryan, 2015). Thurman and colleagues (2001) note that the voice is the primary method of communicating our deepest sense of self. Welch (2005) states, "voice is an essential part of our human identity: of who we are, how we feel, how we communicate, and how other people experience us" (p. 245). Research suggests that a stronger attachment to one's identity is associated with greater challenges when that connection is threatened, which in turn raises the risk of experiencing depression (Ashforth et al., 2008).

Five of the six papers specifically mention identity in their findings. The voice is the musicians most intimate instrument and can be used as a tool to find, and connect, to the self (Austin 2008; Parkinson, 2016; Jones, 2022). When connection to this instrument is lost it can be especially detrimental to a singer's mental health (Murray, 2015). Each of Murray's three participants mentioned struggling with their identity due to a voice issue (2015). Many of a singer's formative relationships are created through their performance education pathway or from participation in bands, exclusion from these activities due to a FVD may contribute to the feeling of detachment (Murray, 2015).

Research on athletes highlights a significant connection between identity and BS (Gustafsson et al., 2018). This becomes particularly pertinent when we recognize the similarities between the career paths of both athletes and singers, both often training from an early age with thousands of hours of practice clocked up by their early 20s (Gooding, 2018).

One respondent in Jones' 2022 study stated, "People identify themselves with their voice and maybe if they need to seek help with their voice then it means there is something wrong with their identity as a whole" (p. 97). Participants in Murray's 2015 study spoke about how their experience of voice loss was emotionally devastating with one reporting, "I feel like I am losing a part of myself" (p. 21), another asked, "I wonder if I'll ever get back to me?" (p. 21).

If we consider the connection between finding oneself and finding one's voice (Austin, 2008; Parkinson, 2016), it becomes understandable that a FVD can incite more

overwhelming feelings of loss in a singer, “The dysfunctional part of my body, I am. I am my voice disorder” (Murray 2015, p. 33).

3.2.4: Stigma/Shame: Shame has been cited as a direct BS risk (Chang, 2014). Stigma and shame were topics mentioned by researchers and participants in five of the six papers. “Stigma has the potential to amplify many of the negative consequences of a FVD, which in turn can exacerbate its symptoms” (Jones, 2022, p. 9).

In Jones’ 2022 study, EVPs reported significantly higher levels of vocal stigma than the non-voice professional control group, with higher scores coming from social stigma rather than from self-stigma. Individuals are less likely to seek help when struggling with an illness they consider ‘shameful’ (Stangl et al., 2019; Jones, 2022), they may even avoid admitting that they have a FVD to peers or potential employers.

The reluctance to disclose a FVD may stem from concerns about the potential impact on a singer's reputation. There can be a belief amongst performers that FVDs are a result of poor technique which may deem the performer to be unreliable (Jones, 2022), or bad at their job (Hendy, 2001). As one singer in Smallwood’s study noted, “I had not dared to cancel because of what I saw as my agreement with the Intendant” (2021, p. 149). Additionally, the competitive nature of the industry contributes to this hesitance: “There are more singers than jobs available; someone is always ready to take your place. In this world, you do not want to show vulnerability or weakness” (Smallwood, 2021, p. 151). Soloists are less likely to share their struggles, “My colleague is also my competition” (Smallwood, 2021, p. 151). Lack of understanding from other professionals has also been cited as an element predicting BS (Clements Cortes, 2013; Gooding, 2018).

Stigma was shown to correlate negatively with motivation and behavioural skills in performers (Jones, 2022). Jones’ 2022 study reported levels of stigma in singers 15% higher than actors. Understanding the potential for social stigma enables practitioners to provide better education and remove shame around FVD (Jones, 2022). “It would make sense if singers could talk about this shame-laden topic. Only through exchanges about our experiences can we see our problems in a bigger context” (Graf, 2013, p. 59).

Chapter 4 – Discussion

4.1: Summary of findings.

Despite their methodological and epistemological differences, the common themes identified across the primary papers are interesting when we consider their alignment with BS predictors. Many scholars have identified the main three elements of BS to be EE,

reduced accomplishment and depersonalisation (Maslach and Leiter, 2001, 2004, 2016; Santana et al., 2012; Brady et al,, 2020). EE is an evident theme but when we investigate 'identity' and 'stigma/shame' we can see that they represent elements that contribute to BS. Loss of identity has been shown to be a predictor of BS due to its close association with the element of reduced accomplishment (Ekstedt and Fagerberg, 2005). Shame and creative anxiety were significant predictors of depersonalisation (Thomson and Jaque, 2021). These results may suggest that if EE causes FVD, and FVD creates challenges with identity and shame, then an EVP with a FVD is at higher risk of developing BS.

4.2: Considerations for practical application.

Working under the supervision of a coach can help the vocalist with their personal development and facilitate an environment for greater self-awareness (Gardstrom & Jackson, 2011; Trondalen, 2016; Gooding, 2018). Prevention of BS can be aided by increasing information around the potential mental and physical health risks for those going into the industry (Smallwood, 2021), as well as encouraging selfcare techniques to regularly monitor and prioritise mental and physical health (Gooding, 2018). According to Gooding (2018), the best way to prevent FVD is to act early, "preventing injuries starts with maintaining instruments in good working order" (p. 211).

Stigma/shame was a strong theme across four papers. Easy access to, and promotion of, voice care will help remove the stigma around BS and FVD (Jones, 2022). Sharing experiences and removing the stigma around BS in the music industry may help prepare those wishing to pursue a career in music (Smallwood, 2021). To remove the aspect of social stigma, interventions should be held at group level (Jones, 2022). A coach should "emphasise the effectiveness of treatment, rather than the consequences of voice disorders" (Jones, 2022, p. 37).

Maintaining an adequate work–life balance is a key factor in preventing occupational health problems such as BS (Clements-Cortes 2013; Trondalen, 2016; Gooding, 2018). Using the instrument outside of the workplace (Gooding, 2018), focusing on singing for enjoyment and not just for progression may help prevent BS. Coaches should incorporate songs that singer enjoys into training sessions, rather than solely focusing on their professional repertoire.

Rest is considered a key component in the treatment of FVD (Gooding, 2018), and "mental practice" (Reitveld, 2013, p. 431) can be an efficient tool to help the singer feel productive whilst preventing overuse. Other prevention strategies include encouraging sufficient warmups, focus on sleep, hydration, nutrition and proper amplification of the voice,

as well as incorporating stretching and strengthening exercises regularly (Gooding, 2018). Voice training has been shown to not only reduce risk of developing voice issues but to also increase awareness and highlight the importance of BS prevention (Hazlett et al., 2011; Boone et al., 2014; Parkinson, 2016).

Chapter 5 - Conclusion

The primary goal of this paper was to identify any association between BS and FVDs in EVPs. Literature connecting FVD and BS in EVPs is scarce, however the themes highlighted in this review evidence a strong connection between at least three elements that significantly impact BS. One difficulty when gathering and analysing this data was the lack of clarity on BS due to the absence of medical diagnosis. Many musicians who suffer from BS will leave the industry entirely (Hendry, 2001; Murray, 2015), this could lead to a lack of clarity around the number of EVPs who suffer with BS as the freelance nature of the population makes them hard to identify (Murray, 2015).

The themes of EE, perfectionism, identity, and stigma/shame are identified across the six papers as vulnerabilities related to both BS and FVDs. This suggests an interconnection between the two conditions, although it does not determine whether one is causally responsible for the other.

There seems to be a cyclical relationship between BS and FVD (Rosen et al., 1997; Parkinson, 2016), “Psychological distress is not only a negative outcome of voice disorders, but it can also exacerbate the voice disorder itself” (Jones, 2022, p. 8). This needs further attention so that practitioners can attempt to interrupt this cycle.

In conclusion this review highlights a need for further research into musician BS to establish the true impact of the syndrome in this population. The frequently isolated nature of this work further underscores the need for a heightened awareness among practitioners who regularly engage with vocalists. Only through continued research and evidence-based education for coaches and vocalists can we effectively safeguard the vocal and mental health of a population that may be most vulnerable to issues with both.

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Appendices

Appendix A – Initial search results and reasons for exclusion.

Paper	**Inclusion/Exclusion**
Ackermann, B. (2021) 'Health issues for those participating in musical activities'	Excluded – Unable to access full text.
Åhlander, V.L., Rydell, R., Löfqvist, A. (2012) 'How do teachers with self-reported voice problems differ from their peers with self-reported voice health?',	Included (First stage)
Aragão, A.N., Couto, T.E., Camargo, Z.A.D., Santos, M.A.R., Gama, A.C.C. (2014) 'Voice quality assessment before and after social and professional voice use'	Excluded – No mention of BS.
Baker, J., Oates, J.M., Leeson, E., Woodford, H., Bond, M.J. (2014) 'Patterns of emotional expression and responses to health and illness in women with functional voice disorders (MTVD) and a comparison group'	Excluded – No mention of BS.
Belcastro, P.A. (1982) 'Burnout and its relationship to teachers' somatic complaints and illnesses'	Included (First stage)
Bermúdez de Alvear, R.M., Martínez, G.A., Barón, F.J., Hernández-Mendo, A. (2010) 'An interdisciplinary approach to teachers' voice disorders and psychosocial working conditions'	Included (First stage)
Bovo, R., Galceran, M., Petruccelli, J,. Hatzopoulos, S. (2007) 'Vocal problems among teachers: evaluation of a preventive voice program'	Excluded – No mention of BS.
Brown, E.P. (2020) 'Music teacher self-perceived vocal health and job-related stress'	Excluded – Unable to access full text.
Butler, K. (2017) 'Burnout: Risks, applications, and solutions for the studio voice teacher'	Excluded – No mention of FVD.
da Luz, J.G., Pessa, S.L.R., da Luz, R.P., Schenatto, F.J.A. (2019) 'Implications of the environment, conditions and organization of work on teacher health: a systematic review/Implicacoes do ambiente, condicoes e organizacao do trabalho na saude do professor: uma revisao sistematica'	Excluded – Not available in English.
Darius, S., Voigt-Zimmermann, S., Böckelmann, I. (2023) 'Effects of occupation-specific vocal stress on the mental health of day care teachers',	Included (First stage).
de Brito Mota, A.F., Giannini, S.P.P., de Oliveira, I.B., Paparelli, R., Dornelas, R., Ferreira, L.P. (2019) 'Voice disorder and burnout syndrome in teachers'	Included (First stage)
de Freitas Valadares, G., Occhi-Alexandre, I.G.P., Teixeira, L.C. (2023) 'Relationships between sense of coherence, self-perception of voice and work environment among teachers'	Excluded – No mention of BS.
de Magalhães, T.A., Ferreira, E.D., de Souza, J.E.M., Santos, V.M., Rossi-Barbosa, L.A.R., Nascimento, J.E., Silveira, M.F., Haikal, D.S.A. (2023) 'Voice Disorders and mental health of basic education teachers in a Brazilian municipality'	Included (First stage)

Flock, L., King, S.R., Williams, J., Finlay, E., Smikle, H., Benito, M., Benton-Stace, F., Brown, J., Mann-Daraz, A.J., Hart, L., Mclean, K. (2023) 'Working together to find a voice: recommendations for voice healthcare based on expert-by-experience and practitioner consensus'	Excluded – No mention of BS.
García-Real, T.J., Díaz-Román, T.M., Mendiri, P. (2024) 'Vocal Problems and Burnout Syndrome in Nonuniversity Teachers in Galicia, Spain',	Excluded – No mention of BS.
Giannini, S.P.P., Latorre, M.D.R.D.D.O., Ferreira, L.P. (2013) 'Voice disorders related to job stress in teaching: a case-control study'	Excluded – Not available in English.
Giannini, S.P.P., Latorre, M.D.R.D.D.O., Ferreira, L.P. (2013) 'Voice disorders related to job stress in teaching: a case-control study'	Included (First stage)
Giddens, C.L., Barron, K.W., Byrd-Craven, J., Clark, K.F. and Winter, A.S. (2013) 'Vocal indices of stress: a review'	Excluded – No mention of FVD.
Gooding, L.F. (2018) 'Occupational health and well-being: Hazards, treatment options, and prevention strategies for music therapists'	Included (First stage)
Hackworth, R.S. (2023) 'Vocal health implications for music teachers: a literature review'	Excluded – No mention of BS.
Hartwig, K. (2011) 'Sing sing sing: Vocal sustainability for professional voice users',	Excluded – No mention of BS.
Hansen, P.K. (2016) *Occupational stress and coping in professional rock musicians: A grounded theory*.	Excluded – No mention of FVD.
Hendry, K.L. (2001) *Burnout and self-reported vocal health among music teachers and other educators*.	Included (First stage)
Hinkamp, D., Morton, J., Krasnow, D.H., Wilmerding, M.V., Dawson, W.J., Stewart, M.G., Sims, H.S., Reed, J.P., Duvall, K. and McCann, M., (2017) 'Occupational health and the performing arts: an introduction'	Excluded – Unable to access full text.
Holmqvist, S., Santtila, P., Lindström, E., Sala, E., Simberg, S. (2013) 'The association between possible stress markers and vocal symptoms'	Excluded – No mention of BS.
Jones, C., (2022) '*Stigma Against Vocal Illness Among Professional Singers and Actors*'.	Included (First stage)
Karjalainen, S., Brännström, J.K., Christensson, J., Sahlén, B., Lyberg-Åhlander, V. (2020) 'A pilot study on the relationship between primary-school teachers' well-being and the acoustics of their classrooms'	Excluded – No mention of FVD.
Karjalainen, S., Sahlén, B., Falck, A., Brännström, J., Lyberg-Åhlander, V. (2020) 'Implementation and evaluation of a teacher intervention program on classroom communication'	Included (First stage)
Kollbrunner, J. and Seifert, E. (2017) 'Encouragement to increase the use of psychosocial skills in the diagnosis and therapy of patients with functional dysphonia'	Excluded – Not focused on voice professionals.

Korte, M. (2020) *The suffering artist—Depression and anxiety symptoms in music students: Understanding hidden influences and planning effective intervention*	Excluded – Not focused on voice professionals.
Lewis, A. M. (2019) 'Stressors among Performance Majors Regarding Their Upcoming Professional Careers'	Excluded – Not focused on voice professionals.
Maciel, C.A., de Medeiros, A.M., Teixeira, L.C. (2023) 'Common Mental Disorders and Self-Perceived Interpersonal Communication and Vocal Symptoms in University Professors'	Excluded – No mention of BS.
Madigan, D.J., Kim, L.E., Glandorf, H.L., Kavanagh, O. (2023) 'Teacher burnout and physical health: A systematic review'	Included (First stage)
Martins, L.K.G., Mendes, A.L.F., Oliveira, P., Almeida, A.A. (2024) 'Voice disorder and risk factors in spoken voice professionals: an integrative review',	Included (First stage)
Mainwaring, L.Y.N.D.A. and Mor, S.H.U.L.A.M.I.T. (2019) 'Managing psychological disturbances in performing artists'	Excluded – No mention of FVD.
Mastnak, W. (2016) 'Music in health promotion and therapeutic practice. Cultural, theoretical and clinical perspectives'	Excluded – Not available in English.
Murray, L.H. (2015) '*A phenomenological investigation of the experience of music therapists with vocal health issues',*	Included (First stage)
Nazari, M., Dastoorpoor, M., Ghasemzadeh, R., Moradi, N. (2021) 'Relationship between work engagement and voice complaints among elementary school teachers'	Included (First stage)
Niebudek-Bogusz, E. and Śliwińska-Kowalska, M. (2013) 'An overview of occupational voice disorders in Poland'	Excluded – No mention of BS.
O'Bryan, J. (2015) '"We ARE our instrument": Forming a singer identity'	Excluded – Not focused on voice professionals.
O'Hara, J., Miller, T., Carding, P., Wilson, J., Deary, V. (2011) 'Relationship between fatigue, perfectionism, and functional dysphonia'	Excluded – No mention of BS.
Oliveira et al,. (2022) 'Prevalence of work-related voice disorders in voice professionals: systematic review and meta-analysis',	Included (First stage)
Oliveira, P., Cavalcante, M. E. O. B., Nascimento, C. A. D., & Ribeiro, V. V. (2022) 'Factors Predicting Dysphonia in Professional Voice Users'	Excluded – No mention of BS.
Parkinson, M. (2016) *Vocal Problems of Music Therapists in North America: A Survey*,	Included (First stage)
Putus, T., Vilén, L., Atosuo, J. (2021) 'The association between work-related stress, indoor air quality and voice problems among teachers-is there a trend?'	Excluded – No mention of BS.
Ramachandran, A., Hilari, K., Epstein, R., Devane, N., Hirani, S.P. (2022) 'Voice related coping in professional voice users-a systematic review',	Included (First stage)
Romito, B.T., Okoro, E.N., Ringqvist, J.R.B., Goff, K.L. (2021) 'Burnout and Wellness: The Anesthesiologist's Perspective'	Excluded – No mention of FVD.

Santana, Â.M.C., De Marchi, D., Junior, L.C., Girondoli, Y.M., Chiappeta, A. (2012) Burnout syndrome, working conditions, and health: a reality among public high school teachers in Brazil	Excluded – No mention of FVD.
Smallwood, M. (2021) 'Vocal difficulties for mid-career classical singers: A preliminary quantitative analysis',	Included (First stage)
Thomson, P and Jaque, V. (2017) 'Health concerns and burnout'	Excluded – Unable to access full text.
Vertanen-Greis, H., Loyttyniemi, E., Uitti, J., Putus, T. (2022) 'Work ability of teachers associated with voice disorders, stress, and the indoor environment: A questionnaire study in Finland'	Included (First stage)
Vertanen-Greis, H. (2021) 'Voice disorders, stress, and indoor environmental quality: A cross-sectional study of Finnish teachers'	Included (First stage).
Vilkman, E. (2004) 'Occupational safety and health aspects of voice and speech professions'	Excluded – No mention of BS.
von Haaren-Mack, B., Schaefer, A., Pels, F., Kleinert, J. (2020) 'Stress in physical education teachers: a systematic review of sources, consequences, and moderators of stress'	Excluded – No mention of FVD.
Wellens, W.A.R. and Van Opstal, M.J.M.C. (2008) 'A comprehensive model of how the stress chain affects voice'	Excluded – Unable to access full text.
Werner, Sylke. (2012) "Stressmanagement. Belastungen zur Sprache bringen" [Stress management. Giving voice to stresses].	Excluded – Not available in English.
Willis, S. (2024) *Occupational Stress and Well-being of Professional Classical Musicians and Conservatoire Music Students*.	Excluded – Not focused on voice professionals.
Yoshie, M., Kanazawa, E., Kudo, K., Ohtsuki, T. and Nakazawa, K. (2011) '20 Music performance anxiety and occupational stress among classical musicians'	Excluded – No mention of FVD.

Appendix B – Stage two - population breakdown.

Paper	**Population**	**Included/ Excluded**
Åhlander, V.L., Rydell, R., Löfqvist, A. (2012) 'How do teachers with self-reported voice problems differ from their peers with self-reported voice health?',	Teachers.	Excluded
Belcastro, P.A. (1982) 'Burnout and its relationship to teachers' somatic complaints and illnesses'	Teachers.	Excluded
Bermúdez de Alvear, R.M., Martínez, G.A., Barón, F.J., Hernández-Mendo, A. (2010) 'An interdisciplinary approach to teachers' voice disorders and psychosocial working conditions'	Teachers.	Excluded
Darius, S., Voigt-Zimmermann, S., Böckelmann, I. (2023) 'Effects of occupation-specific vocal stress on the mental health of day care teachers',	Teachers.	Excluded
de Brito Mota, A.F., Giannini, S.P.P., de Oliveira, I.B., Paparelli, R., Dornelas, R., Ferreira, L.P. (2019) 'Voice disorder and burnout syndrome in teachers'	Teachers.	Excluded
de Magalhães, T.A., Ferreira, E.D., de Souza, J.E.M., Santos, V.M., Rossi-Barbosa, L.A.R., Nascimento, J.E., Silveira, M.F., Haikal, D.S.A. (2023) 'Voice Disorders and mental health of basic education teachers in a Brazilian municipality'	Teachers.	Excluded
Giannini, S.P.P., Latorre, M.D.R.D.D.O., Ferreira, L.P. (2013) 'Voice disorders related to job stress in teaching: a case-control study'	Teachers.	Excluded
Gooding, L.F. (2018) 'Occupational health and well-being: Hazards, treatment options, and prevention strategies for music therapists'	Music therapists.	Included
Hendry, K.L. (2001) *Burnout and self-reported vocal health among music teachers and other educators*.	Teachers.	Excluded
Jones, C., (2022) '*Stigma Against Vocal Illness Among Professional Singers and Actors*'.	Elite voice professionals.	Included
Karjalainen, S., Sahlén, B., Falck, A., Brännström, J., Lyberg-Åhlander, V. (2020) 'Implementation and evaluation of a teacher intervention program on classroom communication'	Teachers.	Excluded
Madigan, D.J., Kim, L.E., Glandorf, H.L., Kavanagh, O. (2023) 'Teacher burnout and physical health: A systematic review'	Teachers.	Excluded
Martins, L.K.G., Mendes, A.L.F., Oliveira, P., Almeida, A.A. (2024) 'Voice disorder and risk	Teachers.	Excluded

factors in spoken voice professionals: an integrative review',		
Murray, L.H. (2015) '*A phenomenological investigation of the experience of music therapists with vocal health issues',*	Music therapists.	Included
Nazari, M., Dastoorpoor, M., Ghasemzadeh, R., Moradi, N. (2021) 'Relationship between work engagement and voice complaints among elementary school teachers'	Teachers.	Excluded
Oliveira et al,. (2022) 'Prevalence of work-related voice disorders in voice professionals: systematic review and meta-analysis',	Elite voice professionals.	Included
Parkinson, M. (2016) *Vocal Problems of Music Therapists in North America: A Survey*,	Music therapists.	Included
Ramachandran, A., Hilari, K., Epstein, R., Devane, N., Hirani, S.P. (2022) 'Voice related coping in professional voice users-a systematic review',	Teachers.	Excluded
Smallwood, M. (2021) 'Vocal difficulties for mid-career classical singers: A preliminary quantitative analysis',	Elite voice professionals.	Included
Vertanen-Greis, H., Loyttyniemi, E., Uitti, J., Putus, T. (2022) 'Work ability of teachers associated with voice disorders, stress, and the indoor environment: A questionnaire study in Finland'	Teachers.	Excluded
Vertanen-Greis, H. (2021) 'Voice disorders, stress, and indoor environmental quality: A cross-sectional study of Finnish teachers'	Teachers.	Excluded