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Scoping the Literature of Transgender Singing: Experiences and Pedagogical Insights in Choral Contexts

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Abstract

Choral conductors have expressed interest in working with transgender singers more effectively, however, opportunities for professional development and resources in this area have been limited. This article reports a scoping review designed to explore the experiences of transgender singers in choral settings. Results offer insights for choral conductors seeking to enhance their support for this group. In this study we reviewed literature from 2013 to 2022.

Of the 221 relevant studies included in the scoping review, 15 studies discussed choral contexts. These studies stressed the importance of (a) creating gender-inclusive and culturally responsive choral environments, (b) addressing concerns such as gendered language, concert attire, and voice part labeling, and (c) the impact of gender dysphoria on choral singing experiences. The search returned limited research on non-binary singers. Few studies disclosed the involvement of transgender researchers.

Environmental factors such as gendered norms in choirs and the role of choral conductors functioned as both barriers and facilitators for transgender singers in choral contexts. Choral conductors can play a pivotal role in creating trans-inclusive environments by using gender-neutral language and fostering allyship for transgender individuals. The studies reviewed also addressed the vocal effects of gender-affirming hormone therapy, vocal exercises, binding practices, and vocal health while emphasizing the psychological and emotional aspects of voice and gender identity.

While progress has been made in recognizing and accommodating transgender singers in choral settings, further research is needed to address the pedagogical implications of trans-specific vocal considerations, including gender-affirming hormone therapy and surgical interventions.

Keywords: transgender, gender inclusive, non-binary, choral singing, singing pedagogy

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Introduction

Recently, there has been a notable increase in the number of young individuals living their authentic lives as transgender, non-binary and gender diverse individuals (Herman et al., 2022). This can also be seen in choral contexts, where an increasing number of choral conductors have found themselves working with transgender individuals (Cates, 2022). Sataloff argued that choral conducting practices should prioritize the development of choral singers' voices without causing fatigue or harm (2008, p. 27). It is therefore imperative that choral conductors have a comprehensive understanding of the pedagogical and physiological factors that affect transgender singers. Furthermore, to appropriately care for the singer, conductors must understand the social and political factors that may impact the psychology of transgender singers, and subsequently, their vocal experiences. This paper, which presents part of a scoping review, aims to examine the extant literature that explores the experiences of transgender singers in choral contexts as well as pedagogical considerations for choral conductors.

Researcher Positions

The research team comprised (a) Naomi, a cisgender woman who conducts choirs, teaches singing and guitar, and undertakes research in choral and singing contexts; (b) Nadine, a cisgender woman who teaches singing and has extensive experience in working with members of the transgender community; and (c) Scott, a cisgender man who works as an academic researching gender and vocal pedagogy.

Terminology

We employed the term *transgender* as an umbrella concept encompassing individuals who are transgender, gender diverse, sistergirls/sistagirls, brotherboys, two-spirit, non-binary, agender, genderqueer and genderfluid, or any other culturally specific gender labels that deviate from the commonly understood definition of cisgender (identifying with the gender assigned at birth).

Voice-related gender dysphoria refers to the distress or discomfort an individual may experience due to an incongruence between their vocal characteristics and their gender identity (Şirin et al., 2020, p. 54).

We adhere to the acronym LGBTQIA+ to encompass individuals identifying as lesbian, gay, bisexual, transgender, queer/questioning, intersex, and agender. We employed this acronym except in cases where a specific label is applied by the paper under consideration.

AMAB and AFAB denote assigned male at birth and assigned female at birth, respectively. These terms are used exclusively when the anatomical implications of assigned sex at birth are pertinent to the argument being presented.

Objective

Choral conductors have expressed interest in learning to work with transgender singers more effectively, however, opportunities for professional development and resources in this area have been limited. The objective of this article was to review the current literature across relevant disciplines to determine what the literature tells us about choral pedagogy for transgender singers.

Ragan's systems of voice production detailed five areas of vocal physiology relevant to singing: (a) respiration, (b) phonation, (c) registration, (d) articulation, and (e) resonance (2020, p. xiii). We have used these systems as a lens in our review to identify which systems of voice production were addressed within the literature in relation to transgender singing, and to highlight areas where further investigation is required.

Similarly, we also applied the lens of Thurman and Welch's (2000) concept of *body-mind and voice* to examine the holistic experience of choral singers whose bodies, minds, and voices are enmeshed in the neuropsychobiological act of singing. Voice-related gender dysphoria can negatively impact one's quality of life (Nuyen et al., 2023) and should be considered in a holistic view of the singing voice.

Method

We conducted a scoping review according to the PRISMA Extension for Scoping Review (PRISMA-ScR) guidelines (Tricco et al., 2018). This article reports on the small subset of the findings from that review relevant to choral contexts. The remaining results of the full review relating to vocal pedagogy in wider contexts will be published subsequently. We searched the following databases between the years of 2013 to 2022 (inclusive): (a) MEDLINE (via EBSCOhost); (b) Music Index (via EBSCOhost); (c) Scopus; (d) JSTOR; (e) Web of Science; (f) ProQuest Music Periodicals; (g) CINAHL (via EBSCOhost); and (h) ProQuest Dissertations and Theses. Our search strategy combined the concepts of transgender individuals and singing/voice to yield relevant results across all databases: (transgender OR transsexual OR transmasc* OR transfem* OR "gender diverse" OR "non-binary" OR "female-to-male" OR "male-to-female") AND (voice* OR sing OR singer OR singing OR vocal).

Developing a search strategy proved challenging due to the variability and diversity of terminology used to describe the transgender population in different countries and disciplines. Consequently, it was necessary to include terms such as "transsexual", despite this being considered outdated by many, as this term is still used in some research.

The eligibility criteria for the scoping review included:

- Study characteristics: (a) publication dates 2013-2022; (b) peer-reviewed journal articles, dissertations, and theses; (c) any study type and design; and (d) published in the English language
- Population: people under the transgender umbrella, plus voice professionals working with transgender people
- Intervention: (a) speech therapy/pathology for voice; (b) voice training; (c) teaching transgender singers; (d) singing lessons; (e) voice exercises; (f) participation in a singing program; (g) delivery of in-vivo voice-related gender-affirming surgical procedures; (h) vocal aftercare of voice-related gender-affirming surgical procedures; (i) gender-affirming hormone therapies impacting the voice; (j) autoethnography; (k) literature reviews; (l) self-perception of vocal parameters; (m) perception of gender in voice; and (n) analysis of vocal parameters
- Context: (a) singing voice; (b) Ragan's systems of the voice; (c) private voice studio; (d) group voice class; (e) singing environments; (f) music education contexts (where singing may take place); (g) voice performance contexts; (h) professional singing contexts; (i) university singing training environments; (j) avocational singing contexts; (k) school singing contexts; and (l) bodymind and voice contexts (self-perception of voice; gender-related vocal dysphoria; environmental factors; and awareness and evaluation of services)
- Outcomes: (a) experiences of voice users; (b) quantifiable voice qualities; (c) self-perception (patient-reported outcome measures) of voice; (d) perception of gender in voice; (e) wellbeing outcomes; (f) acoustic, aerodynamic, and laryngeal endoscopic imaging analysis; (g) auditory perceptual parameters; and (h) singing/choir/music teacher reports

Studies were excluded if they addressed (a) voice in the metaphorical sense rather than the physical voice; (b) gender-affirming hormone therapies that do not impact the voice; (c) non-vocal aftercare of gender-affirming surgery; (d) chondrolaryngoplasty or other esthetic surgeries where vocal function is not the intended outcome; or (e) speech therapy for components other than voice.

The search returned 221 relevant results. Of those, the 15 studies relating to choral contexts were the ones we reported in this article. Specific study characteristics were extracted from each study in the scoping review, and we have provided further details relevant to choral conductors from those studies here.

Results

Study Characteristics

The 15 papers that met our eligibility criteria and were categorised as relating to choral contexts are summarized in Table 1 on the next two pages. This table details (a) general information (publication date, name of publication, and country in which the study was conducted), (b) study characteristics (participant population and total number of participants), (c) methods (study design, evidence sources, and vocal parameters), (d) context (in relation to Ragan's systems of voice production (2020) and Thurman and Welch's (2000) bodymind and voice context), and (e) disclosure of a transgender researcher.

While a detailed critical appraisal of the methods employed in these studies was beyond the scope of this paper, it is worth noting that the method used most frequently was text and opinion ($n = 9$), followed by quantitative cross-sectional designs ($n = 2$), qualitative research methods ($n = 2$), ethnography ($n = 1$) and narrative study ($n = 1$). The studies were conducted within the United States ($n = 9$), Canada ($n = 3$), or both ($n = 2$), with one study failing to specify a location.

Transgender Researcher Disclosure

Among the fifteen studies analyzed, the involvement of a transgender researcher was only disclosed in two. While this is not a conclusive figure of how many of the studies had transgender researcher/s as part of their team (as it is possible that some transgender researchers did not choose to state this), we think it is interesting to note. Efforts to conduct ethical and valid research are increasingly acknowledging the importance of including members of the transgender community in research about them.

Community-based participatory research (CBPR) is an approach that emphasises the importance of including community members in all aspects of the research process, particularly when investigating historically marginalized communities such as transgender individuals (Katz-Wise et al., 2019). The principles of CBPR promote the development of culturally appropriate methodologies and a deeper understanding of the transgender community, ultimately yielding higher-quality data outputs (Holkup et al., 2004). The principles of this approach are particularly pertinent to the transgender community to ensure their experiences are interpreted appropriately, the diversity of their experiences is respected, and that the transgender community is empowered to "contribute to the generation of knowledge about their lives" (Katz-Wise et al., 2019, p. 189). While we do not know how many studies included transgender researchers and/or community participation, the fact that many did not mention these is a limitation of the research we examined in general. There are any number of compelling reasons why a researcher may not have disclosed their transgender identity. Such motivations may include apprehensions related to the potential consequences of this disclosure, such as heightened susceptibility to discriminatory hiring practices, exposure to hostile work environments, and the experience of microag-

Table 1*Summary of Papers Meeting Inclusion Criteria in Choral Contexts*

Citation	Publication	Country	Participant population	No. of Participants	Study Design	Evidence Sources	Vocal Parameters	Body/mind and Voice context	Ragan's Systems of Voice Production	Trans Researcher Disclosed
(Anzaldúa et al., 2022)	Choral Journal	United States	Choir director/s; singer/s	6	Text and opinion	Expert opinion	Nil	Environmental factors	Nil	Yes
(Cates, 2022)	International Journal of Research in Choral Singing	United States	Trans; cisgender; choir director/s	227	Cross-sectional study	Survey	Nil	Environmental factors; awareness of and evaluation of services	Nil	No
(Clayton, 2020)	The Canadian Music Educator	Canada	Transmasculine; transfeminine; gender diverse; non-binary; singer/s; cisgender; 2SLG BTO+ participants	98	Qualitative research	Other survey	Nil	Environmental factors	Nil	No
(Drake, 2018)	Dissertation/ Thesis	United States	Transmasculine; transfeminine; singer/s	2 solo musicians and 2 choirs plus data from audience members	Ethnography	Vocal parameters; interview; observation; performances; onsite fieldwork; recordings; videos; social networks	Fundamental frequency; pitch range	Self-perception of voice; gender-related vocal dysphoria; environmental factors	Phonation; registration; articulation	No
(Finch, 2019)	The Canadian Music Educator	Canada	Music teacher/s; cisgender	1	Text and opinion	Observation; literature; professional experience	Fundamental frequency	Environmental factors; wellbeing	Phonation	No
(Freer, 2019)	Choral Journal	United States	Choir director/s; cisgender	1	Text and opinion	Observation	Nil	Nil	Phonation	No
(Gurss, 2018)	Dissertation/ Thesis	United States; Canada	Transmasculine; transfeminine; singing teacher/s; choir director/s; singer/s; cisgender; composer/s	154	Qualitative research	Vocal parameters; interview; survey; YouTube and Facebook resources	Nil	Gender-related vocal dysphoria; environmental factors; wellbeing	Respiration; phonation; registration; resonance	No

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(Hiner, 2022)	Choral Journal	United States	Transmasculine; transfeminine; non-binary; choir director/s; singer/s; gender expansive	N/A	Text and opinion	Observation; industry experience	Nil	Gender-related vocal dysphoria; environmental factors; wellbeing	Resonance	Yes
(Miller, 2016)	Choral Journal	United States	Choir director/s	1	Text and opinion	Expert opinion; professional experience	Fundamental frequency; pitch range; Fach/voice part	Nil	Phonation	No
(Palkki, 2015)	Choral Journal	United States	Choir director/s	N/A	Text and opinion	Expert opinion; literature	Nil	Nil	Nil	No
(Palkki, 2020)	International Journal of Music Education	United States	Transmasculine; transfeminine; agender; adolescents	3	Narrative study with case study design	Interview; observation; email/text correspondence	Fach/voice part	Self-perception of voice; environmental factors	Registration	No
(Palkki & Caldwell, 2018)	Research Studies in Music Education	United States; Canada	Singer/s; LGBTQ students; adolescents	1123	Cross-sectional study	Survey	Nil	Environmental factors; wellbeing	Nil	No
(Rastin, 2016)	The Canadian Music Educator	Canada	Transmasculine; transfeminine; singer/s	N/A	Text and opinion	Vocal parameters; interview; perception of gender in voice	Fundamental frequency	Nil	Respiration; phonation; registration; resonance	No
(Saplan, 2018)	Choral Scholar	Not mentioned	Transmasculine; transfeminine; singer/s	N/A	Text and opinion	Expert opinion; literature	Fundamental frequency; pitch range	Wellbein	Respiration; phonation; registration; resonance	No
(Sauerland, 2018)	VOICeprints	United States	Transmasculine; transfeminine; non-binary; singer/s	N/A	Text and opinion	Vocal parameters; perception of gender in voice; professional experience	Fundamental frequency; Fach/voice part	Environmental factors; wellbeing	Phonation; registration	No

gressions (Pitcher, 2017). Furthermore, the act of disclosure may increase the likelihood of violence or harassment (Wirtz et al., 2020). Researchers may have been exploring their own gender identity or may have perceived their gender identity as irrelevant to their role as a researcher.

Environmental Considerations

A strong theme in the studies reviewed was environmental factors that function as either barriers or facilitators for the engagement of transgender singers in choral contexts, and nearly all the studies proposed measures to promote gender inclusivity in these environments. Music can empower and liberate singers; conversely, it has the potential to limit and confine (Drake, 2018). Traditions and practices in choral repertoire and pedagogy may have negatively impacted the safety and educational experiences of transgender individuals (Finch, 2019; Sauerland, 2018). These challenges are particularly concerning, given that a lack of safety within choral environments can lead to absenteeism, which holds implications for both the individual singer and the collective ensemble (Rastin, 2016). Environmental considerations that arose included (a) gendered norms in choirs, (b) experiences of transgender singers in choirs, (c) the role of choral conductors, (d) experiences of choral conductors, and (e) suggestions for choral conductors.

Gendered Norms in Choirs.

Deeply entrenched binary and gender-exclusive norms in choral spaces have continued to affect the involvement of transgender singers (Finch, 2019). These have included choral practices that have traditionally been linked to gender, such as hetero- and cis-normative repertoire (Anzaldúa et al., 2022; Sauerland, 2018), gendered concert attire (Anzaldúa et al., 2022; Finch, 2019; Gurss, 2018; Miller, 2016; Palkki, 2020; Palkki & Caldwell, 2018; Rastin, 2016; Saplan, 2018; Sauerland, 2018), gendered language (Finch, 2019; Miller, 2016; Palkki, 2020; Palkki & Caldwell, 2018; Saplan, 2018; Sauerland, 2018), and disparities between the physical gender presentation of individual singers and choir standing arrangements (Finch, 2019; Palkki, 2020). Gendered choir labels such as ‘men’s’ and ‘women’s’ choirs (Finch, 2019; Palkki, 2020; Palkki & Caldwell, 2018) and voice part placements based on gender rather than voice type were also identified as problematic (Drake, 2018; Palkki, 2020).

Experiences of Transgender Singers in Choirs.

Though music ensembles, including choirs, were generally considered positive environments by 2SLGBTQ students, transgender students reported a higher prevalence of negative experiences, with most related to gender, harassment, or transphobia (Clayton, 2020). Positive aspects of participation for 2SLGBTQ/LGBTQI students included self-expression, acceptance, a safe space, and the opportunity to build relationships with other members of the community (Clayton, 2020; Drake, 2018). Choirs that were only open to transgender

singers, such as the Transcendence Gospel Choir, provided some singers with a place to affirm their gender identity, while others saw it as a place where “gendered identities take a backseat to a relationship with God” (Drake, 2018, p. 149). Clayton (2020) described how participation in musical ensembles may have offered an opportunity for the exploration and discovery of one’s own gender identity.

Clayton’s (2020) research indicated that the choral experiences of transgender singers differed from those of cisgender individuals in the 2SLGBTQI community. This observation was supported by the research of Palkki and Caldwell (2018), who found that transgender students often felt less comfortable disclosing their identity in choral settings compared to their LGBTQ peers. Importantly, there was a notable absence of research reporting specifically on the experiences of non-binary singers. Nevertheless, research has highlighted the heterogeneous experiences of non-binary singers in choral contexts as some individuals expressed feelings of alienation due to the gendered aspects of choir settings, while others reported satisfaction with their participation (Clayton, 2020).

The Role of Choral Conductors.

Choral conductors have played a pivotal role in shaping the prevailing culture of choral environments (Cates, 2022; Finch, 2019; Rastin, 2016). In choral environments where gender norms were upheld, singers perceived an absence of discourse around gender identity to be unwelcoming to transgender individuals (Palkki & Caldwell, 2018; Rastin, 2016). To foster a trans-inclusive environment, conductors can exemplify allyship for transgender individuals through active engagement in social activism, challenging biases, and intervening in instances of transphobic behaviour and language (Finch, 2019; Palkki & Caldwell, 2018; Rastin, 2016; Sauerland, 2018). Palkki and Caldwell’s (2018) findings, however, revealed that many choral conductors fail to intervene in instances of anti-LGBTQ behaviour in choral spaces.

The creation of a gender-affirming and trans-inclusive choral environment depends on supportive faculty members and the implementation of inclusive curricula (Sauerland, 2018). Ongoing professional development focused on the experiences of transgender individuals may offer choral conductors insights into the psychologically-influenced vocal difficulties faced by some singers (Anzaldúa et al., 2022; Freer, 2019; Gurss, 2018).

To best support transgender students, choral directors should equip themselves with a comprehensive understanding of transgender singing voice pedagogy and establish connections with professionals specializing in this domain (Freer, 2019; Rastin, 2016). They can empower transgender individuals by facilitating conversations with transgender singers regarding their voice part preferences and conducting regular assessments of vocal ranges (Miller, 2016; Rastin, 2016; Sauerland, 2018).

When school choral directors in the United States were asked whether they had implemented gender-affirming practices in their choirs, 65% of those who responded ‘no’ said that it was because they had no transgender singers in their choirs and thus saw no need

(Cates, 2022, p. 252).

Rather than as a reactionary response to the inclusion of transgender members in a choir, best practice establishes gender-affirming choral environments proactively, with a view to benefiting all choristers regardless of gender identity. This proactive approach is pivotal to creating an atmosphere of acceptance that extends to all individuals (Clark, 2010, cited in Finch, 2019).

Experiences of Choral Conductors.

Beyond the experiences of transgender singers, several papers discussed the experiences of choral conductors. Freer described challenges faced by conductors whose religious beliefs may conflict with “prevailing professional discourse” (2019, p. 25) concerning transgender singers. Issues such as resistance to change, fear of offending transgender singers, and a lack of knowledge pertinent to transgender singing pedagogy emerged as potential barriers hindering conductors’ engagement in trans-inclusive practices (Cates, 2022; Finch, 2019; Sauerland, 2018). Concerns were also raised about the impact on the ensemble sound and the experiences of other singers when a transgender singer’s voice part is incongruent with their vocal capabilities (Freer, 2019). The elimination of gendered language was identified as a specific challenge for conductors seeking to adopt gender-affirming practices (Cates, 2022; Palkki, 2020). For conductors grappling with the reconciliation of their beliefs, Freer (2019, p. 29) advocated for the practice of ethical care in their interactions with transgender singers.

Cates’ study of choral directors with experience teaching in schools in the United States found that 68% of those surveyed had experience teaching at least one transgender singer, and 78% had adjusted their practices in the choral setting to promote gender inclusivity (2022, p. 250). Notably, teachers who had prior experience working with transgender singers, had received training, or engaged with resources on transgender singing pedagogy were significantly more likely to implement gender-affirming practices. These outcomes underscore the necessity for more explicit training opportunities in the realm of transgender singing pedagogy. Such training may encourage a greater number of school choral directors to engage in gender-inclusive practices. Cates (2022) also reported that knowledge of medical and non-medical treatments was the area of least confidence for surveyed choral directors teaching transgender singers and called for training in this area.

Suggestions for Choral Conductors.

A number of studies examined offered various suggestions for ways to cultivate more trans-inclusive choral settings (Drake, 2018; Finch, 2019; Hirner, 2022; Miller, 2016; Palkki, 2015; 2020; Rastin, 2016; Saplan, 2018; Sauerland, 2018). One was the adoption of gender-neutral choral attire to mitigate the potential for gender dysphoria (Finch, 2019; Palkki, 2015). Finch (2019) cited Cayari’s suggestion to incorporate either mixed seating arrangements or the option for transgender singers to be placed at the periphery of cho-

ral sections to make them feel more comfortable. This adaption considers the comfort of individual transgender singers and also addresses tangible concerns regarding safety, particularly when the visibility of transgender individuals may result in confusion and hostility among others (Drake, 2018). Language emerged as a pivotal enabler of gender-affirming practices. Using accurate names and pronouns (Finch, 2019; Miller, 2016; Palkki, 2015, 2020; Saplan, 2018; Sauerland, 2018), adopting non-gendered terminology when referring to voice parts (Finch, 2019; Miller, 2016; Rastin, 2016; Saplan, 2018), and substituting gender-inclusive choral nomenclature, such as “lower voices choir” in lieu of “men’s choir,” were proposed as more inclusive and accurate designations (Finch, 2019; Sauerland, 2018).

In some cases, transgender singers may express a desire to perform within a vocal range or voice part that presents challenges due to their current physiology. The use of gender-affirming hormones and surgical interventions may result in singing voices that deviate from the conventional SATB range norms. To address the evolving vocal needs of transitioning voices, Hirner (2022) recommended a practice called *line recombination*. This approach involves the creation of an intermediate vocal line by merging the alto and tenor lines of a musical composition. Establishing vocal lines within the range of A3 to F#4 facilitates the participation of most singers and accommodates the continued participation of singers who may be encountering a transient reduction in their vocal range in the initial stages of testosterone therapy (Hirner, 2022, p. 10). Sauerland (2018) echoed this proposition, suggesting that transgender singers be permitted to switch between voice parts, “mark” vocal lines or omit some notes as needed.

Vocal Considerations

Vocal considerations relevant to transgender singers in choral contexts discussed in the papers we reviewed included (a) gender-affirming hormone therapy, (b) gender-affirming vocal surgeries, (c) vocal exercises, (d) binding practices, and (e) vocal health.

Gender-Affirming Hormone Therapy.

The potential vocal impacts of gender-affirming hormone therapy have substantial implications for choral conductors who are formulating vocal exercises and selecting repertoire tailored to the needs of transgender singers (Sauerland, 2018). Some studies discussed the effects of gender-affirming hormone therapy on the voice but the resulting pedagogical considerations in the choral context were unaddressed.

Several papers examined the vocal effects of testosterone therapy (namely pitch lowering) for transgender singers, which was likened to the experience of AMAB voices undergoing testosterone-influenced pubertal vocal changes (Drake, 2018; Finch, 2019; Gurss, 2018; Hirner, 2022; Miller, 2016; Saplan, 2018). Important distinctions included the absence of vocal fold lengthening (Miller, 2016; Saplan, 2018; Sauerland, 2018) and a lack of laryngeal cartilage growth for those undergoing testosterone therapy, resulting in a comparatively smaller vocal tract compared with cisgender males (Saplan, 2018).

Findings indicated significant variability in the vocal experiences of individuals undergoing testosterone therapy, contingent upon factors such as dosage, age, vocal development, and individual hormonal composition (Drake, 2018; Gurss, 2018; Hirner, 2022; Sauerland, 2018). Gurss (2018) suggested that higher dosages of testosterone may pose a heightened risk of vocal damage. While some individuals navigate their vocal transition with relative ease, challenges encountered by others included (a) vocal fatigue, (b) hoarseness, (c) reduced range, (d) insufficiently lowered pitch, (e) a loss of falsetto register, and (f) difficulties in singing (Drake, 2018; Miller, 2016; Saplan, 2018; Sauerland, 2018). The stabilization of an individual's singing voice during testosterone therapy can take between two and six years (Hirner, 2022; Miller, 2016). Miller advised singers to engage in gentle and consistent vocalization throughout their transition (2016). For individuals encountering vocal difficulties, Saplan (2018, p. 5) recommended the avoidance of open vowels, instead suggesting fricatives and lip trills to explore their voice.

In contrast to testosterone, estrogen does not induce alterations in a singer's physiology or vocal range (Finch, 2019; Gurss, 2018; Palkki, 2020; Rastin, 2016; Saplan, 2018; Sauerland, 2018). While Miller (2016) posited that individuals commencing estrogen therapy at a younger age will likely experience vocal fold thinning and a raised vocal pitch, this perspective is not corroborated elsewhere in the analyzed literature. Vocal challenges associated with estrogen therapy may include vocal fatigue, decreased vocal power, and a reduction in pitch range (Rastin, 2016).

Gonadotropin-releasing hormone (GnRH) analogues, also known as puberty blockers, were mentioned in one paper that suggested vocal resonance may be impacted due to the delayed initiation of development on the ribcage and skull (Hirner, 2022).

Gender-Affirming Vocal Surgeries.

Vocal fold shortening surgeries were discussed in the context of vocal feminization, although the studies provided limited insights into their implications for singing. Vocal surgeries were characterized as high-risk procedures for singers and were generally discouraged (Hirner, 2022; Sauerland, 2018).

Vocal Exercises.

Several studies included vocal exercise recommendations for transgender singers, including specific exercises for transfeminine and transmasculine singers, respectively. Gurss (2018) presented specific vocal exercises applicable to all transgender singers, regardless of gender identity. These exercises included strategies for breath management and a "bringing the head voice down" approach (Gurss, 2018, p. 88). Additionally, Saplan (2018) provided specific vocal exercises tailored to the unique requirements of both transfeminine and transmasculine singing voices. These exercises primarily focused on diaphragmatic breathing and the use of semi-occluded vocal tract postures.

Transfeminine singers seeking to achieve a higher vocal range may benefit from speech

therapy (Drake, 2018; Rastin, 2016; Saplan, 2018; Sauerland, 2018). Vocal therapy typically involves modifications in resonance, vocal quality, and speaking intonation, with the potential to influence one's singing voice (Saplan, 2018). Saplan (2018) recommended the use of semi-occluded vocal tract exercises to enhance respiration and phonation while promoting head voice registration. Exploring falsetto registration through vocal exercises may enable transfeminine singers to sing alto or soprano voice parts (Gurss, 2018; Miller, 2016; Sauerland, 2018). Participating in choirs may also assist transfeminine singers in extending their range (Drake, 2018).

In the case of transmasculine singers who are not undergoing testosterone therapy, Sauerland (2018) suggested focusing on maintaining consistent airflow, minimizing vocal strain, and avoiding over-pressurization.

Chest binding practices.

Some singers may use chest binding as a strategy to decrease feelings of dysphoria stemming from the presence or sensation of chest tissue. This practice can have notable effects on a singer's posture and breath management, leading to shallower breaths and decreased lung strength (Finch, 2019; Gurss, 2018; Rastin, 2016; Saplan, 2018; Sauerland, 2018). The papers reviewed provided limited guidance on assisting singers in navigating the act of singing while wearing a binder. Suggestions were to reinforce "proper diaphragmatic breathing" (Saplan, 2018, p. 5) and to incorporate more frequent breaths as required (Sauerland, 2018).

Vocal Health.

Many choral conductors voiced concerns about the vocal health of transgender singers in choral contexts (Cates, 2022; Palkki, 2020; Rastin, 2016; Sauerland, 2018). While acknowledging the importance of vocal health, Sauerland (2018) argued that wellbeing should remain the priority. Sauerland stated, "We mistreat our voices daily by talking in loud restaurants or cheering at sports events," and suggested that equipping students with good technique and vocal hygiene may be more impactful than restricting the way in which they use their voice (2018, p. 99). Cis-normative expectations of what a voice "should" sound like may lead to the incorrect identification of vocal health concerns among transgender singers, as reported by a participant in Drake's research (2018). Choral conductors' poor understanding of the unique vocal considerations pertaining to singers undergoing testosterone therapy can give rise to the potential for vocal damage and emotional distress for transgender singers (Rastin, 2016). Singers undergoing testosterone therapy may require additional vocal rest or accommodations, underscoring the vital role that choral directors play in providing support to singers during this potentially difficult time (Rastin, 2016).

Anti-androgen medications, that frequently accompany estrogen therapies, may have a dehydrating effect on the voice, which may lead to vocal health implications (Hirner, 2022). Some transgender individuals may engage in potentially damaging vocal behaviours in an

effort to produce their desired vocal qualities. As an illustrative example, one transmasculine participant reported the emergence of vocal nodules due to their attempts to sing and speak in a lower range (Palkki, 2020, p. 10). To promote and maintain vocal health, all transgender singers should be encouraged to adhere to sound vocal hygiene practices (such as adequate hydration) and engaging in comprehensive vocal warm-up and cool-down routines for each choral session (Sauerland, 2018).

Ragan's Systems of Voice Production

As Ragan's (2020) systems of voice production incorporated the primary mechanisms involved in singing, examining which of these were addressed in the literature we reviewed gave us one way to determine whether all areas relevant to singing have been explored in relation to transgender singers in choral contexts. While the systems of voice production were not discussed directly, various vocal elements that impact these systems were discussed and are documented in Table 1. Elements relating to at least one system of voice production were mentioned in 10 of the 15 studies. Phonation-related elements were mentioned most frequently ($n = 8$), followed by registration ($n = 6$), resonance ($n = 4$), and respiration ($n = 3$). Articulation was briefly mentioned in a study by Drake, where one participant suggested that "women enunciate well" (2018, p. 133).

Bodymind and Voice

Unique considerations for the enmeshed bodymind and voice of transgender singers were highlighted by the findings of some studies. These can have profound implications, particularly pertaining to the mental health and overall wellbeing of this population. The heightened vulnerability of transgender youth to mental health concerns, suicide attempts, and trauma emphasises the necessity of establishing safe, trans-inclusive environments for these individuals, particularly for transgender individuals of color, who experience higher risk factors (Finch, 2019; Gurss, 2018). Sauerland (2018, p. 99) proposed a shift in perspective, emphasizing that a singer's mental and emotional wellbeing should take precedence over vocal health considerations.

Gender Identity and the Singing Voice.

The findings of the studies reported here suggest that the psychological and emotional aspects of voice and gender identity play a significant role in the experiences of transgender singers, with a need for more inclusive and supportive environments to provide optimal care. There can be a complex interplay between gender identity and the singing voice and not all individuals aspire to have a voice that conforms to traditional gender binary expectations. As one singer stated, "I'm a girl and I'm a bass, and I own that. It makes me unique..." (Palkki, 2020, p. 6). This highlights the varying ways in which voice and gender identity are interconnected for different individuals. Palkki stressed the importance of engaging in meaningful conversations with individuals about their chosen voice part

(2020). Transgender singers form a heterogeneous group, and their experiences of gender in relation to their voice vary significantly from one singer to another (Rastin, 2016). Saplán (2018) encouraged conductors to recognise gender identity and voice type as distinct, independent elements of a singer.

Voice-Related Gender Dysphoria.

The manifestation of voice-related gender dysphoria may occur when an individual's singing voice does not align with their gender identity (Hirner, 2022; Rastin, 2016). Requiring a singer to perform a voice part that makes them uncomfortable can have profoundly adverse emotional consequences, characterized as "emotionally devastating" (Sauerland, 2018, p. 100). According to Rastin (2016), inadequate educational resources for singers and choral directors regarding voice management during vocal transition can lead to increased feelings of dysphoria. Consequently, this dysphoria may deter singers. For example, one individual expressed a potential desire to sing more if their vocal pitch were higher (Rastin, 2016, p. 29). Clayton (2020) examined transgender men's experiences of voice-related gender dysphoria. Several participants reported experiencing dysphoria related to gendered voicing in gendered choirs or ensembles. Additionally, transgender individuals undergoing testosterone therapy expressed feelings of self-consciousness regarding their transitioning voice and a sense of diminished vocal proficiency, which complicated their participation in choirs (Clayton, 2020). For some singers, gender dysphoria may manifest as a form of performance anxiety stemming from the incongruity between their desired self-presentation and how they feel an audience is perceiving them (Drake, 2018). Finch (2019) described how the enforcement of binary concert attire may exacerbate feelings of dysphoria for some individuals in choral contexts as well.

Voice-Related Gender Euphoria.

In contrast to the phenomenon of gender dysphoria, singers may also experience instances of gender euphoria. Gender euphoria denotes the positive emotions that individuals experience due to the affirmation of one's gender identity (Jacobsen & Devor, 2022). Within choral contexts, this phenomenon can occur when individuals are able to sing within a vocal range, voice parts, timbre, or specific repertoire that aligns with and affirms their gender identity. Such experiences that result in gender euphoria can serve to encourage continued participation in choirs for transgender individuals (Drake, 2018).

Conclusions

Over the past decade, research on transgender singing voices has made significant progress, yet there remains a notable gap in the practical guidance available to choral conductors seeking to support transgender singers. Although the current body of literature on transgender singing within choral contexts remains relatively limited, it reflects an increasing awareness of the unique challenges faced by transgender singers, and a growing

commitment to promoting gender inclusivity. The findings of these studies emphasize the profound influence of language and culture on the experiences of transgender singers, while also providing strategies for choral conductors to adopt gender-affirming practices.

The (a) respiration, (b) phonation, (c) registration, (d) resonance, and (e) articulation systems (Ragan, 2020) were acknowledged within the literature. Their direct pedagogical application for transgender singers, however, remains largely unexplored. Two studies described specific vocal exercises, including the utilization of semi-occluded vocal tract exercises, diaphragmatic breathing techniques, and experimentation with vocal registration to facilitate the vocal development of transgender singers. The literature overall, however, lacks robust evidence to substantiate the efficacy of the exercises within the specific population of transgender singers, which raises concerns regarding the generalizability of these approaches to the diverse population of transgender vocalists.

Voice-related gender dysphoria emerged as a salient concern affecting the experiences of some transgender singers in choral environments. Although practices such as binding, gender-affirming hormone therapy, and surgical interventions were mentioned, there is a paucity of guidance for supporting singers through potential vocal difficulties that may arise from these practices.

The nature of choral settings, characterized by their group dynamics and collective performance objectives, adds an additional layer of complexity when attempting to address the individual challenges and requirements of transgender singers (Finch, 2019). Choral environments may not always afford the flexibility to address the distinct needs of each singer, making the pursuit of pedagogical strategies tailored to individual transgender choirsters a complex endeavour. Choral conductors are encouraged to pursue further professional development and establish networks with singing teachers and speech pathologists with additional knowledge of transgender voices to provide support for transgender singers experiencing vocal difficulties.

Limitations

While providing valuable insights into the environmental considerations of accommodating transgender singers within choral contexts, this review is not without limitations. The studies themselves displayed limitations, and this review had its limitations.

Limitations of the Studies Reviewed

One of the limitations of numerous studies was the small number of participants. Most studies lacked diversity among participants, characterised by inadequate representation of individuals from varied racial, socioeconomic, and intersectional backgrounds, raising concerns regarding the applicability of the findings to these underrepresented groups. Drake (2018) highlighted the intricacy of experiences that emerge when gender intersects with other identity designations, which suggests that an exclusive focus on gender identity, in isolation, as a determinant of one's experience is inadequate and non-generalizable. In

two studies transgender participants were only considered within the broader category of the 2SLGBTQ/LGBTQ community (Clayton, 2020; Palkki & Caldwell, 2018). Attributing experiences to “most participants” (Clayton, 2020, p.34) led to challenges determining whether these experiences applied to transgender participants. The experiences of non-binary singers were under-represented and further research energy could be focused there.

Many studies used only text- and opinion-based research methods. The lack of empirical evidence has meant that most information is anecdotal and difficult to generalize. There is a need for further research employing empirical methodologies to establish a higher level of evidence for the recommended practices and strategies.

Limitations of This Review

The search returned a small number of studies relating to transgender singers in the choral context. There was insufficient research for a systematic review in this area or for the findings to be generalized yet.

There were some limitations in the search terms we used. Due to character limits in some databases, it was not possible to include every word used to refer to transgender people in the search string, so we tried to use the most common terms in our experience, however, some articles may not have been included as a result. As this was part of a larger scoping review focused on singing, the terms we used were not directed explicitly towards choral contexts, so it is possible that some relevant studies were not captured by the singing search terms.

All the studies we have reported on were undertaken in the United States and Canada, except for one study where the location was not reported. There is evidently a need for research from all other areas of the world where choral singing takes place. As this study was limited to research published in the English language due to the challenges of searching across multiple languages and translating documents, it is likely that relevant research has been published in languages other than English.

We excluded book chapters and grey literature from this study to determine what peer-reviewed research has been published. While many books have undergone a peer-review process, this was not always transparent. There was extensive grey literature in the transgender space which contained valuable knowledge from the lived experience of individuals. Some examples of this grey literature included relevant subreddits on Reddit (Reddit, n.d.a; Reddit, n.d.b), YouTube channels specific to transgender singing (Gress, n.d.; TransVoiceLessons, n.d.), and websites that specifically addressed the needs of transgender singers (Gala Choruses, n.d.; Blurring the Binary, 2023).

Areas for Further Research

The dearth of comprehensive information for choral conductors underscores the urgency for additional research in this area encompassing the diverse experiences, motivations, and goals of members of the transgender community in choral contexts. Areas for further

research called for by the studies in this review include (a) longitudinal studies of transgender singers who commence physical and/or hormonal transitions before the onset of puberty (Gurss, 2018), (b) the intersection of gender and race (Palkki, 2020), (c) vocal health and pedagogical implications for transgender singers (Palkki, 2020), and (d) a more comprehensive understanding of adolescent transgender voices and non-binary voices (Sauerland, 2018).

From reviewing relevant studies, we have identified additional areas where further research is needed. Of direct importance for choral conductors is research that provides specific pedagogical approaches to support transgender singers in their diverse vocal situations, including singers undergoing gender-affirming hormone therapy and those choosing not to. Further research is required on pedagogical implications of vocal surgeries and pedagogical strategies for singing with binders in choral contexts. Our analysis of the prevalence of Ragan's systems of voice production revealed that these systems were only addressed indirectly in the research, and it would be beneficial for research to focus on each of these systems to ensure a holistic approach to the vocal mechanism is considered in relation to transgender singers in choral contexts. While some studies report on the experiences of transgender singers, growing this body of lived-experience accounts would likely contribute to a richer understanding and inform pedagogical approaches. Of particular interest to choral conductors would be research on the impact of the gender-affirming practices endorsed by the studies we have discussed.

In addition to these practical applications of research, it is important for researchers to consider the way research is being conducted and who is conducting it. The significance of transgender researchers contributing to this field cannot be underestimated. Transgender people are best placed to know what will be most impactful for members of their community and the best ways to carry out research with transgender participants. Choral conductors, researchers, and members of the transgender community should continue to work together to promote trans-inclusivity within choral environments and develop evidence-based practices for teaching and working with transgender singers. Further research may also illuminate whether the vocal health concerns held by many choral conductors are founded.

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